



# Agriculture in the News

## *Issues Affecting Caribbean Agriculture*

**1 – 8 June 2019 Issue, compiled by CARDI**

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***Improving Lives Through Agricultural Research***

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## Citrus Greening Disease

**Citrus greening is killing the world's orange trees. Scientists are racing to help** by Cici Zhang. Chemical & Engineering News (C&EN), American Chemical Society June 9, 2019, volume 97, issue 23 <https://cen.acs.org/biological-chemistry/biochemistry/Citrus-greening-killing-worlds-orange/97/i23>

To save a billion-dollar industry from the infectious disease, also known as huanglongbing, researchers are turning to gene editing, RNA interference, and other advanced techniques

### In brief

First spotted in China in the early 1900s, huanglongbing infects citrus trees of all kinds, depleting them and making them unproductive. Although it has been kept relatively in check in China and Brazil, the bacterial scourge, otherwise known as citrus greening, has devastated the citrus industry in Florida and is now threatening to sink its teeth into California's groves. Read on to learn about the strategies that growers are using to contain the disease and about longer-term solutions, such as gene editing and RNA interference, that scientists are racing to put in place.....

### Contents

- **Creating a better tree**
- **More immediate tools:**
- **Harnessing nature:** So some scientists are fighting HLB by harnessing nature rather than engineering it. These researchers have their sights set on anti-CLas natural products.
- **Prevention, prevention, prevention**

## Fall Armyworm: push-pull cropping systems to control fall armyworm

**System uses plants to lure fall armyworm away from maize fields** by Bandana Pradhan, Leonard Rusinamhodzi and Roshan Subedi. CIMMYT, June 4, 2019

<https://www.cimmyt.org/news/system-uses-plants-to-lure-fall-armyworm-away-from-maize-fields/>

Scientists in Nepal are evaluating push-pull cropping systems as a pest control method.

Climate conditions in Nepal are suitable for the establishment of fall armyworm, which could cause considerable crop loss if not managed properly. The fall armyworm is a destructive pest that has a voracious appetite for maize and other crops. Through the Nepal Seed and Fertilizer (NSAF) project, the International Maize and Wheat Improvement Center (CIMMYT) are working with the government of Nepal and other partners to address this imminent threat.

Chemical control of fall armyworm is too expensive and impractical for small-scale farmers, has negative human health effects, and can be a source of soil pollutants with a negative effect on biodiversity.

CIMMYT is currently evaluating the efficacy of push-pull cropping systems to control fall armyworm. Considered one of the most climate-smart technologies, push-pull systems use plant-pest ecology instead of harmful chemical insecticides to control weeds and insects. It is an environmentally friendly pest control method which is also economically viable for maize producers.

This system involves two types of crops: Napier grass (*Pennisetum purpureum*) and silverleaf desmodium legume (*Desmodium uncinatum*). Desmodium plants are intercropped with the rows of maize and Napier grass surrounds the maize crop. Desmodium produces volatile chemicals that repel fall armyworm moths, while the Napier grass produces chemicals that attract female moths. The resulting push-pull system takes the pest away from the maize field.

An additional benefit is that desmodium improves nitrogen fertility through biological nitrogen fixation, which may reduce nitrogen input in the long-term. Desmodium also provides ground cover for maize, controlling soil

erosion and offering protection from extreme heat conditions. Both desmodium and Napier grass are excellent fodder crops for livestock.

Because of all these reasons, push-pull technology is highly beneficial to smallholders who are dependent on locally available inputs for their subsistence farming. It can also have a positive spiral effect on the environment.

Scientists in other regions are also looking at [agro-ecological options to manage fall armyworm](#).

## Carambola Fruit Fly (CFF)

**NAREI intensifies CFF surveillance in Regions 6, 8 & 9.** Ministry of Agriculture, Guyana, June 3<sup>rd</sup>, 2019

<http://agriculture.gov.gy/2019/06/03/narei-intensifies-cff-surveillance-in-regions-6-8-9/>

Over the past four weeks, the National Research and Extension Institute (NAREI), has intensified its efforts to control the spread of the Carambola Fruit Fly (CFF) in Regions Six, Eight and Nine.

