



COMMISSION ON PHYTOSANITARY MEASURES

NINETEENTH SESSION

SCIENCE SESSION – THE IMPORTANCE OF PLANT HEALTH WITHIN ONE HEALTH

AGENDA ITEM 17

(Prepared by the IPPC Secretariat)

Introduction

- [1] One Health is a holistic approach that recognizes the interdependence and interconnectedness of plant, animal, human and environmental health. In recent years, the IPPC community, namely, the Commission on Phytosanitary Measures (CPM), its subsidiary bodies, the Strategic Planning Group (SPG), as well as the IPPC Secretariat have actively worked to ensure that the critical role of plant health is duly recognised within the One Health framework. These activities have been summarised in paper CPM 2025/32.
- [2] The CPM-18 (2024) established a CPM Focus Group on Plant Health in the Context of One Health, with terms of reference.¹
- [3] This science session at CPM-19 aims to explore the synergies between plant health and One Health, foster strategic collaborations and work toward a unified vision. It also intends to enhance awareness, strengthen partnerships, and develop actionable recommendations to integrate plant health into the One Health framework.²
- [4] The IPPC Secretariat issued a call for national and regional case studies on One Health in February 2025.³ The Objective of this call was to gather real world examples demonstrating the specific interrelations and interdependencies between plant health and the other pillars of the One Health.
- [5] Seven case studies were submitted from the Democratic Republic of the Congo, the Dominican Republic, Indonesia, Italy, Kenya, Nigeria and the Centre for Agriculture and Biosciences International (CABI). These case studies were presented to the CPM Focus Group on Plant Health within the Context of One Health, that reviewed all submissions and selected four case studies – the Dominican Republic, Indonesia, Italy, and CABI – for presentation at the CPM-19 science session.
- [6] The case study from Nigeria titled "Social and Dynamic Behavior of Goats in the Gwagwalada Area", focuses primarily on goat behavior, social interactions, and management practices in farm and household settings. While briefly mentioning the goats consuming different plants, the study does not

¹ CPM Focus Group on Plant Health in the Context of One Health with the terms of reference:

<https://www.ippc.int/en/publications/93481/>

² CPM-19 science session: the importance of plant health within One Health: https://assets.ippc.int/static/media/uploads/cpm19/concept_note_cpm-19_science_session_2025-03-04.pdf

³ IPPC call for national and regional One Health case studies: <https://www.ippc.int/en/calls/call-for-national-and-regional-case-studies-on-one-health-for-the-cpm-19-science-session-on-the-importance-of-plant-health-within-one-health/>

directly analyze plant health, plant diseases, pest management, or their impact on agricultural ecosystems. Given its lack of relevance to plant health within One Health, the case study was excluded.

[7] Below is an overview of the six case studies.

Dominican Republic: Innovations to strengthen food security by implementing One Health approach

[8] The Dominican Republic's National Phytosanitary Surveillance System showcases the vital link between plant health, food security, environmental protection and public health.

[9] As an island nation, the Dominican Republic is vulnerable to the introduction and spread of pests through tourism and international trade. These threats endanger key agricultural commodities such as plantains, beans, and fresh fruits—critical to national food security and economic stability.

[10] To address these risks, the NPPO, with support from the Organismo Internacional Regional de Sanidad Agropecuaria (OIRSA) implemented an advanced monitoring system that integrates attractant and adhesive traps with geolocation for early pest detection, satellite imaging and field surveillance to monitor plantations, and risk mapping to identify and protect vulnerable areas.

[11] This proactive surveillance enabled the early detection and rapid eradication of the Mediterranean fruit fly (*Ceratitis capitata*) and the effective control of the bean flower thrips (*Megalurothrips usitatus*), preventing significant agricultural losses. These efforts protected both local production and exports, ensuring food availability and economic stability.

[12] The implementation of this system has strengthened food security by reducing crop losses and ensuring a stable food supply. It has also safeguarded local production and exports, contributing to economic stability. Additionally, the reduction in pesticide use has lowered contamination risks, benefiting both public and animal health. Furthermore, this initiative serves as a model for other island nations facing similar phytosanitary challenges. This case study highlights the importance of international cooperation and technological innovation in safeguarding plant health, supporting sustainable agriculture, and reinforcing the One Health approach.

