



CARIBBEAN PLANT HEALTH DIRECTORS

PROTECTING CARIBBEAN AGRICULTURE

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NEWSLETTER

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CHAIRMAN'S MESSAGE



CPHD Forum Chairman - Mr. Nelson Laville

As I embark on my journey as the new Chairman of the CPHD, I am filled with a profound sense of responsibility and unwavering determination to steer our organization towards an era of unprecedented progress and innovation in the realm of plant health protection.

The Caribbean region, with its rich agricultural heritage and vibrant ecosystems, stands at a critical juncture. The challenges we face in safeguarding

our crops from the relentless onslaught of pests and diseases are intricate and ever-evolving, demanding transformative solutions that transcend traditional boundaries.

The CPHD has been aptly described as the plant health knowledge network for the Caribbean Region. Partnerships, networking, and collaborations are the cornerstones of our progress in today's interconnected world. It is through collaboration and mutually beneficial relationships that we can harness diverse perspectives, skills, and resources to achieve our shared goals as the CPHD.

By fostering strong partnerships, we not only expand our horizons but also create a powerful network that amplifies our impact. I would like to take this opportunity to express my deepest gratitude to all our regional partners, stakeholders, and CPHD members for your unwavering commitment to our shared vision.

I look forward to leading and partnering with each of you on this exciting journey ahead. Together, we can revolutionize plant health protection in the Caribbean and safeguard the region's agricultural future.

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FIRST JOINT MEETINGS OF THE 16TH CPHD FORUM & THE 2023 IPPC REGIONAL WORKSHOP FOR THE CARIBBEAN HELD IN ANTIGUA AND BARBUDA

The 16th Annual Meeting of the Caribbean Plant Health Directors (CPHD) Forum and the 2023 International Plant Protection Convention – Regional Workshop for the Caribbean Region took place in Antigua and Barbuda from August 14th to August 18th 2023.

The strategic decision to merge the IPPC Regional Workshop with this year's Annual Meeting of the Caribbean Plant Health Directors (CPHD) not only streamlined limited resources but also served as a catalyst for aligning regional plant health efforts and objectives. Furthermore, it created a conducive environment for active participation in the deliberations surrounding the International Standards for Phytosanitary Measures (ISPMs), thus offering valuable insights into the operational framework and strategic goals of the International Plant Protection Commission (IPPC) to the broader Caribbean community.



The overarching theme of the meeting was "Plant Health for Environmental Protection". The initial three days of the gathering was dedicated to the development and review of regional plant health technical and policy proposals that were aligned with this theme. The subsequent two days was allocated to the crucial task of endorsing comments on draft ISPMs, which will be subsequently submitted to the IPPC for consideration.

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This event promised to be a significant opportunity for collaboration and the exchange of knowledge and expertise, reinforcing the commitment to safeguarding plant health in the Caribbean while actively contributing to environmental protection and the international standards governing phytosanitary measures.

One of the pivotal aspects of the meeting was the presentation of the CPHD's five-year Strategic Work Plan. This roadmap not only outlined the organization's strategic objectives but also established connections with the structure and membership of the Technical Working Groups (TWGs). These TWGs play a crucial role in achieving the outlined strategic goals and in the future development of project proposals for donor agencies. The adoption of the CPHD's five-year operational working plan is a milestone that will serve as the foundation for evidence-based reporting on performance and results from 2023 to 2028.



The meeting also included various key updates from Partner Agencies, Technical Working Groups (TWGs), and lead technical experts, highlighting noteworthy developments, including:

- The revision of the Caribbean Plant Diagnostics Network (CPDN) and the renewal of the Memorandum of Understanding (MoU) between the University of Florida and CPHD for an additional two years. It also emphasized the ongoing efforts in 2023 and 2024 to encourage Member Countries to increase their utilization of CPDN for swift in-country diagnostics.

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- The completion of the Regional Pest Prioritization list which identifies the top 10 pest of Priority for the Caribbean, allowing the region stakeholders to better focus its finite resources for exclusionary and preparatory efforts. Additionally, the RPPL TWG is committed to constant model assessment and research to improve the Priority Pest Work (e.g., reducing bias, etc)
- Updates on emergency response activities and the inclusion of new activities in the 2023 work plan.
- Information regarding fruit fly technical activities and proposed priority areas for the upcoming year.
- Updates from the Tuta absoluta and other TWGs.

The Caribbean Community (CARICOM) provided a significant update on its program aimed at reducing the region's food imports by 25% by 2025. They emphasized the critical role played by CPHD and its constituents in safeguarding the region, enhancing food and nutrition security, and facilitating trade.

The meeting also featured an update on the Caribbean Biosecurity Interceptions System (CBIS) pilot in Jamaica and the Cayman Islands. This pilot project is designed to ensure compliance with international phytosanitary measures. Additionally, the CABI/IICA initiative on pet and horticulture trade, focusing on the risks posed by invasive and alien species, introduced a smart framework to collect and collate information for more effective risk analysis and decision-making.

However, the highlight of the meeting was undoubtedly the technical session dedicated to TR4, a major concern in the field. This joint session provided insights from countries and institutions working on the management and exclusion of TR4.

After extensive discussions and the exchange of experiences, the meeting proposed several key actions to combat TR4 effectively in the region, including:

- Advocating for the strengthening of national regulations regarding TR4.
- Lobbying for increased border control resources and technology to enhance early warning and detection.
- Implementing public awareness programs at both the national and regional levels.
- Engaging stakeholders, especially farmers, in the fight against TR4.
- Supporting research to validate tolerant varieties and exploring alternative options for food security and livelihood security.
- Expanding surveillance efforts.
- Encouraging data sharing for project formulation and impact assessment.
- Promoting a participatory approach to the surveillance, management, and exclusion of TR4.

The 16th Annual CPHD Meeting was a crucial milestone in the ongoing efforts to ensure plant health, trade, and food security in the Caribbean region. The commitment of partner agencies, technical experts, and the new CPHD Executive sets the stage for continued progress and success in the coming years.

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NEW CPHD EXECUTIVE AT THE HELM

At the 16th CPHD Annual Meeting a new CPHD Executive was elected and appointed. This was a significant event as CPHD Executive Elections had been on hold for over three years due to the lingering impact of the COVID-19 pandemic. During this period, the existing CPHD Executive Members retained their positions and operated virtually until a return to in-person meetings became possible.

The new CPHD Executive is as follows:

Chairman - Mr. Nelson Laville, Dominica

Vice-Chairman - Dr. Janil Gore-Francis, Antigua and Barbuda

Technical Secretary - Mr. Damian Rowe, Jamaica

The CPHD Executive is also inclusive of Mrs. Juliet Goldsmith, CAHFSA/RPPO.



