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**REPORT**

**FINDINGS OF PEST SURVEILLANCE FROM PAST CDC AND TC-RPPO PRESENTATIONS**

**IPPC Secretariat**

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**Contents**

[FINDINGS OF PEST SURVEILLANCE FROM PAST CDC AND TC-RPPO PRESENTATIONS 4](#_Toc504733516)

[Table 1: Number of plant pests reported by CDC and TC-RPPO during 2014-2016 4](#_Toc504733517)

[Table 2: Top 5 rated plant pests - disease reported by CDC and TC-RPPO during 2014-2016 4](#_Toc504733518)

[Table 3: Top 5 rated plant pests - other reported by CDC and TC-RPPO during 2014-2016 4](#_Toc504733519)

[Table 4: Top 5 rated plant pests - weed reported by CDC and TC-RPPO during 2014-2016 5](#_Toc504733520)

[Table 5: Number of surveillance activities reported by CDC and TC-RPPO during 2014-2016 5](#_Toc504733521)

[Table 6: Top 5 rated surveillance activities reported by CDC and TC-RPPO during 2014-2016 5](#_Toc504733522)

[Table 7: Top 5 rated surveillance meetings reported by CDC and TC-RPPO during 2014-2016 6](#_Toc504733523)

[Table 8: Top 5 rated surveillance workshops reported by CDC and TC-RPPO during 2014-2016 6](#_Toc504733524)

[Appendix 1 to Annex 1: Detailed results of 2014 pest surveillance information from CDC and TC-RPPO presentations 8](#_Toc504733525)

[Appendix 2 to Annex 1: Detailed results of 2015 pest surveillance information from CDC and TC-RPPO presentations 12](#_Toc504733526)

[Appendix 3 to Annex 1: Detailed results of 2016 pest surveillance information from CDC and TC-RPPO presentations 17](#_Toc504733527)

FINDINGS OF PEST SURVEILLANCE FROM PAST CDC AND TC-RPPO PRESENTATIONS

Since 2012 the CDC has represented a major step forward on national, regional and global cooperation to prevent the spread of pests. Every year in the biannual meetings, CDC members present an update of capacity development status in their regions. These presentations provide valuable information on pest surveillance to strengthen global capacity for implementation of the International Plant Protection Convention (IPPC).

Similarly, at the annual Technical Consultation of Regional Plant Protection Organizations (TC-RPPO) meeting, RPPOs present an update of pest issues and capacity development and implementation activities in their regions.

This paper presents a summary of the collated pest information and surveillance activities from presentations of CDC members and TC-RPPO representatives during the 2014-2016 period.

Table 1: Number of plant pests reported by CDC and TC-RPPO during 2014-2016

|  |  |  |  |
| --- | --- | --- | --- |
| **Years/****Regions** | **Plant pests - disease**  | **Plant pests - other** | **Plant pests - weed** |
| **2014** | **2015** | **2016** | **2014** | **2015** | **2016** | **2014** | **2015** | **2016** |
| North America | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 |
| Caribbean | 3 | 7 | 8 | 2 | 3 | 5 | 0 | 0 | 0 |
| Asia | 2 | 4 | 5 | 2 | 10 | 5 | 0 | 0 | 1 |
| Pacific | 3 | 4 | 0 | 5 | 5 | 3 | 0 | 0 | 0 |
| Near East  | 9 | 2 | 5 | 2 | 3 | 7 | 0 | 2 | 3 |
| Africa | 9 | 7 | 12 | 3 | 6 | 6 | 0 | 1 | 2 |
| Latin America | 4 | 4 | 9 | 4 | 6 | 13 | 0 | 0 | 0 |
| Europe  | 0 | 8 | 29 | 1 | 6 | 15 | 0 | 4 | 1 |

Table 2: Top 5 rated plant pests - disease reported by CDC and TC-RPPO during 2014-2016

|  |
| --- |
| **Plant pests - disease** |
| **2014** | **2015** | **2016** |
| Citrus greening disease (HLB) | Panama disease | Panama disease |
| Coffee leaf rust (CLR) | Citrus greening disease (HLB) | *Xylella fastidiosa* (‎Pierce's disease) |
| South American Leaf Blight (SALB) | *Xylella fastidiosa* (‎Pierce's disease) | Citrus greening disease (HLB) |
| Panama disease | Banana bunchy top virus (BBTV/BBTD) | *Xanthomonas axonopodis* pv. Allii (Bacterial blight) |
| Nematodes | Cassava brown streak virus disease (CBSD) | *Bursaphelenchus xylophilus* (pine wood nematode) |