According to the agency's Deputy Chief Executive Officer, Mr. Brian Sears, collaborations with Inter-American Institute for Cooperation on Agriculture (IICA) have allowed Plant Protection Officers to intensify their efforts and activities to monitor existing, replace and set new Jackson Traps to ensure the pests are kept under control.

The objective of the exercise is to ascertain, through surveys and monitoring activities, the status of the pests and to initiate control and eradication measures where present, particularly within the hinterland communities bordering Guyana and Brazil.

Orealla/Siparuta, Region Six, Madhia, Bamboo Creek, Kanapang and several surrounding satellite communities in Region Eight, Lethem and several surrounding communities in North and South Rupununi, Region Nine were some of the communities that benefited from the exercise thus far. As efforts progress, more communities are set to benefit from these activities.

According to Sears, "Our Plant Protection Officers were able to significantly impact Region Eight, as some communities visited in that Region had a high population of the Carambola Fruit Flies. In fact, one of the sites visited more than 65 percent of the traps missing. Our officers were able to replace them, while those that were found were badly damaged. A total of 157 male Carambola Fruit Flies were captured from the traps found,"

The Deputy Chief Executive Officer also said that the agency plans to intensify its efforts in Orealla as some of the traps that were set for monitoring purposes recorded an extremely high *B. carambolae* population and over 4,000 male fruit flies were captured.

Minister within the Ministry of Agriculture, Valerie Patterson-Yearwood, while offering a comment said that government remains committed to the cause of keeping pests of this nature under control.

"It remains highly important for the Ministry to ensure the CFF is monitored and controlled as an infestation would negatively affect Guyana's ability to export certain fresh fruits and vegetables to North American and other European markets. NAREI will be receiving a dedicated budget annually that will be further supported by partners such as IICA to assist with similar activities," Minister Patterson-Yearwood said.

A number of public awareness sessions were conducted in vulnerable communities to ensure residents were informed about the importance, as well as, the harm these pests could have on agriculture and the economy. Key community leaders and pilot farmers were also trained to ensure continuation and sustainability of the programme.

A Regional CFF programme will soon be organized to complement NAREI's ongoing CFF programme. It will include countries such as Brazil and Suriname with the aim of implementing similar and simultaneous procedures among all affected countries to achieve long-lasting outcomes.

## Feed and feeding systems - Cassava

**Boosting the bottom line through tech for High Quality Cassava peel production.** Research Program on Roots, Tubers and Bananas, June 7, 2019.

<http://www.rtb.cgiar.org/blog/2019/06/07/boosting-the-bottom-line-through-tech-for-high-quality-cassava-peel-production/>

By 2100, the African continent is projected to see some of the highest GDP growth in the world, a trend closely coupled with increased demand on livestock production.

To feed this growing industry, however, stress on staple crops like maize and corn is increasing, creating competition between grain for human food and animal feed. In response to this challenge, CGIAR scientists have developed a livestock feed supplement that is relieving the stress on these staple crops by using an abundant agricultural waste product – cassava peels.

### From waste to wealth

Over the last five years, scientists from International Livestock Research Institute (ILRI), International Institute of Tropical Agriculture (IITA) and International Potato Centre (CIP) with support from the CGIAR Research Program on Root Tubers and Bananas (RTB) have developed a processing method that transforms wet cassava peels into high quality, safe, and hygienic animal feed ingredients, known as High Quality Cassava Peel mash (HQCP). This new component of the cassava value chain has the potential to become a USD2 billion a year industry on the continent and employ 100,000 more people, 80% of whom it is estimated will be women.

Normal cassava production and processing produces waste; 50 million tonnes per year of peels, stumps, undersized, or damaged cassava are either burned or left to rot in piles, both of which pollute the air, soil, and groundwater.

“Cassava peel heaps have been shown to yield significant quantities of bio ethanol. Scaling the transformation and use of cassava peel into animal feed ingredients instead of letting them rot in heaps will reduce greenhouse gas emissions,” says Iheanacho Okike of the International Institute of Tropical Agriculture (IITA) who leads the Cassava Peel Transformation project....

## Cassava seed tracker

### Cassava Seed Tracker™

**Cassava Seed Tracker™** is a fully featured program for real-time tracking of cassava seed production, including pre-planting planning, registration of seed fields, crop management, harvesting, quality assessment and quality assertion. The Cassava Seed Tracker is also a digital platform for communication and networking of cassava seed producers and service providers for common good.