The CPHD Executive shall be responsible for managing the day-to-day business of the forum to ensure that the policy decisions of the Governing Body and the work of the Forum is carried out by its respective Committees and TWG's.

RECOGNIZING CONTRIBUTIONS TO SAFEGUARDING CARIBBEAN AGRICULTURE

The 2023 GCSI Safeguarding Awards Ceremony

The Greater Caribbean Regional Plant Pest Safeguarding Award is presented in recognition of groundbreaking initiatives and innovations that make significant contributions to furthering the objective of safeguarding the region's agriculture and plant resources.

The Greater Caribbean Safeguarding Initiative (GCSI) honors a group or individual that:

1. Establishes a novel process, operation, procedure, or policy that directly or indirectly contributes to safeguarding.
2. Significantly enhances an existing process, operation, procedure, or policy that directly or indirectly contributes to safeguarding.

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3. Demonstrates unwavering leadership within the region toward achieving regional safeguarding goals.
4. Consistently promotes information sharing throughout the region in the form of new pest information or alerts regarding plant pest updates of significance to the Greater Caribbean Region and serves as a vital first line of defense for exotic pest exclusion.

In 2023, during the joint meetings of the 16th Caribbean Plant Health Directors (CPHD) Forum and the 2023 International Plant Protection Convention – Regional Workshop for the Caribbean Region, Mr. Brian Crichlow, former Chairman of the CPHD and Director of Agriculture, Cayman Islands Department of Agriculture, and Ms. Deanne Ramroop, Chairman of the Caribbean Pest Diagnostics Network (CPDN) Technical Working Group, were bestowed with the prestigious award during a Cocktail Reception held for regional delegates. Both were recognized for their stewardship, initiatives and innovations that significantly contribute to safeguarding the region's agriculture and plant resources.

Mr. Brian Crichlow

Mr. Crichlow, who chaired the Caribbean Plant Health Directors (CPHD) Forum for an esteemed tenure of nine years, was honored with the prestigious 2023 Greater Caribbean Safeguarding Initiative (GCSI) Safeguarding Award. This recognition celebrates his steadfast and visionary leadership that propelled the Forum to remarkable heights. His guidance helped transform the CPHD into a preeminent regional authority in plant health, culminating in its pivotal role as the Technical Advisory Body on Plant Health Matters to the Caribbean Agricultural Health and Food Safety Agency (CAHFSA) in 2019.



His dedicated efforts were instrumental in formulating the comprehensive CPHD 5-year strategic plan in 2023, a roadmap that fosters collaborative and comprehensive plant health initiatives across the region.

Mr. Crichlow's adept diplomacy fostered crucial partnerships with esteemed institutions such as The University of Florida, Florida Department of Agriculture and Consumer Services, and OIRSA. These collaborations facilitated the infusion of essential technical resources into the Caribbean, fortifying its capabilities, readiness, and resilience against economically impactful pests.

His expertise was evident in his active participation within the CPHD's Safeguarding Technical Working Group and the Caribbean Pest Diagnostics Network, where he played a pivotal role in advancing protocols and manuals for commodity inspections. His hands-on experience in implementing the CPDN in the Cayman Islands provided invaluable mentorship, significantly influencing the revamped CPDN operations and amplifying its effectiveness.

As a natural leader, Mr. Crichlow consistently advocated for the needs and accomplishments of Caribbean plant health, actively contributing to regional meetings such as COTED Agriculture and Caribbean Week of Agriculture. Within the Cayman Islands Department of Agriculture, he pioneered the testing and implementation of various CPHD safeguarding tools, ensuring their efficiency and practicality. Notably, under his stewardship, the Cayman Islands became the first CPHD member to fully embrace and leverage innovations like the Fruit Fly Monitoring System (FFMS), publicly sharing critical fruit fly trapping and surveillance data while adopting Electronic Phyto, the CPHD CBIS, and PeST platforms.

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Mr. Crichlow's profound dedication and transformative leadership have not only elevated regional plant health initiatives but have also set a remarkable standard for collaborative, innovative, and sustainable practices, leaving an enduring legacy within the Greater Caribbean Safeguarding Initiative.

Ms. Deanne Ramroop

Ms. Deanne Ramroop, Chair of the Caribbean Pest Diagnostics Network (CPDN) and former Deputy Director of Research at Trinidad and Tobago's Ministry of Agriculture, Land, and Fisheries, was the second recipient of the 2023 GCSI Safeguarding Award. This prestigious accolade celebrates her transformative leadership, particularly in revitalizing the CPDN Technical Working Group (TWG) and spearheading pivotal advancements in Caribbean pest diagnostics.



Ms. Ramroop's intervention marked a turning point in addressing the persistent challenge of reliable and swift pest diagnostics, significantly impacting crucial facets such as regional trade and market access.

Over the past four years, her dedicated TWG team collaborated effectively with the University of Florida, overcoming obstacles that hindered the CPDN interface—outdated technology, connectivity limitations, and staffing constraints.

Their collaborative efforts yielded remarkable results. Under her leadership, the TWG not only overhauled the interface but also secured a groundbreaking Memorandum of Understanding (MOU) with the University of Florida. Since June 2020, this MOU has facilitated free, round-the-clock preliminary digital pest diagnostics for the Caribbean region, an invaluable service that continues to benefit stakeholders to this day.

Ms. Ramroop's influence transcends regional boundaries. Her commitment to enhancing Trinidad and Tobago's national plant quarantine and protection services is evident through her instrumental role in:

- Institutionalizing ISPM #32 (Categorization of commodities according to their pest risk) for enhanced regulatory compliance.
- Overhauling the fruit fly trapping and recording system to bolster pest monitoring efficiency.
- Leading efforts in adopting ePhyto to streamline document exchange and facilitate trade.
- Pioneering the utilization of CPHD safeguarding tools like CBIS and PeST platforms to fortify regional biosecurity.

Her visionary leadership, resilience, and collaborative spirit have left an indelible mark both within the Caribbean region and her homeland. The 2023 GCSI Safeguarding Award stands as a well-deserved tribute to her unwavering commitment to crafting a resilient and sustainable future for plant health on both regional and national fronts.

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SPECIAL FEATURE

TROPICAL RACE 4 (TR4) - “A DETECTION IN ONE IS A THREAT TO ALL”

The Caribbean region, known for its picturesque beaches, vibrant culture, and lush landscapes, is home to one of its most cherished exports: bananas. For decades, this fruit has been a vital part of the Caribbean's agricultural and economic landscape. However, a menacing threat now looms over the banana industry in the form of Tropical Race 4 (TR4), a deadly strain of Panama disease.