Democratic Republic of the Congo: Problem of the proper use of approved pesticides to preserve human, animal and environmental health

[13] In the Democratic Republic of the Congo- the Ministry of Public Health, the Ministry of Fisheries and Livestock, the Ministry of Agriculture, the Ministry of the Environment and Sustainable Development, and the Ministry of Scientific Research and Technological Innovation, - collaborate to form the One Health committee, to address public health issues that may impact human, animal, plant and environmental health.

[14] A key issue identified was the misuse of approved pesticides, which posed serious risks to food safety, water quality, and air pollution. Farmers faced several challenges, including a lack of awareness about the One Health approach, non-compliance with the required pesticide residual periods before harvesting, and the improper disposal of pesticide residues into rivers, which endangered aquatic life and livestock.

[15] To address these issues, an integrated approach was implemented to combat pesticide misuse. Awareness campaigns were conducted in Kinshasa to educate farmers on the risks associated with improper pesticide use and the importance of adhering to safety guidelines. Additionally, inspections were carried out at vendors of phytosanitary products to ensure compliance with regulations.

[16] As a result of these interventions, farmers gained a better understanding of the One Health approach and improved their agricultural practices. Compliance with pesticide residual periods before harvesting increased, reducing the risk of food contamination. Proper waste management practices were adopted, minimizing water and air pollution. Overall, these efforts contributed to improved public, animal, and environmental health.

- [17] This initiative serves as a valuable model for other countries seeking to address pesticide misuse through education, regulation, and collaboration. The Democratic Republic of the Congo remains committed to sharing its experiences and supporting similar efforts worldwide.

Indonesia: Addressing Cocoa Pod Borer through Integrated Pest Management

- [18] This case study highlights how Integrated Pest Management (IPM) aligns with the One Health framework by addressing plant health while safeguarding human and environmental well-being. In Indonesia, Cocoa Pod Borer (CPB) posed a serious challenge to cocoa farmers, with heavy reliance on chemical pesticides leading to health risks, environmental degradation, and reduced agricultural sustainability.
- [19] The challenges faced in the cocoa farming sector included an overreliance on chemical pesticides, which not only posed significant risks to human health but also caused environmental damage. The excessive use of pesticides led to soil degradation and water contamination, both of which threatened the sustainability of cocoa production. Furthermore, the overuse of pesticides contributed to the loss of pollinators, negatively impacting the overall ecosystem health.
- [20] To address these issues, an IPM approach was implemented, combining the use of biological control measures, pruning to reduce pest habitats and selective pesticide use only when absolutely necessary. Additionally, farmer education programs were established through field schools and collaboration with agricultural extension services ensured the effective implementation of sustainable practices.
- [21] The adoption of IPM led to a significant reduction in pesticide use, resulting in lower CPB infestations and improved cocoa bean quality. Farmers benefited from higher yields and better market prices, while reduced pesticide exposure improved their health. Additionally, decreased chemical runoff contributed to healthier ecosystems and biodiversity conservation.
- [22] This case study underscores the effectiveness of IPM in tackling agricultural challenges while promoting sustainability and resilience in the cocoa sector. It serves as a model for other regions aiming to balance productivity with environmental and human health considerations.

Italy: Joint management of phytosanitary, human health and veterinary risks in *Popillia japonica* infested areas

- [23] This case study highlights how cross-sector collaboration can enhance the management of plant, human, and animal health risks while optimizing resources and reducing environmental impact. By coordinating measures for *Popillia japonica* control with national programs for mosquito and arbovirus vector management, the agencies responsible for human health, veterinary health and plant health achieved a more efficient and comprehensive approach to risk mitigation.
- [24] To address this issue, health and phytosanitary agencies developed a joint intervention plan that integrated agronomic practices to limit the spread of *Popillia japonica*, insecticide applications for both agricultural and public health pest control, and public awareness campaigns to engage communities in vector and pest management. By aligning their schedules, procedures, and implementation strategies, agencies ensured that multiple risks were managed simultaneously, reducing duplication of efforts.
- [25] This first attempt at integrated area management required significant effort but laid the foundation for future cross-sector collaboration. The success of this approach demonstrated that joint planning improves efficiency, saves resources, and minimizes environmental impact. Moreover, it provides a model that can be replicated in other pest outbreaks while being adapted to specific local conditions.
- [26] This case study illustrates the benefits of a One Health approach, showing that cooperation between plant, human, and veterinary health sectors strengthens resilience against shared threats and enhances sustainable pest management strategies.