Table 3: Top 5 rated plant pests - other reported by CDC and TC-RPPO during 2014-2016

|  |
| --- |
| **Plant pests - other** |
| **2014** | **2015** | **2016** |
| Fruit fly | Fruit fly  | Fruit fly  |
| *Tuta absoluta* (tomato leaf miner) | *Tuta absoluta* (tomato leaf miner) | *Tuta absoluta* (tomato leaf miner) |
| Scale insects | Locust Plague | Locust Plague |
| Giant African Snail | *Rhynchophorus ferrugineus* (red palm weevil) | *Lymantria dispar asiatica* (Asian gypsy moth) |
| Armyworms | Rhinoceros Beetles | *Trogoderma granarium* (Khapra beetle) |

Table 4: Top 5 rated plant pests - weed reported by CDC and TC-RPPO during 2014-2016

|  |
| --- |
| **Plant pests - weed** |
| **2014** | **2015** | **2016** |
| *-* | *Solanum elaeagnifolium* (silverleaf nightshade) | *Parthenium hysterophorus* |
| - | *Pistia stratiotes* (water cabbage) | *Microstegium vimineum* (Japanese Stiltgrass) |
| - | *Parthenium hysterophorus* | *Solanum elaeagnifolium* (silverleaf nightshade) |
| - | *Myriophyllum heterophyllum* (broadleaf watermilfoil) | *Pistia stratiotes* (water cabbage) |
| - | *Striga hermonthica* (witch weed) | Others in general |

Table 5: Number of surveillance activities reported by CDC and TC-RPPO during 2014-2016

|  |  |  |  |
| --- | --- | --- | --- |
| **Years/****Regions** | **Activities** | **Meetings** | **Trainings** |
| **2014** | **2015** | **2016** | **2014** | **2015** | **2016** | **2014** | **2015** | **2016** |
| North America | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 8 | 5 |
| Caribbean | 1 | 1 | 6 | 11 | 2 | 4 | 7 | 8 | 13 |
| Asia | 6 | 8 | 5 | 5 | 1 | 2 | 11 | 16 | 19 |
| Pacific  | 1 | 14 | 4 | 1 | 1 | 0 | 6 | 10 | 8 |
| Near East | 0 | 1 | 6 | 1 | 0 | 1 | 5 | 8 | 12 |
| Africa | 2 | 5 | 6 | 4 | 1 | 4 | 5 | 7 | 6 |
| Latin America | 2 | 0 | 4 | 0 | 1 | 6 | 4 | 14 | 2 |
| Europe | 6 | 5 | 4 | 0 | 0 | 13 | 1 | 13 | 13 |

Table 6: Top 5 rated surveillance activities reported by CDC and TC-RPPO during 2014-2016

|  |
| --- |
| **Surveillance activities** |
| **2014** | **2015** | **2016** |
| Developed websites/posters/videos/flyers/other awareness materials | 44% | Project on Strengthening the capacities of national phytosanitary control services | 29% | Developed and updated factsheets/pest lists/national surveillance database | 25% |
| Project on Strengthening the capacities of national phytosanitary control services | 17% | Developed websites/posters/videos/flyers/other awareness materials | 26% | Surveillance Information Management System | 14% |
| Surveillance Information Management System | 17% | Developed and updated factsheets/pest lists/national surveillance database | 15% | Projects on Strengthening the capacities of national phytosanitary control services | 11% |
| Developed and updated factsheets/pest lists/national surveillance database | 17% | New research facilities built/new methods applied | 6% | Developed websites/posters/videos/flyers/other awareness materials | 11% |
| Surveys on pests and diseases | 6% | Surveillance Information Management System | 6% | Surveys on pests and diseases | 8% |

Table 7: Top 5 rated surveillance meetings reported by CDC and TC-RPPO during 2014-2016

|  |
| --- |
| **Surveillance meetings** |
| **2014** | **2015** | **2016** |
| Panel meeting on the Plant Health | 32% | Panel meeting on Phytosanitary Measures | 33% | Panel meeting on Diagnostics | 25% |
| Working Group on fruit fly | 17% | Scientific Network for Risk Assessment in Plant Health | 33% | Working Group on fruit fly | 22% |
| Panel meeting on Phytosanitary Measures | 17% | International Phytosanitary Conference | 17% | Panel meeting on the Plant Health | 19% |
| Scientific Network for Risk Assessment in Plant Health  | 9% | Pest Diagnostic Network | 17% | Scientific Network for Risk Assessment in Plant Health | 26% |
| Working Group on Citrus greening disease (HLB) | 9% | - | - | Panel meeting on Phytosanitary Measures | 6% |