Tropical Race 4, or TR4, is a soil-borne fungus (*Fusarium oxysporum* f. sp. *cubense*) that attacks banana plants, specifically the widely grown Cavendish variety. TR4 is notorious for its ability to spread rapidly through infected soil and water, rendering affected banana plantations sterile and unproductive.

Since the initial detection of TR4 in Colombia in mid-2019, followed by cases in Peru in 2021 and the most recent one in Venezuela in 2023, the risk of its introduction into the small island developing nations scattered across the Caribbean has grown exponentially. In response to this escalating threat, the Caribbean Plant Health Directors (CPHD) Forum and its partners have been diligently collaborating to conceive and implement safeguarding programs and emergency response plans tailored specifically for TR4.

PREPAREDNESS

TR4 Policy Brief

With the detection of TR4 in Venezuela, the CPHD Musa Technical Working Group (TWG) swiftly sprang into action. Their mission: to formulate a series of capacity-building initiatives aimed at bolstering safeguarding, exclusion, and preparedness efforts concerning *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 (Foc TR4) within the Greater Caribbean Region.

As a vital component of CPHD's commitment to the Caribbean Week of Agriculture (CWA) 2023 and the Vision 25% by 2025 initiative, the CPHD Musa Chair collaborated with regional partners such as USDA APHIS IS, IICA, and CAHFSA to craft a concise TR4 Policy Brief. This brief was included in the information packages for CARICOM Ministers of Agriculture, and it served as a crucial step in raising awareness and establishing strategic policies to tackle the imminent TR4 threat in the region (*see page 18 for the policy brief*). The policy brief can also be accessed on our website at: [TR4 Policy Brief](#)

Additionally, at the one hundred and ninth (109th) Special Meeting of the Council for Trade and Economic Development (COTED) Ministerial Meeting, Ministers were urged to (i) declare TR4 as a priority pest/pest of quarantine importance and enact the necessary legislation and (ii) provide the financial and logistical support for the implementation of regional contingency plans and programmes to prevent the entry of this dreaded pest into the region.

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TR4 Webinars

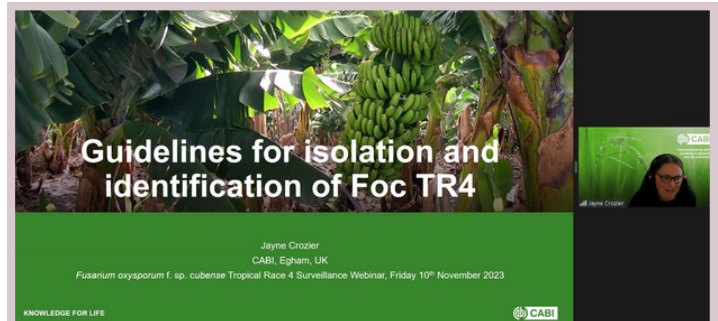
On November 10, 2023, CAB International (CABI) collaborated with the Caribbean Plant Health Directors (CPHD) to host a webinar titled "Fusarium oxysporum f. sp. cubense Tropical Race 4 Surveillance". The webinar brought together over 60 participants from across the Caribbean region and Latin America to discuss the latest developments in surveillance and management of this devastating banana disease.

The webinar featured presentations from the Trinidad and Tobago National Plant Protection Organization (NPPO) and Dr. Jayne Crozier, Trade and Commodities Coordinator UK. The Trinidad and Tobago NPPO shared their experiences in developing and implementing a TR4 National Action Plan, conducting national surveillance activities, and participating in a Regional TR4 Field Detection Simulation Exercise that was held in Trinidad and Tobago in September 2023. They also highlighted their ongoing collaboration with CABI on molecular characterization of FOC samples to identify potential TR4 infections.

Dr. Jayne Crozier's presentation focused on the newly developed "Guidelines for isolation and identification of Fusarium oxysporum f. sp. cubense Tropical Race 4 from banana." She provided a comprehensive overview of the biology, current distribution, movement, and dispersal of TR4, as well as detailed guidance on symptom recognition, sample collection and isolation, diagnosis, and sample shipment.

The webinar provided valuable insights into the ongoing efforts to combat TR4 and highlighted the importance of collaboration and knowledge sharing in addressing this global threat to banana production. The guidelines can be accessed via CABI Invasive Website - <https://caribbeaninvasives.org/> or via the link [Guidelines for isolation and identification of Fusarium oxysporum f. sp. cubense Tropical Race 4 from banana.](#)

Subsequently, on November 13, 2023, the Inter-American Institute for Cooperation on Agriculture (IICA) and the Caribbean Agricultural Health and Food Safety Agency (CAHFSA) organized a webinar titled "Exchange of Experiences between Latin America and the Caribbean Region on Emergency Management of Fusarium Tropical Race 4 (TR4)." The webinar brought together over 100 participants to share insights and strategies from Colombia and Peru, two countries that have declared phytosanitary emergencies in response to TR4 outbreaks.



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The webinar aimed to raise awareness among Caribbean countries about the experiences of Colombia and Peru in containing TR4 and provide valuable information to inform their own decision-making and strategy planning. Mr. Nelson Laville, CPHD Musa Chairman, provided an overview of the "Regional strategy and national actions carried out in the Caribbean for the prevention of Foc R4T."

Additionally, experts from Colombia and Peru presented their respective country's experiences with TR4 emergency declarations, outbreak management, and current containment measures whilst AGROCALIDAD Ecuador shared its Foc R4T containment plan actions.

The webinar highlighted the importance of regional collaboration and knowledge sharing in addressing the threat of TR4 to banana production in the Caribbean. By learning from the experiences of countries that have already faced TR4 outbreaks, Caribbean nations can better prepare and respond to this devastating disease.

TR 4 Resistant / Tolerant Germplasm Establishment, Evaluation and Validation Trials



TR4 is a significant threat to the banana industry, so much so that scientists and industry have invested heavily in developing resistant and tolerant germplasm. After discussions with an appropriate certified supplier of TR4 tolerant banana germplasm, the Caribbean Plant Health Directors (CPHD) Forum, in collaboration with the United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA APHIS) and the Inter-American Institute for Cooperation on Agriculture (IICA), procured FoC TR4 tolerant germplasm plantlets to evaluate their growth and productivity in the Caribbean climate and agronomic practices.

As such, one thousand (1000) stage 3 (non-GMO) In-vitro banana germplasm were shipped to five (5) countries (St. Lucia, St. Kitts and Nevis, Suriname, Guyana and Dominica). Each country was also provided with a small stipend for the purchase of material such as potting mix, seedling trays and potting bags for the weaning and hardening phase of the plantlets supplied.

In true partnership, the beneficiary countries committed in kind contribution in the form of receiving and clearing the plantlets through customs, establishing, maintaining, and collecting specific data on the performance of the germplasm in a scientific manner until the first harvest. The collation of this agronomic data would provide the CPHD Musa TWG with the baseline data to determine if a viable TR4 resistant germplasm has been identified for the Caribbean Region in the event of a TR4 incursion.