Kenya: Dual use research concern - ensuring biosecurity and biosafety in plant health diagnostics

- [27] This case study highlights the importance of biosecurity and biosafety in plant health diagnostics and their impact on human, animal and environmental health. The Kenya Plant Health Inspectorate Service (KEPHIS) applies the One Health approach to mitigate biological risks associated with Dual Use Research of Concern (DURC) - biological materials such as infective fungi, bacteria, and viruses that, if misused, could pose serious threats.
- [28] KEPHIS faced significant challenges, including inadequate training in biorisk management, difficulties in maintaining and securely storing valuable biological materials, and limited access to secure storage equipment. Ensuring strict control over DURC materials while preventing unauthorized access required enhanced security measures and adherence to international best practices.
- [29] To address these challenges, KEPHIS strengthened its biosecurity and biosafety protocols by implementing biometric access control and CCTV systems to regulate and monitor laboratory access, information security systems and containment facilities to safeguard sensitive biological materials, and comprehensive biological risk assessments to evaluate and mitigate potential threats. Additionally, KEPHIS enhanced collaboration with regional and international biosecurity networks to improve best practices and conducted simulation exercises to test response strategies for potential biological risk incursions or escapes.
- [30] As a result of these measures, KEPHIS successfully improved the security, traceability, and management of DURC materials. The introduction of an inventory database and restricted access protocols reduced the risks associated with accidental or intentional misuse. Additionally, strengthened biosecurity collaboration at the regional and international levels has enhanced Kenya's preparedness in managing biological risks.
- [31] This case study serves as a model for other institutions handling DURC materials, demonstrating the importance of integrating stringent biosecurity measures and adopting best practices to safeguard plant, human, and environmental health.

Centre for Agriculture and Biosciences International (CABI): Plant clinics for One Health

- [32] CABI's Plant Clinics were initially established under the PlantwisePlus (PW+) programme to provide demand-driven plant health advice to smallholder farmers who lacked access to commercial diagnostic services. Today, over 5,000 Plant Clinics operate across 34 countries in Africa, Asia, and Latin America, with more than 13,200 extension officers trained as plant doctors. Farmers widely adopt plant clinic recommendations, with 90% implementing them either fully or partially, leading to the adoption of more sustainable agricultural practices.
- [33] However, up to 80% of Plant Clinics in some countries began receiving livestock health queries, highlighting an urgent need for integrated agricultural advisory services. This shift was driven by two key factors: many smallholder farmers rely on mixed crop-livestock farming systems, and in many areas, farmers had no alternative sources of veterinary advice. Recognizing the interconnectedness of plant, animal, and soil health, CABI expanded the Plant Clinics to incorporate a One Health approach.
- [34] To address farmers' needs, CABI piloted and established joint crop-livestock clinics in Kenya and Uganda, enabling farmers to receive comprehensive agricultural guidance in a single location. Additionally, mobile Plant Clinics now attend local, regional, and national events, further expanding their reach.
- [35] The expansion of Plant Clinics into One Health Clinics has the potential to strengthen agricultural extension systems, particularly in low-income countries, by improving the quality and accessibility of plant, livestock, and soil health services. This integrated approach could also help address pesticide risk reduction, mycotoxin contamination, and other cross-sector challenges affecting human, animal, and

environmental health. Furthermore, insights from Plant Clinics can support the development of training materials that extend beyond plant health to include livestock health while laying the groundwork for training local soil doctors and veterinarians.

- [36] By fostering collaborative, multi-sector agricultural advisory systems, CABI's approach demonstrates a scalable and replicable model that can be adapted to meet the evolving needs of smallholder farmers worldwide.