Table 8: Top 5 rated surveillance workshops reported by CDC and TC-RPPO during 2014-2016

|  |
| --- |
| **Surveillance workshops** |
| **2014** | **2015** | **2016** |
| IPPC Regional Workshop on surveillance | 18% | Workshop on Modelling in Plant Health, PRA, Decision-making | 23% | Surveillance trainings to technical people at national level | 19% |
| Workshop on Standards and Plant Quarantine Regime related to surveillance | 18% | Workshop on Phytosanitary Inspection, Pest Identification, Diagnostics | 18% | Workshop on Modelling in Plant Health, PRA, Decision-making | 19% |
| Workshop on Modelling in Plant Health, PRA, Decision-making | 15% | Workshop on fruit fly | 8% | Workshop on Phytosanitary Inspection, Pest Identification, Diagnostics | 15% |
| Workshop on Phytosanitary Inspection, Pest Identification, Diagnostics | 10% | IPPC Regional Workshop on surveillance | 7% | Workshop on fruit fly | 12% |
| Workshop on Application of Sanitary/Phytosanitary Measures | 8% | Workshop on Standards and Plant Quarantine Regime related to surveillance | 7% | Workshop on *Xylella fastidiosa* | 9% |

Analysis of presentations have provided the IPPC Secretariat, CDC and RPPOs with an understanding of trends of pest surveillance from the past three years and its importance at the national, regional and global levels.

Appendixes 1, 2 and 3 present respectively the Appendix 3 the detailed results of 2014, 2015 and 2016 pest surveillance information from CDC and TC-RPPO presentations.

Appendix 1 to Annex 1: Detailed results of 2014 pest surveillance information from CDC and TC-RPPO presentations