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TR4 Detection Simulation Exercise

On September 27th and 28th, 2023, Musa Technical Working Group (TWG) of the CPHD in close cooperation with the National Plant Protection Organization (NPPO) of Trinidad and Tobago, OIRSA, IICA, CIRAD, FAO, CAHFSA, and USDA APHIS, orchestrated a comprehensive TR4 Field Detection Simulation Exercise in Trinidad and Tobago. Spearheaded by OIRSA technicians (Mr. Sergio Marquez and Mr. Carlos Melgara), this event saw active participation from participants representing 12 Caribbean nations and 5 partner organizations.

The primary objectives of the simulation exercise were twofold: first, to evaluate the preparedness and response mechanisms at the national level in the event of a TR4 outbreak, and second, to validate the existing mechanisms while pinpointing areas for enhancement.

The expected outcomes stemming from this simulation exercise encompass several vital aspects:

- Heightened regional awareness and capacity building in the principles and procedures associated with conducting national TR4 field detection simulations.
- Increased regularity in conducting national TR4-related simulation exercises across the Caribbean region.
- Enhanced regional preparedness in the face of a potential TR4 incursion.
- Augmented networking opportunities and access to valuable technical resources for addressing TR4-related challenges.



Major short to medium term outputs and recommendations coming out of the simulation exercise included:

1. The development of a (scalable) Caribbean Field Simulation Guide for TR4.

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- 2.The development of a flow chart of the sequence of emergency response steps for TR4, using the CPHD Emergency Response Plan structure.
- 3.The compilation and distribution of information on viable, effective, rapid test kits (to aid pre-diagnosis during surveillance).
- 4.The conduct of TR4 Germplasm Trials (in progress).

Visit the CPHD Members website (registration required) to access the [TR4 Simulation Exercise Workshop Report](#)

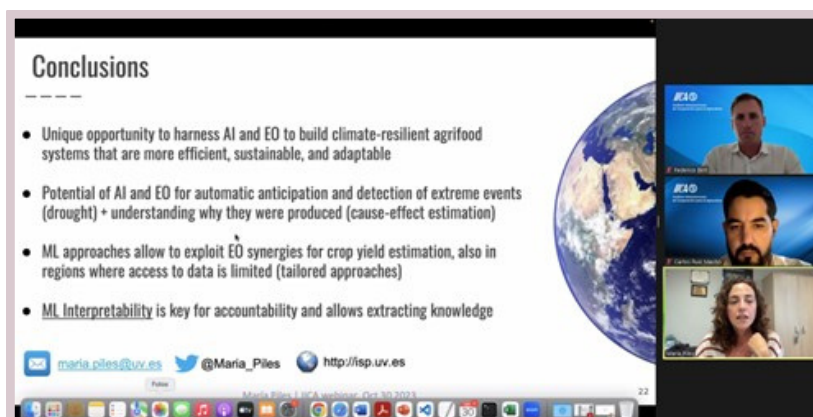
AI REVOLUTIONIZES PLANT PROTECTION: A GLIMPSE INTO THE FUTURE OF SUSTAINABLE AGRICULTURE

The global agricultural landscape is facing unprecedented challenges, from climate change and pest outbreaks to resource scarcity and population growth. These factors threaten food security and sustainable agricultural practices. In response, the agricultural industry is increasingly turning to artificial intelligence (AI) as a transformative solution to enhance crop protection and optimize resource utilization.

AI offers a comprehensive suite of powerful tools that can revolutionize plant protection strategies. By leveraging advanced technologies such as machine learning, image recognition, and data analytics, AI-powered systems can effectively detect pests, diseases, and nutrient deficiencies at an early stage. This timely and accurate information empowers farmers to implement targeted interventions, minimizing the need for blanket applications of pesticides and herbicides. This precision approach not only reduces the environmental impact of agricultural practices but also promotes sustainable farming methods.

UNVEILING THE POTENTIAL OF AI IN AGRICULTURE

On October 30th, 2023, IICA's Agri-Food Digitalization Program hosted a webinar titled, "Artificial Intelligence Applied to Agriculture: What Is Available and What Impacts Can We Expect?". This informative event aimed to delve into the advancements and potential applications of AI in agriculture, exploring the benefits and potential risks associated with this transformative technology. The webinar featured presentations from two esteemed keynote speakers, María Piles Guillem, Senior Researcher at Image Processing Laboratory, Universitat de València, and Ioannis Athanasiadis, Professor of Artificial Intelligence and Data Science at Wageningen University.



IICA's Digitalization of Agrifood Systems Program is dedicated to fostering innovation and leveraging cutting-edge technologies to address the challenges faced by the agricultural sector. For more information on this program and its initiatives, please visit <https://iica.int/en/programs/innovation-technology>.

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Likewise, on December 1st 2023, the CPHD Forum hosted a thought-provoking webinar titled "Enhancing Plant Protection Through AI Advancements", delving into the transformative potential of artificial intelligence (AI) in revolutionizing plant health protection practices.

Over 60 participants, including Plant Protection and Extension Officers, gained valuable insights into AI, its applications, and its potential to revolutionize their daily tasks. The webinar explored the benefits of AI, addressed misconceptions surrounding its role in replacing human expertise, and highlighted the challenges and opportunities associated with its implementation.

The webinar commenced with an introductory presentation by CPHD Web Developer/Consultant, Mr. Avenesh Ali, who provided a comprehensive overview of AI, its benefits, and its potential impact on plant health protection. He introduced platforms such as ChatGPT (<https://chat.openai.com>) and Google Bard (<https://bard.google.com/>).

Mr. Alejandro Solis, a Forest Engineer specializing in Information Systems, followed with an engaging presentation on "Real-World Applications of AI in Pest Monitoring." Drawing from his expertise in implementing innovative AI projects across Central America and the Dominican Republic, he showcased practical examples of how AI is being used to enhance pest monitoring and control.