<https://seedtracker.org/cassava/>

“IITA scientists developed the Cassava Seed Tracker® an app that facilitates the identification and tracking of cassava planting materials by varieties. In collaboration with the project, that app was modified to make identifying sources of cassava peels and cassava peel products a safer bet. The app can show users not only where cassava processing centers are, but also the volumes of fresh peels generated daily at each location. The Cassava Peel Tracker app was developed and launched in November 2018 and has already geo-referenced more than 25% of the 5000 cassava processing centers in Nigeria. This information improves overall efficiency and profitability by supporting decision making on the optimal facilities to work with based on location and production”.

Source: **Boosting the bottom line through tech for High Quality Cassava peel production.** Research Program on Roots, Tubers and Bananas June 7, 2019. <http://www.rtb.cgiar.org/blog/2019/06/07/boosting-the-bottom-line-through-tech-for-high-quality-cassava-peel-production/>

## Maize: slow-release nitrogen fertilizers

**Slow-release nitrogen fertilizers measure up** by Abdurahman Beshir, Bandana Pradhan, Dyutiman Choudhary and Leonard Rusinamhodzi. CIMMYT, June 3, 2019.

<https://www.cimmyt.org/news/slow-release-nitrogen-fertilizers-measure-up/>

Briquetted urea and polymer-coated urea more efficient as maize fertilizers than regular urea, researchers in Nepal find.

Maize, rice and wheat are the major staple crops in Nepal, but they are produced using a lot of fertilizer, which may become an environmental hazard if not completely used up in production. Unfortunately, most farmers apply fertilizers in an unbalanced way.

Urea is a common fertilizer used as a nitrogen source by Nepali farmers. If the time of application is not synchronized with crop uptake, the chances of losses through volatilization releasing ammonia and leaching are high, thereby creating environmental hazards in the atmosphere and downstream.

Through the Nepal Seed and Fertilizer (NSAF) project, the International Maize and Wheat Improvement Center (CIMMYT) is testing the application of environmentally friendly slow-release nitrogen fertilizer in maize production.

In particular, CIMMYT researchers examined the nutrient-use efficiency of briquetted urea and polymer-coated urea, also known as PCU.

Using regular urea, the efficiency of nitrogen use in maize is limited to 17 kg of grain per kg of nitrogen. Using briquetted urea and polymer-coated urea, efficiency increased to 24 and 28 kg of grain per kg of nitrogen respectively. A higher efficiency also suggests a reduction in losses to the environment.

Overall, results show that briquetted urea and polymer-coated urea can allow reduced nitrogen inputs by as much as 30-40% while maintaining the same yield levels achieved using current government fertilizer recommendations.

Similar to the maize trials, the application of slow-release nitrogen at a lower amount than the recommended rate in wheat showed similar agronomic results to the application of traditional urea at higher rates. Reduced losses allowed 40-50% less nitrogen fertilizer application but maintained the same yield levels as the current recommendation.

Although the cost of polymer-coated urea is comparatively expensive in the market unless subsidized, farmers applying briquetted urea save money and labor and can obtain 54% more profits .....

## Biofortified maize and wheat

**Biofortified maize and wheat can improve diets and health** By Mike Listman. CIMMYT, June 3, 2019.

<https://www.cimmyt.org/news/biofortified-maize-and-wheat-can-improve-diets-and-health-new-study-shows/>

New study shows New varieties deliver essential micronutrients to those who lack diverse diets

TEXCOCO, Mexico (CIMMYT) — more nutritious crop varieties developed and spread through a unique global science partnership are offering enhanced nutrition for hundreds of millions of people whose diets depend heavily on staple crops such as maize and wheat, according to a **new study** in the science journal *Cereal Foods World*.

From work begun in the late 1990s and supported by numerous national research organizations and scaling partners, more than 60 maize and wheat varieties whose grain features enhanced levels of zinc or provitamin

A have been released to farmers and consumers in 19 countries of Africa, Asia, and Latin America over the last 7 years. All were developed using conventional cross-breeding.

More than 2 billion people worldwide suffer from “hidden hunger,” wherein they fail to obtain enough of such micronutrients from the foods they eat and suffer serious ailments including poor vision, vomiting, and diarrhea, especially in children, according to Wolfgang Pfeiffer, co-author of the study and head of research, development, delivery, and commercialization of biofortified crops at the CGIAR program known as “HarvestPlus.”