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2014** | **North America** | **Caribbean** | **Asia** | **Southwest Pacific islands** | **Near East and North Africa** | **Africa** | **Latin America** | **Eastern Europe and Central Asia** |
| **Plant pest - disease**  |
| *Alternaria arborescens* (Leaf Spot) |  |  |  |  | 1 |  |  |  |
| Banana bunchy top virus (BBTV/BBTD) (Babuvirus) |  |  |  |  |  | 1 |  |  |
| Bogia Coconut Syndrome (BCS) |  |  |  | 1 |  |  |  |  |
| *Candidatus* Phytoplasma phoenicium (almond witches broom)  |  |  |  | 1 |  |  |  |  |
| Cassava brown streak virus disease (CBSD) |  |  |  |  |  | 1 |  |  |
| Cassava Mosaic Virus (CMV) |  |  |  |  |  | 1 |  |  |
| *Ceratocystis fimbriata* (Ceratocystis blight) |  |  |  |  |  |  | 1 |  |
| Citrus greening disease (HLB) (*Candidatus Liberibacter asiaticus*, *Candidatus Liberibacter asiaticus*) |  | 1 |  |  | 1 |  | 1 |  |
| Coffee leaf rust (CLR) |  | 1 |  |  |  | 1 |  |  |
| *Curvularia lunata* (Leaf Spots) |  |  |  |  | 1 |  |  |  |
| *Diaporthe neoviticola* (Wood Cankers) |  |  |  |  | 1 |  |  |  |
| Downy Mildew (*Peronospora farinose* f. sp. *spinaciae*) |  |  |  |  | 1 |  |  |  |
| Entomopathogen fungi |  |  | 1 |  |  |  |  |  |
| *Erwinia* spp. (Papaya Bacterial Crown Rot (BCR)) |  |  |  | 1 |  |  |  |  |
| *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 (Foc TR4) (Panama disease/Fusarium Wilt)  |  |  |  |  | 1 | 1 |  |  |
| Maize lethal necrosis disease (MLND) |  |  |  |  |  | 1 |  |  |
| *Mycosphaerella fijiensis* (Black Sigatoka) |  | 1 |  |  |  |  |  |  |
| Nematodes |  |  |  |  | 1 |  |  |  |
| *Phyllosticta citricarpa* (Citrus Black Spot) |  |  |  |  |  | 1 |  |  |
| *Phytophthora* spp. (black pod disease): *Phytophthora megakarya*, *Phytophthora syringae*  |  |  |  |  | 1 |  |  |  |
| *Pseudomonas syringae* pv. *actinidiae* (Psa) (bacterial canker) |  |  |  |  |  |  | 1 |  |
| South American Leaf Blight (SALB)  |  |  | 1 |  |  |  | 1 |  |
| *Xanthomonas campestris* pv. *musacearum* (Banana Xanthomonas wilt (BXW/BBW)) |  |  |  |  |  | 1 |  |  |
| *Xanthomonas citri* (Citrus canker) |  |  |  |  |  | 1 |  |  |
| Yellow Leaf Virus (YLV) |  |  |  |  | 1 |  |  |  |
| **Plant pest - other** |
| Anoplolepis gracilipes (yellow crazy ant) |  |  |  | 1 |  |  |  |  |
| Anoplophora glabripennis (Asian longhorned beetle) |  |  |  |  |  |  |  | 1 |
| Armyworms |  |  |  |  |  | 1 |  |  |
| Aspidiotus destructor (coconut scale) |  |  | 1 |  |  |  |  |  |
| Fruit fly (Tephritid: Medfly Ceratitis capitat, Bactocera invadens, Bactrocera dorsalisI, Solanum fruit fly Bactrocera latifrons, Bactrocera zonata, Bactrocera zonatadorsalis) (Drosophilid: Drosophila suzukii) (South American cucurbit fruit fly Anastrepha grandis) (lesser pumpkin fly Dacus ciliatus) |  | 1 | 1 | 1 | 1 | 1 |  |  |
| Giant African Snail |  | 1 |  |  |  |  |  |  |
| Helicoverpa armigera (cotton bollworm) |  |  |  |  |  |  | 1 |  |
| Lobesia botrana (grape berry moth) |  |  |  |  |  |  | 1 |  |