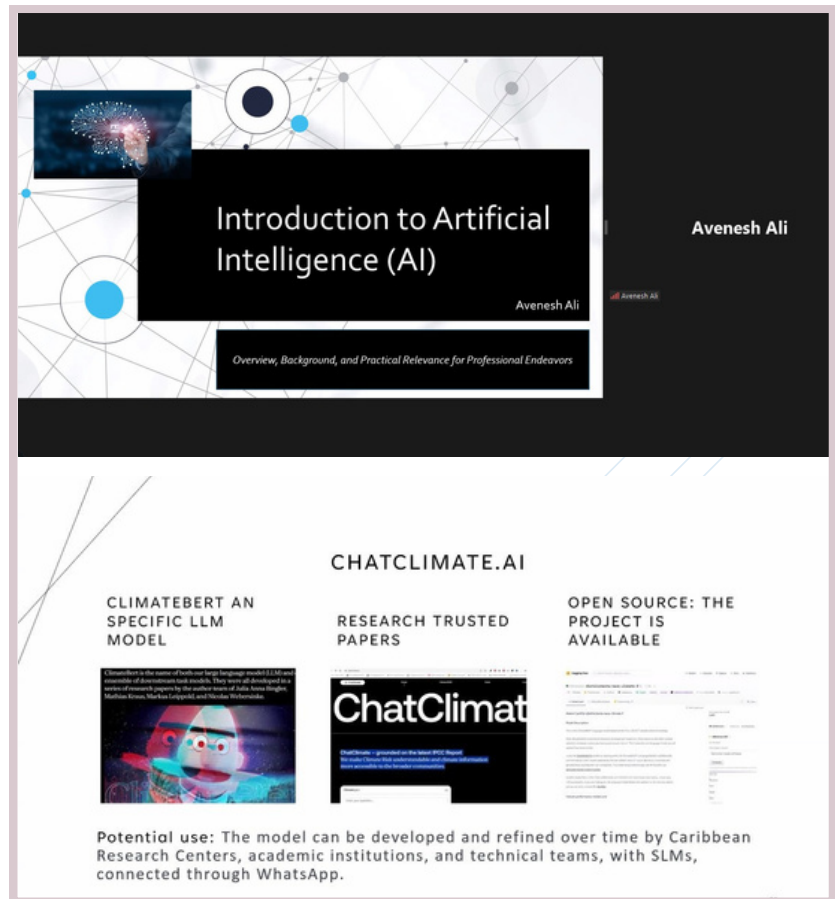
One of the highlighted AI applications was ChatClimate.AI, a model developed by Caribbean Research Centers, academic institutions, and technical teams. This model effectively utilizes SLMs (Statistical Language Models) connected through WhatsApp and Smart Mateo to provide real-time insights into pest and disease dynamics, enabling timely interventions.

Participants were introduced to a range of AI platforms that can be leveraged for plant health protection, including:

- CHATPDF: <https://www.chatpdf.com/>
- Elicit.org: <https://elicit.com/>
- Copilot Microsoft: <https://copilot.microsoft.com>

The webinar concluded with a resounding consensus among participants: AI holds immense potential to revolutionize plant health protection. These platforms offer diverse functionalities, from document management and knowledge sharing to code generation and automated tasks, providing valuable tools for Plant Protection and Extension Officers.

The CPHD plans to host a second webinar on the topic of AI and Plant Health Protection in 2024, further solidifying its commitment to advancing AI-driven solutions for safeguarding plant health and agricultural productivity.



DELVING INTO THE REALM OF PLANT HEALTH: A JOURNEY THROUGH SCIENTIFIC LITERATURE

PRIORITIZATION OF QUARANTINE PEST LIST FOR THE CARIBBEAN USING A MULTI-CRITERIA DECISION APPROACH

Abstract

Quarantine plant pests are socially, economically and environmentally important due to their impact on food security, human health, global trade and crop production costs. The increase in global trade and tourism, frequent occurrence of natural disasters and climate changes have exacerbated the rate of entry, establishment and spread of plant pests regionally and globally. It has, therefore, become exigent to develop a list of pests of quarantine importance at the regional and national levels to prioritise and allocate the limited available resources to manage the associated risks.

In the present study, the Technical Committee on the Formulation and Prioritisation of a Regional Priority Pest List for the Caribbean, in collaboration with the National Plant Protection Organisation of the Caribbean countries and the United States Department of Agriculture - Animal and Plant Health Inspection Service (USDA-APHIS), developed and prioritised a quarantine pest list using a multi-criteria decision-making approach. The technical committee successfully evolved the process in 2014 and 2018 and developed a list of the top 10 pests of quarantine importance for the Caribbean Region, employing the Delphi Technique (DT) and Analytical Hierarchy Process (AHP) through the assignment of criteria that are relevant to the region. The Mediterranean fruit fly (*Ceratitis capitata*), frosty pod rot (*Moniliophthora roreri*) and the tomato leaf miner (*Tuta absoluta*), listed as top quarantine pest threats, were subsequently detected in the region.

This exercise guided the authorities in advance to allocate resources and to develop response plans including capacity building for surveillance and detection of priority pests. This has demonstrated the significance and appropriateness of the multi-criteria decision approach to determine priority pest lists and prepare the region for development of better management practices.

A ONE HEALTH APPROACH TO PLANT HEALTH

Abstract

One Health has been defined as an approach to the pursuit of public health and well-being that recognizes the interconnections between people, animals, plants, and their shared environment. In this opinion piece, based on a webinar of the same name, we argue that a One Health perspective can help optimize net benefits from plant protection, realizing food security and nutrition gains while minimizing unintentional negative impacts of plant health practices on people, animals and ecosystems.

We focus on two primary trade-offs that lie at the interface of plant health with animal, ecosystem, and human health: protecting plant health through use of agrochemicals versus minimizing risks to human health and antimicrobial and insecticide resistance; and ensuring food security by prioritizing the health of crops to maximize agricultural production versus protecting environmental systems critical for human health. We discuss challenges and opportunities for advancement associated with each of these, considering how the priorities and constraints of stakeholders may vary by gender, and argue that building the capacity of regulatory bodies in low- and middle-income countries to conduct cost-benefit analysis has the potential to improve decision-making in the context of these and other multi-dimensional trade-offs.

*Saravanakumar et al.,
NeoBiota 88: 1–16 (2023)
Read full paper: DOI:
10.3897/neobiota.88.102673 -
<https://neobiota.pensoft.net>*

*Hoffmann et al., CABI
Agriculture and Bioscience
(2022) 3:62
Read Full paper here:
<https://doi.org/10.1186/s43170-022-00118-2>*

ONE HEALTH AND PLANT HEALTH: THE INDISPENSABLE LINK

The One Health concept, which recognizes the interconnectedness of human, animal, and environmental health, has gained significant traction in recent years. However, the crucial role of plant health in maintaining this delicate balance is often overlooked.

Plants serve as the primary producers in ecosystems, forming the basis of food chains and providing oxygen for all living organisms. Their health is crucial for maintaining the stability and resilience of ecosystems, which in turn underpins human well-being. Plant diseases, pests, and invasive species pose significant threats to plant health. These threats can lead to reduced crop yields, disruptions in food supply chains, and economic losses. Additionally, plant health issues can contribute to the emergence of zoonotic diseases, as they can alter the ecological balance and facilitate the transmission of pathogens between animals and humans.