“Biofortification — the development of micronutrient-dense staple crops using traditional breeding and modern biotechnology — is a promising approach to improve nutrition, as part of an integrated, food systems strategy,” said Pfeiffer, noting that HarvestPlus, CIMMYT, and the International Institute of Tropical Agriculture (IITA) are catalyzing the creation and global spread biofortified maize and wheat.

“Eating provitamin A maize has been shown to be as effective as taking Vitamin A supplements,” he explained, “and a 2018 study in India found that using zinc-biofortified wheat to prepare traditional foods can significantly improve children’s health.” Six biofortified wheat varieties released in India and Pakistan feature grain with 6–12 parts per million more zinc than is found traditional wheat, as well as drought tolerance and resistance to locally important wheat diseases, said Velu Govindan, a breeder who leads CIMMYT’s work on biofortified wheat and co-authored the study....

## Low emission livestock

**Low emission livestock – how to quantify gains across Africa?** By [CIAT Comunicaciones](#) | Jun 4, 2019

<https://blog.ciat.cgiar.org/low-emission-livestock-how-to-quantify-gains-across-africa/>

The focus on the negative impacts of livestock overshadow its multiple positive contributions to livelihoods of smallholders in Africa in terms of nutrition, draft power, manure for soil fertilization, asset and risk management. For example in Ethiopia, people consume only about a tenth as much meat as people in developed countries, and moderate increases in milk, meat and egg consumption could make huge strides towards tackling malnutrition and stunting.

Instead of reducing the consumption of animal source protein, rural people in the developing world might actually benefit from it in terms of health! Gebregziabher Gebreyohannes, State Minister of Livestock and Fishery Resources in Ethiopia, invites to see a world where livestock are not part of the problem but part of the solution. *“It’s a much larger, more complex and promising world than the one depicted in the report”*. All agree that **environmental impacts of livestock are critical, and need to be reduced** – e.g. reducing greenhouse gas (GHG) emission intensity of animal source product. In the developing world, such a pathway has been coined ‘low emission livestock’.

In that order, a recent workshop entitled “Low emissions livestock: supporting policy through science in West/Central Africa” brought together nearly 60 senior government officials, policy and science representatives from 22 countries. All of them working in the livestock and related sectors in West and Central Africa. It was a great opportunity to share CIAT’s insights and experience about the topic with key stakeholders who attended to discuss and raising awareness on low emission livestock development as a driver of economic gains while at the same time tackling climate change. It aimed at providing practical and science-based support to these countries in order to achieve a sustainable development through livestock.

Birthe Paul, Farming Systems Scientist in CIAT’s Tropical Forages Program, made a presentation to the plenary, where she highlighted the key role of improved livestock feeding and tropical forages in reducing livestock emission intensities, showcasing on-the-ground work in Benin and DR Congo, as well as GHG emission modeling capacities at CIAT, through a case study in Lushoto, Tanzania, where the **CLEANED model** was implemented. You can see the presentation here.

In addition to calculating GHG emissions, the **CLEANED** model (that stands for Comprehensive Livestock Environmental Assessment for Improved Nutrition, a Secured Environment and Sustainable Development) can also quantify water impacts, productivity, soil nutrient balances, and land requirements. To ensure the systems are economically viable, it can also produce gross margins and value of production. Recently, two training workshops were conducted in Rwanda and Kenya, strengthening the capacities of a wide range of researchers and other stakeholders on this tool. The Version 2 that was just published will help to increase reach and use across East Africa and beyond.

Tools and approaches like CLEANED and others showcased during the workshop will contribute to increasing understanding and awareness of low emission livestock, while establishing new science and policy partnerships. Main opportunities for an Africa-wide low emission livestock research and policy program included national capacity building on GHG emission reporting (moving to IPCC Tier 2), as well as quantifying the impact of improved livestock technologies such as forages towards meeting countries' pledges under the NDCs.

The workshop was organized by the Global Research Alliance on Agricultural Greenhouse Gases (GRA), together with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), the Food and Agriculture Organization of the United Nations (FAO), The World Bank, and was hosted from 26-28 March in Dakar, Senegal, by the Senegalese Institute for Agriculture Research (ISRA).