| Lymantria dispar asiatica (Asian gypsy moth (AGM)) |  |  |  |  |  |  | 1 |  |
| Monochamus spp. |  |  |  |  |  |  | 1 |  |
| Oryctes rhinoceros (coconut rhinoceros beetle (CRB)) |  |  |  | 1 |  |  |  |  |
| Papuana uniondis (Taro Beetle) |  |  |  | 1 |  |  |  |  |
| Paracoccus marginatus (Papaya Mealybug) |  |  |  | 1 |  |  |  |  |
| Prostephanus truncatus (larger grain borer (LGB)) |  |  |  |  |  | 1 |  |  |
| Rhynchophorus ferrugineus (red palm weevil (RPW)) |  |  |  |  | 1 |  |  |  |
| Thaumastocoris peregrinus (bronze bug) |  |  |  |  |  |  | 1 |  |
| Tuta absoluta (tomato leaf miner) |  |  |  |  | 1 | 1 |  |  |
| **Activities/projects on surveillance** |
| Developed factsheets/pest list/national surveillance database |  | 1 |  | 1 |  |  |  | 1 |
| Developed websites/posters/video/flyers/other awareness materials |  |  | 4 |  |  |  |  | 4 |
| Project: Strengthening the capacities of national phytosanitary control services |  |  |  |  |  | 1 | 2 |  |
| Surveillance Information Management System |  |  | 2 |  |  |  |  | 1 |
| Surveys on pests and diseases |  |  |  |  |  | 1 |  |  |
| **Meetings related to surveillance** |
| International Phytosanitary Conference |  |  | 1 |  |  |  |  |  |
| Panel meeting on Phytosanitary Measures |  |  | 2 |  |  | 1 |  |  |
| Panel meeting on the Plant Health |  | 3 | 1 |  | 1 | 2 |  |  |
| Pest Diagnostic Network  |  | 1 |  |  |  |  |  |  |
| Scientific Network for Risk Assessment in Plant Health |  |  |  | 1 |  | 1 |  |  |
| Working Group on Citrus greening disease (HLB) |  | 2 |  |  |  |  |  |  |
| Working Group on Emergency Response |  | 1 |  |  |  |  |  |  |
| Working Group on Giant African Snail and Mollusk pests |  | 1 |  |  |  |  |  |  |
| Working Group on *Mycosphaerella fijiensis* (Black Sigatoka) |  | 1 |  |  |  |  |  |  |
| Working Group on fruit fly |  | 2 | 1 |  |  |  |  |  |
| **Trainings related to surveillance** |
| IPPC Regional Workshop on surveillance |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Other trainings to technical people at national level |  |  | 1 |  |  |  | 1 |  |
| Training on sea container cleanliness and wood packaging materials |  |  | 1 |  |  |  |  |  |
| Workshop on cocoa pests |  |  |  |  |  | 1 |  |  |
| Workshop on Entomopathogen fungi |  |  | 1 |  |  |  |  |  |
| Workshop on South American Leaf Blight (SALB)  |  |  | 1 |  |  |  | 1 |  |
| Workshop on fruit fly |  | 1 | 1 | 1 |  | 1 |  |  |
| Workshop on *Tuta absoluta* (tomato leaf miner) |  |  |  |  | 1 |  |  |  |
| Workshop: Application of Sanitary/Phytosanitary Measures  |  | 1 |  | 2 |  |  |  |  |
| Workshop: *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 (Foc TR4) |  | 1 |  |  |  |  |  |  |
| Workshop: Modelling in Plant Health, PRA, Decision-making |  | 1 | 2 | 1 | 1 | 1 |  |  |
| Workshop: Phytosanitary Inspection, Pest Identification, Diagnostics | 1 | 1 | 1 |  |  | 1 |  |  |
| Workshop: Standards and Plant Quarantine Regime related to surveillance |  | 1 | 2 | 1 | 2 |  | 1 |  |