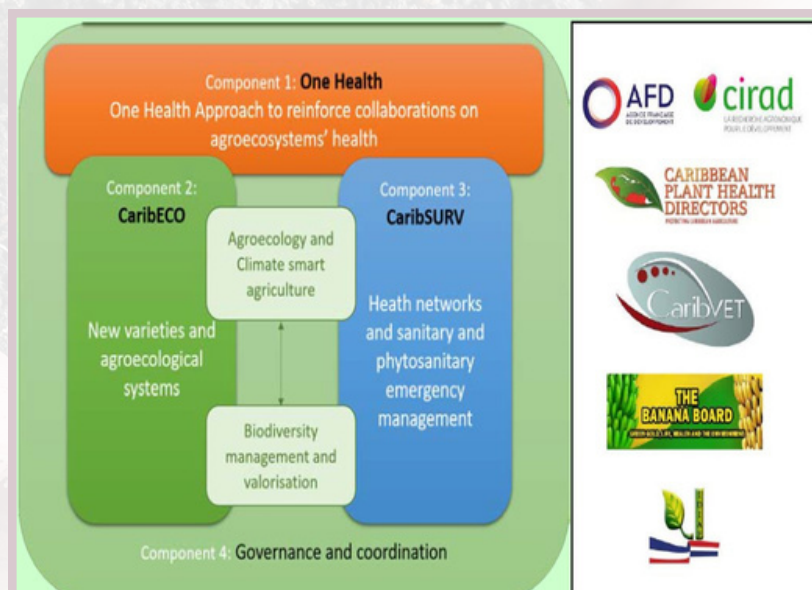
Incorporating plant health into the One Health framework is essential for achieving sustainable health outcomes. This integration requires a holistic approach that considers the interconnectedness of plants, animals, and the environment.

Noteworthy One Health Initiatives

Undertaken by CIRAD

CIRAD, the French Agricultural Research and Cooperation Centre International, a leading public research and development organization, leverages its extensive experience in One Health to propose a comprehensive approach for the Caribbean.

Under its CaribGREEN project, CIRAD establishes three multidisciplinary networks focused on agroecology, plant health, and animal and veterinary public health, fostering cross-sectoral collaboration and multi-solving strategies for optimal population health within agroecosystems. Recognizing the complexities of international collaboration, CaribGREEN employs six key levers:



1. System thinking: Encourages a holistic perspective on agroecosystem health.
2. Participatory governance: Ensures stakeholder involvement in project design and implementation.
3. Collaborative tools: Facilitate information sharing and networking across borders.
4. Success story analysis: Promotes learning from best practices.
5. Impact-oriented strategy: Drives measurable results through strategic planning.
6. Experience sharing: Enables cross-learning with other collaborative projects.

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Undertaken by FAO

Similarly, the Food and Agriculture Organization of the United Nations (FAO) has launched a new series titled "One Health," highlighting the interconnectedness of human, animal, and environmental health. This series aims to educate and empower stakeholders in addressing complex global challenges through a collaborative and holistic approach.

The One Health series encompasses a diverse range of topics, including:

- Emerging infectious diseases: Exploring the rise of zoonotic diseases like COVID-19 and the importance of surveillance, prevention, and control strategies.
- Antimicrobial resistance (AMR): Examining the threat of AMR and promoting responsible use of antibiotics in humans and animals.
- Food safety and security: Addressing foodborne illnesses, contamination risks, and the need for sustainable food systems.
- Climate change and its impact on health: Exploring the interconnectedness of climate change, ecosystem disruptions, and zoonotic disease outbreaks.
- The role of various sectors in One Health: Highlighting the contributions of agriculture, veterinary medicine, human health, environmental conservation, and other sectors in achieving optimal health for all.

The FAO emphasizes that the One Health approach is not just a concept but a framework for action. The series provides practical tools and resources, including:

- Case studies: Sharing successful One Health interventions implemented worldwide.
- Expert interviews: Gathering insights from leading figures in the field.
- Policy briefs: Providing evidence-based recommendations for policymakers.
- Training modules: Equipping stakeholders with the knowledge and skills to implement One Health initiatives.

Source: <https://www.fao.org/one-health/en>

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JAMAICA'S LEAP IN GLOBAL TRADE: ACCREDITATION OF PLANT QUARANTINE SIGNIFIES MAJOR MILESTONE

The accreditation of the Plant Quarantine/Produce Inspection branch of the Ministry of Agriculture, Fisheries and Mining in Jamaica has been recognized as a significant global achievement. Sharonmae Shirley, the Chief Executive Officer of the Jamaica National Agency for Accreditation, emphasized the importance of this milestone at an accreditation recognition ceremony. The accreditation, conforming to IEC/ISO 17020:201 standards, covers the inspection of commodities for export such as packing houses, fresh agricultural produce, herbs, and also includes general field inspections to ensure compliance with phytosanitary and good agricultural practices. Additionally, it encompasses fumigation inspection and the inspection of heat treatment facilities.

Shirley highlighted that this accreditation plays a crucial role in safeguarding the health and food security of consumers and facilitates global trade. The accreditation ensures that Jamaica's agricultural exports are recognized and trusted internationally, which is vital for the nation's economy and the reputation of its agricultural sector.

Read more at: <https://jamaica-gleaner.com/article/news/20231106/accreditation-plant-quarantine-hailed-big-deal-jamaica>

MINISTRY OF AGRICULTURE (DOMINICA) RECEIVES 1200 TISSUE CULTURE TR4 RESISTANT PLANTLETS FOR TRIALS AND TESTING

Adapted from: Government of Dominica- emonewsdm.com

The Ministry of Agriculture, Fisheries, Blue and Green Economy received one thousand two hundred (1,200) tissue culture plantlets to undertake establishment and trials for Tropical Race 4 (TR4) Resistant banana plants.

In 2022 at the Caribbean Plant Health Directors (CPHD) Forum, the CPHD MUSA Technical Working Group formulated a plan to ensure that there exists some level of preparedness against TR4 in the Caribbean.

Under the CPHD project titled “Supporting the Pest Exclusion in the Caribbean- Efforts to exclude TR4 in the Caribbean” funded by United States Department of Agriculture Animal and Plant Health Services (USDA/APHIS) and with technical assistance from IICA – Dominica received the plants and supporting materials to undertake open field trials to evaluate how these plants adapt to our agronomical practices within the island’s ecosystem.

The project focused on three (3) components:

1. Assist 10 countries to develop a National Action Plan for TR4
2. Conduct a simulation exercised in a test country (done in Trinidad and Tobago)
3. Receive germplasm to establish and test resistance (Dominica)

The plants are now being hardened and weaned at the Portsmouth Agricultural Station and will be distributed to commercial farmers and various Agricultural Stations. Total project assistance valued at \$1,800.00USD

The plants will be established at the Agricultural stations to undertake research on how well the plants develop and produce within our ecological system.

