

Recommendations to prevent the entrance of quarantine plant diseases of major economic importance for banana and pineapple

The following measures should be observed by any person visiting banana plantations in the Philippines and South-East Asia and pineapple plantations in South America (mainly Brazil). Especially the fruit company employees, representatives of agrochemical companies, NGO representatives, and certification inspectors :

1. Not visit farms where these diseases have been reported unless absolutely necessary.
2. If plantations in any of these countries are visited, even if they have not registered the presence of the disease infections, it is recommended to bring or buy an additional full set of clothes and a pair of shoes to be used just in that country (or ask someone to lend you rubber boots). On leaving, the clothes and shoes used should be left behind in the country.
3. Never bring back shoes that were used while visiting farms, packing facilities, or even the central offices when you return to your country.
4. At the very least, it is recommended that the clothes (including hats and caps) are washed before leaving the country being visited. The same applies to backpacks, camera bags, and other objects that have been taken to the field.
5. In the countries mentioned, do not collect, transport or bring soil or plants with soil, or any plant parts (root, fruit, leaf-samples, etc.) of any kind of plant genus. If for any reason samples are required for use within the country, this should be done under the supervision of a specialist observing applicable and known quarantine regulations.
6. No soil, plants, or parts of plants, of any kind should be exported from the countries with the presence of these diseases to Latin America, Caribbean or Africa, where bananas and pineapples are grown.
7. If banana or pineapple planting stock needs to be moved from any of these countries, it should only be done by using meristems and accompanied with all the phytosanitary certifications. The certificate should indicate explicitly that the material is free from *Fusarium oxysporum* f. sp. *cubense*, tropical race 4 (in the case of banana), and *Fusarium guttiforme* (in the case of pineapple). Preferably the meristem material should be analyzed, including by molecular tools such as polymerase chain reaction (PCR).
8. The movement of planting material of *Musa* has to comply with the Protocol of Safe Movement of Germplasm by means of the International Transit Centers that have been established for that purpose. Apart from obtaining the phytosanitary certificate from the country of origin, it is recommended to perform additional virus indexing when the plants arrive in the destination country by accredited laboratories. The plants should always remain properly quarantined before they are transported and planted in the field.
9. Field tools to take soil samples or sample plant parts, or any tool or implement used in the field, should be left behind in the country visited. If for reasons of having to use expensive specialized sampling equipment which cannot be left behind, this need to be thoroughly disinfected before leaving the country, in the following way:
 - a) All soil particles and plant debris should be removed with great care.
 - b) Wash the device with running water three times.
 - c) Immerse in a disinfectant solution of 5% sodium hypochlorite, or if not available with 70% alcohol, for 5 minutes and then one last time with water. Formalin (40%), if available, can also be used.
10. Return flights directly after visiting a plantation should not be taken. Personnel must bathe before leaving the country and comply with recommendations 2, 3 and 4.
11. No "souvenirs" should be bought and brought back home made from any type of vegetative material obtained from banana or pineapple plants

It is necessary to strictly comply with the above stated recommendations. The sustainability of agricultural activity, especially banana, plantain and pineapple in the Americas, the Caribbean and Africa depends to a great extent on preventing the introduction of exotic plagues which could have a high economic impact like the ones mentioned.

These recommendations were elaborated by a group of scientists that work with bananas and pineapples in Latin America and the Caribbean in collaboration with The Plantain and Banana Research and Development Network for Latin America and the Caribbean (MUSALAC) and Bioversity International. While every effort has been made to ensure the recommendations are based on reliable knowledge at hand, the group cannot accept any responsibility for the consequences of the use of this information.