Appendix 2 to Annex 1: Detailed results of 2015 pest surveillance information from CDC and TC-RPPO presentations

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2015** | **North America** | **Caribbean** | **Asia** | **Southwest Pacific islands** | **Near East and North Africa** | **Africa** | **Latin America** | **Eastern Europe and Central Asia** |
| **Plant pest - disease**  |
| Banana bunchy top virus (BBTV/BBTD) (Babuvirus) |  |  |  |  |  | 1 |  |  |
| *Bursaphelenchus xylophilus* (pine wood nematode) |  |  |  |  |  |  | 1 |  |
| *Candidatus* Liberibacter solanacearum (Lso) (Zebra chip disease) |  | 1 |  |  |  |  |  |  |
| Cassava brown streak virus disease (CBSD) |  |  |  |  |  | 1 |  |  |
| Cassava Mosaic Virus (CMV) |  |  |  |  |  | 1 |  |  |
| Citrus greening disease (HLB) (*Candidatus Liberibacter asiaticus*, *Candidatus Liberibacter asiaticus*) |  | 1 |  | 1 | 1 |  | 1 |  |
| Coffee leaf rust (CLR) |  | 1 |  |  |  |  |  |  |
| *Colletotrichum kahawae* (Coffee Berry Disease (CBD)) |  | 1 |  |  |  |  |  |  |
| Entomopathogen fungi |  |  | 1 |  |  |  |  |  |
| *Erwinia* spp. (Papaya Bacterial Crown Rot (BCR)) |  |  |  | 1 |  |  |  |  |
| *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 (Foc TR4) (Panama disease/Fusarium Wilt)  |  | 1 | 1 | 1 |  | 1 | 1 |  |
| *Geosmithia morbida* (Thousand Cankers Disease (TCD)) |  |  |  |  |  |  |  | 1 |
| *Globodera rostochiensis* and *G. pallida* (Potato cyst nematode) |  |  |  |  |  | 1 |  |  |
| *Heterobasidion irregulare*  |  |  |  |  |  |  |  | 1 |
| Maize lethal necrosis disease (MLND) |  |  |  |  |  | 1 |  |  |
| *Meloidogyne mali* (apple root-knot nematode)  |  |  |  |  |  |  |  | 1 |
| *Mycosphaerella dearnessii*/*Lecanosticta acicola* (brown spot needle blight) |  |  |  |  |  |  |  | 1 |
| *Mycosphaerella pini*/*Dothistroma septosporum* (Dothistroma blight) |  |  |  |  |  |  |  | 1 |
| Nematodes |  | 1 |  |  |  |  |  |  |
| *Phytophthora colocasiae* (Taro Leaf Blight (TLB)) |  |  |  | 1 |  |  |  |  |
| *Phytophthora lateralis* (Port-Orford-cedar root disease) |  |  |  |  |  |  |  | 1 |
| Plant virsus in general |  |  | 1 |  |  |  |  |  |
| *Plenodomus tracheiphilus* |  |  |  |  |  |  |  | 1 |
| *Pseudomonas syringae* pv. *actinidiae* (Psa) (bacterial canker) |  |  |  |  |  |  | 1 |  |
| South American Leaf Blight (SALB)  |  |  | 1 |  |  |  |  |  |
| *Xanthomonas campestris* pv. *musacearum* (Banana Xanthomonas wilt (BXW/BBW)) |  |  |  |  |  | 1 |  |  |
| *Xylella fastidiosa* (‎Pierce's disease) |  | 1 |  |  | 1 |  |  | 1 |
| **Plant pest - other** |
| Aleyrodidae (Whitefly) |  |  | 1 |  |  |  |  |  |
| *Anoplolepis gracilipes* (yellow crazy ant) |  |  |  | 1 |  |  |  |  |
| *Anoplophora chinensis* (black and white citrus longhorn beetle) |  |  |  |  |  |  |  | 1 |
| *Anoplophora glabripennis* (Asian longhorned beetle) |  |  |  |  |  |  |  | 1 |
| Aphids |  |  | 1 |  |  |  |  |  |
| *Brontispa longissima* (Coconut leaf beetle) |  |  | 1 |  |  |  |  |  |
| Cassava Pink Mealybug |  |  | 1 |  |  |  |  |  |
| Coccoidae and Diaspididae  |  |  |  |  |  |  | 1 |  |
| Fruit fly (Tephritid: Medfly *Ceratitis capitat, Bactocera invadens, Bactrocera dorsalisI*, Solanum fruit fly *Bactrocera latifrons*, *Bactrocera zonata, Bactrocera zonatadorsalis*) (Drosophilid: *Drosophila suzukii*) (South American cucurbit fruit fly *Anastrepha grandis*) (lesser pumpkin fly *Dacus ciliatus*) |  | 1 |  |  | 1 | 1 | 1 | 1 |
| Helicoverpa armigera (cotton bollworm) |  |  |  |  |  |  | 1 |  |
| Leaf miner |  |  | 1 |  |  |  |  |  |
| Lepidoptera pests |  |  | 1 |  |  |  |  |  |
| Lobesia botrana (grape berry moth) |  |  |  |  |  |  | 1 |  |
| Locust Plague (Schistocerca piceifrons, Ceracris kiangsu) |  |  | 1 |  |  | 1 |  |  |
| Lycorma delicatula (spotted laternfly) |  |  |  |  |  |  |  | 1 |
| Lymantria dispar asiatica (Asian gypsy moth (AGM)) |  |  |  |  |  |  | 1 |  |
| Oryctes rhinoceros (coconut rhinoceros beetle (CRB)) |  |  |  | 1 |  |  |  |  |
| Papuana uniondis (Taro Beetle) |  |  |  | 1 |  |  |  |  |
| Paracoccus marginatus (Papaya Mealybug) |  |  |  | 1 |  |  |  |  |
| Pityophthorus juglandis (walnut twig beetle) |  |  |  |  |  |  |  | 1 |
| Procantarinia sp. (Mango cecid fly) |  |  | 1 |  |  |  |  |  |