## Climate change

**Will climate change make us go hungry by 2050?** by Sakshi Saini and Shalika Vyas. CCAFS, Jun 7, 2019

<https://ccafs.cgiar.org/research-highlight/will-climate-change-make-us-go-hungry-2050#.XQJ9ZfFwdU>

***New meta-analysis highlights that a significant increase in investment, policy and institutional support to agricultural adaptation can limit the challenge of climate change to food production till the 2050s.***

### *EXCERPT*

... To better understand these vulnerabilities and streamline climate action, scientists have been trying to quantify this vulnerability of agriculture to climate change through impact assessments, since the 1980s. Periodic release of the Intergovernmental Panel on Climate Change (IPCC) reports have generated huge public interest and influenced policies globally. Many research studies have proliferated since then, quantifying projected climate impacts on agriculture at diverse spatial scales, using various climate and crop models....

### **Is adaptation a game changer?**

A recent publication has comprehensively summarized this large body of work—done over last 40 years—for the most consumed cereals globally (wheat, rice and maize), with important takeaways for food security. The authors analyzed more than 150 studies published since the 1980s, using meta-analysis technique. The results, highlighting high impacts of climate change on the productivity of rice, wheat and maize, with respective area-weighted global losses reaching up to minus 12%, minus 15% and minus 20% by 2080s, are pressing enough to rally the world to move towards adaptive measures.

Adaptive measures such as change in planting date, cultivating improved variety, increased nutrient and water application are known to dramatically decrease the negative impacts of climate change. The results after adaptation point out a much smaller net reduction in the productivity loss of rice (-6%), wheat (-4%) and maize (-13%) by 2080, if adaptive measures are employed. Adaptation also brings a level playing field for tropics and developing regions, by equalizing the impacts from climate change across different regions.

### **What does this mean for future food security?**

Implemented adaptive measures will lessen productivity losses. However, the paradox might be that global reduction in projected climate impacts after adaptation may invite complacency on the part of nation's food security policies. It is crucial to understand that even such small impacts may have a disruptive effect on the global food supply. To underline this, the article identified global hotspots of potential food insecurity, by analyzing projected future food demand for the 2050s along with the national food supply. Consequently, most of Africa, South and Central Asia, along with temperate countries in South America and Scandinavia were found to be vulnerable due to both food production gap and the projected negative impacts of climate change.

### **Where are we headed?**

Impact assessments on agriculture underline the considerable potential of adaptation in moderating the negative effects of climate change. However, these processes are hard to implement and come with a cost.

**Read more:** Journal article: [How much does climate change add to the challenge of feeding the planet this century?](https://iopscience.iop.org/article/10.1088/1748-9326/aafa3e)

<https://iopscience.iop.org/article/10.1088/1748-9326/aafa3e>

## **Food safety**

**Friday, June 7 is the first World Food Safety Day.** FAO Regional Office for Latin America and the Caribbean, 5 June 2019 Bridgetown, Barbados

<http://www.fao.org/americas/noticias/ver/en/c/1196999/>

According to Dr. Renata Clarke, FAO's Sub-regional Coordinator, "most people spend very little time thinking about food safety unless there is a crisis or a scandal of some sort.

The UN General Assembly declared June 7, 2019 as the first World Food Safety Day, which is a partnership between the Food and Agriculture Organization of the United Nation (FAO) and the World Health Organization (WHO). With raising public awareness as one of its main objectives, World Food Safety Day provokes us to reflect our individual responsibilities in keeping food safe as well as to reflect on the roles and responsibilities of food businesses and of national institutions.

According to Dr Renata Clarke, FAO's Sub-regional Coordinator, "most people spend very little time thinking about food safety unless there is a crisis or a scandal of some sort. Yet, apart from the air that we breathe and the water we drink, there is nothing of more direct and routine importance to each of us every day". She added that WHO estimated that the public health burden of food borne illness is of the same order of magnitude as the burden of malaria, tuberculosis and AIDS. Therefore, the WHO report was intended as a "call to action" for governments to invest more in making food supplies safe, and that the call for a World Food Safety Day emerged out of this growing awareness of the magnitude of the problem of unsafe food.