Source: <https://emonewsdm.com/ministry-of-agriculture-receives-1200-tissue-culture-tr4-resistant-plantlets-for-trials-and-testing/>





SAFEGUARD the Region from TR4

PRE-EMPTIVE ACTION to reduce loss and costs

A CALL TO POLICY MAKERS AND PUBLIC OFFICIALS TO BE VIGILANT AND TAKE PRE-EMPTIVE ACTIONS TO KEEP OUT TR4 AND HELP SAFEGUARD THE BANANA AND PLANTAIN INDUSTRY IN PRODUCING AND EXPORTING COUNTRIES OF THE REGION

THE FOCUS

- What is the TR4 threat?
- Who feels the impacts?
- How can we safeguard the industry?

MAIN MESSAGES

- **TR4 is not yet present in the Caribbean**, but is spreading rapidly among banana producing countries, including Venezuela.
- **TR4 spreads** from infected planting materials and contaminated soil particles on farm tools, shoes, clothes, animals, and vehicles, and through irrigation, drainage water and high winds.
- **TR4 is a 'forever threat'** to bananas, plantains, and the entire Musa family because there is **no treatment!**
- **Prevention is the most effective action.** If detected, take immediate action to contain the spread to clean areas.
- **The time to act is now** by producers, exporters and especially importers of bananas and plantains. **Safeguard the Region against introduction!**

WHAT is the TR4 (Tropical Race 4) threat?

- **What is TR4?**
A FUNGUS! Tropical Race 4 (TR4) is a fungus, and an invasive species that affects bananas, plantains, and all varieties of the Musa family. More than 80% of bananas and plantains cultivated and traded globally, is thought to originate from TR4 susceptible germplasm.
- **Why is TR4 a threat?**
NO TREATMENT! The fungus is soil-borne and deadly. TR4 attacks the roots and can cause 100% yield loss once established in a field. Fungal spores can remain dormant in the soil or on several host plants for decades. This can limit the ability to cultivate bananas, plantains, and other members of the Musa family, long after the original outbreak. Containment is extremely difficult and costly.
- **How urgent is the TR4 threat?**
RED ALERT! TR4 was detected in Latin America in 2019, where around two-thirds of global banana trade originates. In January 2023, TR4 was notified as present in Venezuela, which is very close to the main southern Caribbean gateways for trade and travel. Frequent movements (legal and illegal) of transportation vessels, people, live plants and animals, and products, place the entire Region at high risk of introduction.



TR4 POLICY BRIEF

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WHO feels the impacts?

FARMERS

In 2022, Dominica, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Suriname were listed among the world 100 banana exporters. If TR4 is introduced, their farmers will be wiped-out: entire fields, farm income and livelihoods. With no treatment, TR4 will spread. Farm recovery will be expensive as the fungus survives in soil long after the original outbreak. Investment in alternative soilless or protected banana and plantain production is beyond the capacity of these producing countries.



PROCESSORS

Agro-processing, using raw material from farmers is important to develop the Region's agriculture value chain. Bananas and plantains are used in several popular consumer foods, produced by micro and small processors, and medium to large scale manufacturers. The inability to obtain raw materials, whether locally, from regional farmers, or imported from extra-regional sources will impact industry growth, livelihoods and employment, food supplies, retailing, and exports.



EXPORTERS

Of the US\$12.5 Billion bananas exported by 100 countries in 2022, St. Lucia, Suriname, Jamaica, Dominica, and St. Vincent and the Grenadines ranked 63 (US\$2.6M), 68 (US\$0.93M), 69 (0.90M), 71 (US\$0.74M) and 74 (US\$0.61M), respectively¹. A TR4 outbreak in these countries would mean an automatic ban on their banana/plantain exports, and possible export restrictions on other fresh agriculture produce and planting material. The threat of TR4 being re-exported or transported by other means is enough for importing countries to take actions to safeguard their borders.



IMPORTERS

Between 2016 and 2020, Antigua and Barbuda, Barbados, Guyana, St. Kitts and Nevis, and Trinidad and Tobago imported roughly US\$10 and US\$1 Million per year, of fresh bananas/plantains, respectively. Trinidad & Tobago imported 74%, and Antigua and Barbuda, and Barbados, 13% and 11%, respectively. These Caribbean neighbours are actively promoting bananas/plantains in home gardening food security projects. Their tourist establishments also use wild/ornamental varieties in landscaping, including the popular Heliconia. Access to all Musa varieties could be prohibited as such imports will be deemed high risk.



CONSUMERS

Ultimately, consumers will suffer. Pressures on public social and economic welfare programs will increase, as school feeding programmes and food insecure households may no longer be able to access such as a basic and nutrient-dense food staple as the banana, and the range of food products made from bananas and plantains.



¹ Source: https://www.worldstopexports.com/bananas-exports-country/?expand_article=1



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TR4 POLICY BRIEF

HOW can the risk be reduced to SAFEGUARD the industry?

No Caribbean country is insulated from the TR4 threat. Detection in ONE is a threat to ALL!

Caribbean Plant Health Directors (CPHD) Technical Working Group (TWG) - Musa Species

The CPHD TWG-Musa Species is a special emergency mechanism to lead and coordinate actions across the Region, the wider Caribbean and Latin America, and with international partners.

SAFEGUARDING THE INDUSTRY - SECTOR - REGION FROM TR4	
WHAT	WHO: Partners supporting the CPHD Forum
PREPAREDNESS	
Declare TR4 as a notifiable pest	All National Competent Authorities
Strengthen port biosecurity: install mats & signs	NB: the United States, a non-banana/plantain producer, has declared TR4 as a notifiable pest
Increase national surveillance	
Inform - educate - sensitise the public	IICA, USDA APHIS, FAO, OIRSA, CIRAD, CABI, CARDI, UWI, have developed/are updating information products for public awareness and hosting webinars for technical training
Train farmers, customs officers in biosecurity measures	
Strengthen plant protection units' capacity in detection, exclusion, and management	
Strengthen national and regional diagnostic capacities (NB: TR4 was possibly in Venezuela two years before detection and formal declaration)	National Plant Protection Officers (NPPOs)
READINESS	
Create, resource, and activate a TR4 Rapid Response Team	CPHD and the Ministry of Agriculture, TT conducted a Detection Simulation Exercise (Sept. 2023) with support from OIRSA and financial/logistical support from IICA, USDA APHIS and CIRAD for eleven Caribbean countries
Simulate emergency response exercises	
Research TR4 tolerant or resistant varieties	CIRAD , in collaboration with UWI and CARDI undertaking agronomic evaluations and testing. IICA, USDA APHIS, FAO, CABI to support access to/introduction of improved varieties
Establish capacity for promissory germplasm and support safe introduction of certified TR4 resistant-tolerant germplasm	
Support implementation of priority actions in the Regional and National TR4 Action Plans	National Plant Protection Officers (NPPOs) supported by Regional and Development organizations GCSI-IICA-USDA APHIS-CPHD Forum developed NAPs for Barbados, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago.
Endorse mobilization of resources for Strengthening Regional Safeguarding and Preparedness actions	ALL technical partners to support implementation, coordinated by the CPHD TWG-Musa Species
Participate in international coordination mechanisms	GICSV (Inter-American Coordinating Group in Plant Protection, with IICA as the Secretariat). Their efforts led to the USDA declaring TR4 as a notifiable pest
RISK AND IMPACT ASSESSMENT	
Quantify financial, economic and biodiversity impacts on Musa species	ALL Technical partners - IICA, USDA APHIS, CAHFSA, CABI, UWI, OECS COMMISSION, CARDI, FAO, CATIE and CIRAD - committed to supporting the CPHD TWG-Musa Species to undertake these activities and disseminate results and capacity building
Evaluate the cost/benefits of pre-emptive action and consequences of inaction/delayed action	
Formulate a national recovery plan in the event of the entry of TR4	