| Prostephanus truncatus (larger grain borer(LGB)) |  |  |  |  |  | 1 |  |  |
| Rastrococcus invadens (fruit tree mealybug) |  |  |  |  |  | 1 |  |  |
| Rhinoceros Beetle |  |  |  | 1 |  | 1 |  |  |
| Rhynchophorus ferrugineus (red palm weevil (RPW)) |  |  | 1 |  | 1 |  |  |  |
| Spodoptera spp. (Spodoptera littoralis, Spodoptera litura, Spodoptera frugiperda, Spodoptera eridania) |  |  |  |  |  |  |  | 1 |
| Sternochetus frigidus (Mango pulp weevil) |  |  | 1 |  |  |  |  |  |
| Thaumastocoris peregrinus (bronze bug) |  |  |  |  |  |  | 1 |  |
| Thrips palmi (melon thrips) |  | 1 |  |  |  |  |  |  |
| Trogoderma granarium (Khapra beetle) | 1 |  |  |  |  |  |  |  |
| Tuta absoluta (tomato leaf miner) |  | 1 |  |  | 1 | 1 |  |  |
| **Plant pest - weed** |
| Alternanthera philoxeroides (alligator weed) |  |  |  |  |  |  |  | 1 |
| Eichhornia crassipes (Water Hyacinth) |  |  |  |  | 1 |  |  |  |
| Microstegium vimineum (Trin.) (Nepalese browntop/Japanese Stiltgrass) |  |  |  |  |  |  |  | 1 |
| Myriophyllum heterophyllum (broadleaf watermilfoil) |  |  |  |  |  |  |  | 1 |
| Parthenium hysterophorus |  |  |  |  |  |  |  | 1 |
| Pistia stratiotes (water cabbage) |  |  |  |  | 1 |  |  |  |
| Solanum elaeagnifolium (silverleaf nightshade) |  |  |  |  | 1 |  |  | 1 |
| Striga hermonthica (Witch weed) |  |  |  |  |  | 1 |  |  |
| **Activities/projects on surveillance** |
| Developed factsheets/pest list/national surveillance database |  | 1 | 1 | 2 |  |  |  | 1 |
| Developed websites/posters/video/flyers/other awareness materials |  |  | 3 | 6 |  |  |  |  |
| Early warning system for Tuta absoluta (tomato leafminer) by South Africa Plant Protection & DAFF |  |  |  |  |  | 1 |  |  |
| FAO project: Three Year Locust Plague Programme in Madagascar |  |  |  |  |  | 1 |  |  |
| New research facilities built/new methods applied |  |  | 1 | 1 |  |  |  |  |
| Pest free area established/maintained |  |  | 1 |  |  |  |  |  |
| Project: Strengthening biosecurity - needs assessment and capacity development |  |  |  |  | 1 |  |  |  |
| Project: Strengthening the capacities of national phytosanitary control services |  |  | 1 | 2 |  | 3 |  | 4 |
| Surveillance Information Management System |  |  | 1 | 1 |  |  |  |  |
| Surveys on pests and diseases |  |  |  | 2 |  |  |  |  |
| **Meetings related to surveillance** |
| International Phytosanitary Conference |  |  | 1 |  |  |  |  |  |
| Panel meeting on Phytosanitary Measures |  | 1 |  |  |  |  | 1 |  |
| Pest Diagnostic Network  |  |  |  | 1 |  |  |  |  |
| Scientific Network for Risk Assessment in Plant Health |  | 1 |  |  |  | 1 |  |  |
| **Trainings related to surveillance** |
| IPPC Regional Workshop on surveillance |  | 1 | 1 | 1 | 1 |  | 1 | 1 |
| Other trainings to technical people at national level |  |  | 1 | 2 |  |  |  | 3 |
| Training on sea container cleanliness and wood packaging materials |  |  |  | 1 |  |  |  |  |
| Workshop on Aleyrodidae (Whitefly) |  |  | 1 |  |  |  |  |  |
| Workshop on citrus diseases/pests | 1 |  |  |  |  |  |  |  |
| Workshop on Eichhornia crassipes (Water Hyacinth) |  |  |  |  | 1 |  |  |  |
| Workshop on Entomopathogen fungi/viruses |  |  | 3 |  |  |  | 1 |  |
| Workshop on Lepidoptera pests |  |  | 1 |  |  |  |  |  |
| Workshop on mites |  |  |  |  |  |  | 1 |  |
| Workshop on plant virus  |  |  | 1 |  |  |  |  |  |
| Workshop on fruit fly |  | 1 |  | 1 |  | 4 | 1 |  |
| Workshop on Tuta absoluta (tomato leaf miner) |  |  |  |  | 1 | 1 |  |  |
| Workshop on Xylella Fastidiosa  |  |  |  |  | 1 |  | 1 |  |
| Workshop: Application of Sanitary/Phytosanitary Measures  | 1 | 1 | 1 |  |  |  | 1 |  |
| Workshop: Fusarium oxysporum f. sp. cubense Tropical Race 4 (Foc TR4) |  | 1 |  |  |  | 1 | 1 |  |
| Workshop: Modelling in Plant Health, PRA, Decision-making | 5 | 2 | 3 | 2 | 2 |  | 2 | 3 |
| Workshop: Phytosanitary Inspection, Pest Identification, Diagnostics |  | 2 | 3 | 1 | 1 |  | 4 | 4 |
| Workshop: Rhynchophorus ferrugineus (red palm weevil (RPW)) |  |  | 1 |  | 1 |  |  |  |
| Workshop: South-South Initiative Cooperation |  |  |  | 1 |  |  |  |  |
| Workshop: Standards and Plant Quarantine Regime related to surveillance | 1 |  |  | 1 |  | 1 | 1 | 2 |