Dr Clarke added that the short-term effects of illness due to foodborne pathogenic bacteria and viruses can be devastating, while some long-term consequences of food borne infections such as irritable bowel syndrome, reactive arthritis, chronic kidney disease and neurological disorders. She added that chemical contamination of foods is also of great concern, for example, aflatoxin, the most potent cancer-causing agent known, is a common contaminant in such foods as corn and peanuts if the products are poorly handled and stored. Dr Clarke further indicated that, "climate change is having an impact on the occurrence of these chemical and microbiological contaminants, while other environmental contaminants such as heavy metals (e.g. mercury and lead) and persistent organic pollutants from industrial activity can also find their way into the food chain negatively affecting the health of consumers".....

# Family Farming

**Six investments to help family farmers thrive in the next decade** by Martin Kropff. CIMMYT, June 6, 2019

<https://www.cimmyt.org/blogs/six-investments-to-help-family-farmers-thrive-in-the-next-decade/>

CIMMYT's director general and CABI's CEO propose six ways to support family farmers.

Family farmers produce more than 80% of the world's food, but often have the least amount of access to support.

As the UN [Decade of Family Farming](#) launched on [May 29, 2019](#), I talked with Trevor Nicholls, CEO of the Centre for Agriculture and Bioscience International (CABI), on this topic.

On an article published on the Economist Intelligence Unit's [Food Sustainability Index](#) blog, we propose six key actions that can help family farmers thrive in the coming decade:

1. Invest in women and youth: Make family farming work for all
2. Attract young farmers into tech-smart farming
3. Make climate-resilient crops more accessible
4. Share practical plant health advice with family farmers
5. Help family farmers diversify and grow more from less land
6. Translate national and global goals into practical farming support

**Read full article** <http://foodsustainability.eiu.com/six-investments-help-family-farmers-thrive-next-decade/>

*The UN Decade of Family Farming was launched at the headquarters of the Food and Agriculture Organisation of the UN in Rome on May 29th 2019. The initiative aims to improve the life of family farmers around the world. Family farmers produce more than 80% of the world's food, but often have the least amount of access to support. Martin Kropff, director-general of the International Maize and Wheat Improvement Center (CIMMYT), and Trevor Nicholls, CEO of the Centre for Agriculture and Biosciences International (CABI), propose six key actions that can help family farmers thrive in the coming decade.*

## **1. Invest in women and youth: Make family farming work for all**

In many parts of the world, women and youth are key players in agriculture. If we want successful family farms, we need to understand and address the different ways they shape the day-to-day business of farming.

Men, for example, focus on cash crops, while women tend to focus on fruits and vegetables to feed their families. Young people are often pulled into farm work, including menial but necessary labour such as weeding, but may be discouraged from farming careers if they associate it with drudgery. We call for more research and investment into the gender dynamics behind farming, and developing simple, yet scalable, approaches for reducing manual work.

## **2. Attract young farmers into tech-smart farming**

Information and communication technologies are becoming much more affordable. Smallholder farmer communities are rapidly entering the digital age. Tools on weather prediction, pest risk information, selection of varieties and market information can transform the way people farm. We're also finding that artificial intelligence and smartphones have strong potential to draw youth back into farming, as they start to see farming as technologically enabled rather than straightforward muscle power.

The report accompanying the latest Food Sustainability Index (FSI), developed by The Economist Intelligence Unit with the Barilla Center for Food & Nutrition Foundation, highlights a series of best practices in technological innovations. Examples include the Connected Farmer Alliance, using mobile technology to

connect farmers in east Africa to multinational agribusinesses; SunCulture's solar-powered irrigation technology; and the farmer-to-farmer digital network provided by Wefarm.

We already have much of the technology we need to transform farming. What we need now is a concerted effort to put technology into practice effectively and get it to the millions of smallholder farmers who need it most. In Africa, for example, data and digitisation have started to help smallholder farmers adopt sustainable practices.

### **3. Make climate-resilient crops more accessible**

Climate change threatens crop yields due to unpredictable rainfall, extreme weather events, and unprecedented pests. If we want to feed another billion or so people in the next ten years, we have to help family farmers keep doing their job and ensure crop yields.

Heat- and drought-tolerant varieties have been developed, in Zimbabwe for example, and tailored to current and future local climates. The Climate-Smart Villages project works to strengthen agro-ecosystem health and increase crop yields. The latest FSI report also highlights a series of climate-smart agriculture initiatives, such as one developed by the Business for Social Responsibility and World Business Council for Sustainable Development, focusing on farmer resilience, access to finance, supply-chain traceability and agriculture-related deforestation...