TR4 POLICY BRIEF

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TR4 is a 'high priority' in pest prioritization activity. The CPHD TWG-Musa Species is taking rapid action in the banana producing countries to build readiness to safeguard the Region!

Policymakers

BE YOUR BROTHERS' KEEPER

Safeguard borders first line of defence!	Safeguard farms first zone of impact!	Notify TR4 detection first signal to act!
 Reinforce your border control systems (Importers and Exporters of bananas and plantains)		
 Declare FoC TR4 as a priority pest and pest of quarantine importance and enact the necessary legislation to ensure exclusion		
 Provide the requisite financial and logistical support for implementation of the regional plans and programmes for the prevention and exclusion of FoC TR4		
 Support the NPPOs in developing and implementing a FoC TR4 National Action Plan		
 Enhance the RPPO, CPHD Forum, regional and international organisations efforts to develop and implement a coordinated regional response to the threat of FoC TR4		

PROTECT - SIMULATE - DETECT - ACT



For more information contact the CPHD TWG Musa Species

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Credible Resources	cphdforum.org Caribbean Plant Health Directors Forum http://apps.iica.int/GICSV/programas/SanidadVegetal/default.aspx GICSV fusarium_lac@dgroups.org The FAO World Banana Forum newest initiative: Comunidad de Práctica sobre Fusarium en Musáceas para América Latina y el Caribe

October 2023. Prepared by IICA-TT for the CPHD TWG - Musa Species



TR4 POLICY BRIEF

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CALENDAR OF EVENTS

REGIONAL AND INTERNATIONAL OBSERVANCES

- » March 21st - International Day of Forests
- » April 22nd - Earth Day
- » May 12th - International Day of Plant Health
- » May 22nd - International Day of Biological Diversity
- » June 5th - World Environment Day
- » June 6th - World Pest Day
- » June 7th - World Safety Food Day
- » September 26th - World Environment Health Day
- » October 16th - World Food Day
- » October 24th - International Day of Climate Action
- » December 5th - World Soil Day



*Don't forget you can highlight your events via the CPHD Forum's website or the newsletter.
Email details to the CPHD Secretariat: secretariat@cphdforum.org*



INTERESTING READS

»» **Two new IPPC Diagnostic Protocols have been adopted**

<https://www.ippc.int/en/news/two-new-diagnostic-protocols-adopted-to-prevent-harmful-pests-to-crops/>

»» **Report of the October 2023 meeting of the Task Force on Topics**

The IPPC Secretariat is pleased to announce that the report of the virtual meeting of the Task Force on Topics (TFT), held in October 2023, is now available at:

<https://www.ippc.int/en/publications/92959/>

»» **CPM Bureau October 2023 meeting report**

The IPPC Secretariat is pleased to inform the plant health community that the report of the Commission on Phytosanitary Measures (CPM) Bureau meeting held in October 2023, has been published and is available at:

<https://www.ippc.int/en/commission/bureau/>

»» **SPG October 2023 meeting report**

The IPPC Secretariat is pleased to inform the plant health community that the report of the Strategic Planning Group (SPG) meeting held in October 2023, has been published and is available at:

https://assets.ippc.int/static/media/files/publication/en/2023/11/Report_SPG-2023-Oct_2023-11-28.pdf

»» **New IPPC guide to protect plant health and reduce pest risk associated with e-commerce**

[New IPPC guide to protect plant health and reduce pest risk associated with e-commerce - International Plant Protection Convention](#)

»» **Webinar: How new IPPC guides and e-learning courses help to strengthen phytosanitary capacity**

[Webinar highlights role of new IPPC guides and e-learning courses in strengthening phytosanitary capacity - International Plant Protection Convention](#)

»» **IPPC Implementation and Capacity Development Committee concludes November 2023 Meeting**

[IPPC Implementation and Capacity Development Committee concludes November 2023 Meeting - International Plant Protection Convention](#)

About the CPHD

The Caribbean Plant Health Directors Forum (CPHD) is a collaboration of National Plant Health Services, Regional and International Organizations, Government Entities, Universities and Reference Laboratories with the common purpose of:

1. Safeguarding the plant resources of the Caribbean from the threat of quarantine pests
2. Improving plant health through the control and management of existing pests
3. Contributing to the expansion of production and facilitation of safe trade of agricultural commodities

in order to:

- a) increase food security'
- b) protect the unique environment
- c) enhance the quality of life and economic wellbeing of the people of the countries and territories of the Greater Caribbean Region.

The CPHD is the Technical Committee of the Caribbean Regional Plant Protection Organisation (RPPO)

Ongoing CPHD Initiatives in 2024

- Training and ongoing surveillance of priority pests of mutual concern to the US and Caribbean Region.g TR4 anf Tuta absoluta
- Promotion of CPHD digital tools including the FFMS, CBIS, and PEST-Caribbean and adoption of these border management tools into national work programmes.
- Review of 5-year Work Plan and Strategic Pillars
- Promotion of CPHD website and Facebook page as the regional hub for plant health knowledge
- Promotion of CPDN website and free access to rapid digital diagnostics for an additional 2 years.
- Regional Pest Prioritization Exercise – Updated Regional Priority Pest List (2024-2026)
- Establishment of a Multi-Agency Coordination (MAC) Mechanism for Incident Command Systems (ICS) for Plant Health (PH) Emergencies in the Caribbean
- Continuous dissemination of timely and relevant technical plant health information through a series of webinars



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