



International Training Course on Plant Disease Detection, Diagnostics and Nuclear-Augmented Biologicals for Plant Health Applications

Seibersdorf, Austria

5 - 16 October 2026

Ref. No.: EVT2504661

Information Sheet

Introduction

Climate change is causing raising temperatures and erratic precipitation patterns that shift the geographic range of pathogens, contribute to the evolution of new pathogens and weaken plant immunity through environmental stress.

To safeguard the future of global food security, the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture is working on a dual-strategy Plant Health approach that is critical for mitigating the escalating threat of crop diseases fuelled by climate change:

1. **Pathogen Containment:** Strengthen surveillance and early detection systems to halt the spread of the pathogen across borders and regions, while simultaneously implementing management strategies to reduce the pathogen load in infested soils.
2. **Long-term Resilience:** Proactively developing resistant varieties - both for the Cavendish export market and diverse local cultivars - through nuclear innovations to ensure continued food security and economic resilience.

As an initial step of the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture, the Plant Health approach has been implemented in the banana crop. The banana (*Musa* spp.) is a cornerstone of global food security and economic stability, supporting the livelihoods of approximately 400 million people across more than 135 producing nations with close to the 86% of global production consumed locally.

Most varieties of banana and plantain are susceptible to Fusarium wilt, specifically the Tropical Race 4 (Foc TR4) strain. This soil-borne pathogen can decimate plantations and survive in the soil for decades, making mitigation exceptionally challenging. The economic consequences are severe: annual losses already reach millions of dollars, with global projections estimated to hit US\$10 billion by 2040. Addressing this crisis through conventional breeding is notoriously difficult and time-consuming, as most cultivated bananas are triploids with low genetic diversity and near-total seed sterility.

Consequently, the generation of new genetic diversity through mutation induction offers a significantly faster and more viable pathway to develop resistant genotypes. The induction of new traits in beneficial microorganisms by mutagenesis is an approach that could enhance their biological activity, colonization efficiency into host plants and its ability to suppress Fusarium wilt (Foc TR4). The use of mutagenesis in beneficial microbial strains will contribute to boost the synthesis of antifungal enzymes and other metabolites.

The development of rapid, reliable, and affordable detection methods, particularly those that are DNA-based, is essential for the early field identification and continuous monitoring of Fusarium wilt (Foc TR4). This soil-borne pathogen can persist in the environment for decades and decimate plantations, additionally, it has similar symptoms like other common banana diseases such as bacterial wilt. Therefore, establishing new standardized methodologies for specific pathogens is of key relevance.

The training will cover main technologies developed by the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture under the Plant Health approach. Participants are expected to bring their own disease DNA samples to facilitate hands-on testing of the diagnostic methodologies. Further instructions will be provided in due course together with the training agenda.

Objectives

- Disseminate DNA-based diagnostic technologies produced under CRPs, PUIs and other research projects led by the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture, using banana Fusarium wilt as a case example.
- Disseminate mutation breeding technologies to enhance genetic diversity and identify new traits in banana produced under CRPs, PUIs and other research projects led by the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture.
- Disseminate the application of nuclear techniques in enhancing the efficiency of beneficial microorganisms and biological control agents (BCAs) to suppress plant diseases and ultimately promote the integration of biological control approaches in disease management strategies.

Target Audience

This training course is open for professional staff from the National Plant Protection Offices and National Agricultural Research Institutions involved in the implementation of laboratory methods for banana disease molecular diagnostics and mutation breeding across the globe.

One or two candidates can be submitted per Member State, after evaluation, a maximum of 15 participants will be selected.

Candidates must have a degree in plant sciences, plant pathology, or related areas.

Preference will be given to young professionals and female participants in leadership positions that will disseminate these technologies within their country.

The training will be conducted in English. Candidates must provide evidence of their English level and technical qualification in their InTouch+ application.

Working Language

English

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **31 July 2026**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
 - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
 - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
 - Complete or update their personal details under ‘Complete Profile’ and upload the relevant supporting documents;
 - Search for the relevant event under the ‘My Eligible Events’ tab;
 - Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating Authority’ (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);
 - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
 - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
 - Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **31 July 2026**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency’s Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA’s scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA’s mandate. Further information can be found in the [Data Processing Notice](#) concerning the IAEA InTouch+ platform.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made, together with the submission of the application, by **31 July 2026**.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

Organization

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretaries and correspondence on other matters related to the event to the Administrative Secretary.