## **Information & Communication**

**Closing the digital divide in Uruguay and Honduras.** FAO Regional Office for Latin America and the Caribbean, June 11<sup>th</sup> 2019

<http://www.fao.org/americas/noticias/ver/en/c/1197760/>

FAO and the Inter-American Development Bank

Smartphones, big data, artificial intelligence, the Internet of Things, precision farming – these and other digital technologies are helping farmers make better decisions and become more productive, profitable and competitive.

In collaboration with the Inter-American Development Bank (IDB), the FAO Investment Centre assessed the use of information and communication technologies (ICTs) in Uruguay's agriculture sector.

Dennis Escudero, an FAO economist based in Panama, noted that several studies point to the "direct and positive relationship between the use of digital technologies and agricultural productivity and competitiveness."

"Producers can improve their crop yields and animal production and increase their incomes, sometimes by up to 40 percent, by using digital solutions like smartphones, e-commerce platforms, precision agriculture, artificial intelligence, the Internet of Things, or a combination of these technologies. And greater productivity means greater food production and food security and also a more efficient use of natural resources such as land and water," he added.

### **Challenges and opportunities**

Uruguay is one of the most advanced countries in Latin America in terms of ICTs. Mobile phone and Internet usage are particularly high.

The country also boasts a favourable legal and institutional environment for digital innovation and adoption.

But while the country's larger-scale farmers are using digital technologies systematically to improve productivity, Uruguay's smaller family farmers have been slow to fully embrace digital agriculture.

Reasons include the limited digital education, especially among older farmers, farm size and insufficient knowledge of technological solutions and access to specialized technical assistance, to name a few.

But opportunities abound, including strong interest from the Government to digitalize different sectors, a dynamic private sector, the widespread use of smartphones and increasingly lower costs in accessing digital solutions.

### **Digitalization of agricultural systems**

To assess ICT use in Uruguay, FAO interviewed numerous stakeholders, including farmers, producer organizations, extension officers, technology providers, universities, multilateral organizations, NGOs and government entities.

Using this information, FAO was able to propose concrete actions for incorporating ICTs into agricultural systems, extension, technical assistance and training to reach more family farmers.

Proposals include providing incentives for the development and adoption of ICTs to accelerate innovation processes in different agricultural value chains, as well as setting up a training programme on ICT use.

FAO also recommends greater dialogue and collaboration between producer organizations and ICT providers so that digital solutions respond to farmers' needs.

"The use of digital technologies can accelerate innovation in different areas. The key is to make sure these technologies really add value and benefit farmers, especially smaller-scale farmers. Capacity building is also important, as we don't want to inadvertently widen the digital gap," said Wafaa El Khoury, an FAO Investment Centre service chief....

## UPCOMING EVENTS

June

**Food security and climate change: 4 per 1000 initiative new tangible global challenges for the soil**

An international symposium organized by INRA, with the participation of CIRAD.

**Date:** 18-20 June 2019

**Location:** Poitiers, France

**Website:** <https://symposium.inra.fr/4p1000/>

<https://symposium.inra.fr/4p1000/Le-symposium-en-Francais/Securite-alimentaire-et-changement-climatique>

July

**Caribbean Food Crops Society, 55<sup>th</sup> Annual Meeting**

**Date:** July 7 to 13, 2019

**Location:** Dominican Republic

**Theme:** Strengthening the associativity to export high quality products and contribute to regional development

**Website:** [http://www.cedaf.org.do/eventos/cfcs\\_2019/index.html](http://www.cedaf.org.do/eventos/cfcs_2019/index.html)

<https://www.cfcs1963.org/>

August

**33rd West Indies Agricultural Economics Conference** organised by the Caribbean Agro-Economic Society

**Date:** 4 - 9th of August, 2019

**Location:** Mount Irvine Bay Resort, Tobago,

**Website:** <http://www.caestt.com/home/Call%20for%20Paper.php>

October

**5th Global Science Conference on Climate-Smart Agriculture 2019: Transforming food systems under a changing climate'**

**Date:** 8-10 October 2019

**Location:** Bali, Indonesia

**Website:** <https://globalcsaconference.org/>