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## Introduction

The emergence and re-emergence of plant diseases is a threat for many crops around the world. Ecological and evolutionary processes in specific geographic area could be disturbed by the introduction of new strains or species of exotic pathogens due the increased of international trade associated with important economic losses. To avoid this situation many countries had signed the “Agreement on the Application of Sanitary and Phytosanitary Measures” in the World Trade Organization (WTO). In this agreement the countries have the information to avoid the entrance of new plant pathogens. These practices are called official control. The official control combines different activities to control plant pathogen movement among countries (Figure 1).

Colombia is not far from this tendency. To do so, Colombian Agriculture Institute (ICA – Instituto Colombiano Agropecuario, its name in Spanish) is responsible of these tasks. ICA offers services of detection, control and inspection of insects and pathogens in plant material of economic interests.



Figure 1. Colombia's Free Trade Agreement (FTA) with different countries and organizations.

## Plant Quarantine Laboratory (LCV, Laboratorio de Cuarentena Vegetal)

For imported plant material, ICA has the Plant Quarantine Laboratory (LCV, Laboratorio de Cuarentena Vegetal its name in Spanish) where verification of plant protection requirements is done. ICA defines the plant protection requirements from Pests Risks Analysis (PRA) (Figure 2) associated with each product and each export country. LCV has implemented different detection methods according with the volume and kind of imported plant material (Figure 3).

Specifically in detection plant virus the LCV has a different strategies according with the verification of plant protection requirements and post-entry quarantine (Figure 4) based in molecular biology and biological methods focused in only one task: to avoid the entrance of viral pathogens in plant material. To do so, in this poster is exposed the procedures whose are defined the plant protection requirements by ICA and the analytical methods are done in LCV. Finally, some examples are described using the LCV's standardized procedures.



## Tasks to analyze the Plant Protection Requirements

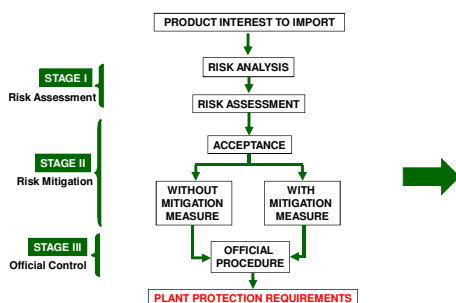


Figure 2. Diagram to define the Pest Risks Analysis (PRA) for specified product and pathogens.

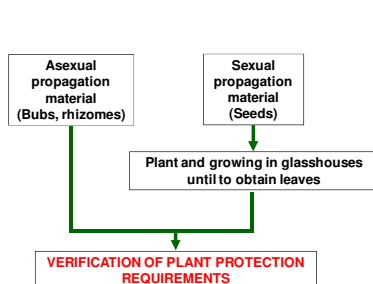


Figure 3. Strategy to obtain the plant material for to do the verification of plant protection requirements.

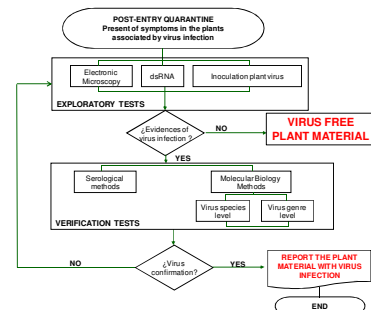
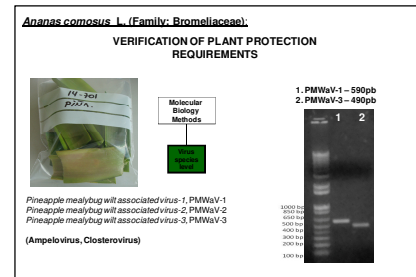
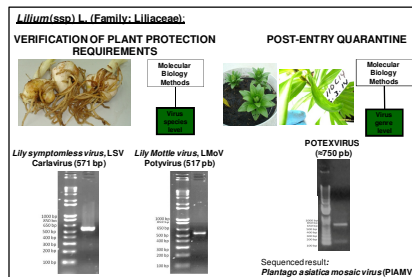
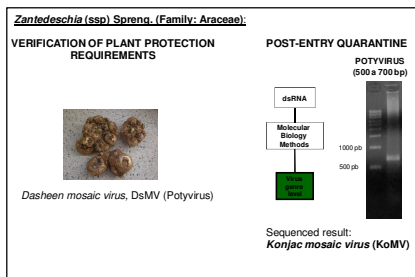


Figure 4. Quarantine Post-entry protocol and definition of methodologies to identify the possible new pathogens.

## Case of study detection of plant viruses – Verification of plant protection requirements



## REMARKED CONCLUSION

LCV is an official control laboratory where the experimental evidence of present of plant protection requirements is done. Also, LCV is working to avoid the entrance of pathogens in imported plant material with different strategies to detection virus, fungi, bacterial and nematodes. This is effective and efficient mechanisms to avoid official control pathogens do not entry in new geographical areas and infecting crops of economic importance for Colombia.