Appendix 3 to Annex 1: Detailed results of 2016 pest surveillance information from CDC and TC-RPPO presentations

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2016** | **North America** | **Caribbean** | **Asia** | **Southwest Pacific Islands** | **Near East and North Africa** | **Africa** | **Latin America** | **Eastern Europe and Central Asia** |
| **Plant pest - disease**  |
| *Acidovorax citrulli* (bacterial fruit blotch (BFB)) |  |  |  |  |  |  |  | 1 |
| Banana bunchy top virus (BBTV/BBTD) (Babuvirus) |  |  |  |  | 1 | 1 |  |  |
| Begomovirus virus |  |  |  |  |  |  |  | 1 |
| *Burkholderia glumae* (bacterial grain rot) |  |  |  |  |  |  | 1 |  |
| *Bursaphelenchus xylophilus* (pine wood nematode) |  |  |  |  |  |  | 1 | 1 |
| Cacao swollen-shoot virus (CSSV) |  |  |  |  |  | 1 |  |  |
| *Candidatus* Liberibacter solanacearum (Lso) (Zebra chip disease) |  |  |  |  |  |  |  | 1 |
| *Candidatus* Phytoplasma phoenicium (almond witches broom)  |  |  |  |  |  |  |  | 1 |
| *Candidatus* Phytoplasma vitis |  |  |  |  |  |  |  | 1 |
| Cassava brown streak virus disease (CBSD) |  |  |  |  |  | 1 |  |  |
| Cassava Mosaic Virus (CMV) |  |  | 1 |  |  | 1 |  |  |
| Citrus bark cracking viroid (CBCVd) |  |  |  |  |  |  |  | 1 |
| Citrus greening disease (HLB) (*Candidatus Liberibacter asiaticus*, *Candidatus Liberibacter asiaticus*) |  | 1 |  |  | 1 |  | 1 |  |
| *Clavibacter michiganensis* subsp. *Sepedonicus* (Potato ring rot) |  |  |  |  |  |  |  | 1 |
| *Colletotrichum kahawae* (Coffee Berry Disease (CBD)) |  | 1 |  |  |  |  |  |  |
| *Ditylenchus destructor* Thorne (potato tuber nematode) |  |  |  |  |  |  |  | 1 |
| *Erwinia amylovora* (Fire blight) |  |  |  |  |  |  |  | 1 |
| *Euwallacea fornicatus sensu lato* (tea shot hole borer) |  |  |  |  |  |  |  | 1 |
| *Fusarium euwallaceae* |  |  |  |  |  |  |  | 1 |
| *Fusarium guttiforme* (pineapple Fusariosis) |  | 1 |  |  |  |  |  |  |
| *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 (Foc TR4) (Panama disease/Fusarium Wilt)  |  | 1 | 1 |  | 1 | 1 | 1 |  |
| *Globodera rostochiensis* and *G. pallida* (PCN) (Potato cyst nematode) |  |  |  |  |  | 1 |  | 1 |
| Grapevine flavescence dorée (GFD)  |  |  |  |  |  |  |  | 1 |
| Grapevine red blotch-associated virus (GRBaV) |  |  |  |  |  |  | 1 | 1 |
| *Guignardia citricarpa* (Citrus Black Spot (CBS)) |  |  |  |  |  |  |  | 1 |
| *Hemileia vastatrix* (Coffee Leaf Rust) |  | 1 |  |  |  |  |  |  |
| *Hymenoscyphus fraxineus* (ash dieback) |  |  |  |  |  |  |  | 1 |
| *Lecanosticta acicola* |  |  |  |  |  |  |  | 1 |
| Lethal Yellow (LY) |  | 1 |  |  |  | 1 |  |  |
| Little cherry disease (LChD) |  |  |  |  |  |  |  | 1 |
| *Magnaporthe oryzae* Pathotype *triticum* (Wheat Blast) |  |  | 1 |  |  |  |  |  |
| Maize lethal necrosis disease (MLND) |  |  |  |  |  | 1 |  |  |
| *Meloidogyne* spp. nematodes (*Meloidogyne chitwoodi*, *Meloidogyne fallax*, *Meloidogyne enterolobii*) |  |  |  |  |  |  |  | 1 |
| *Moniliophthora roreri* (Frosty pod rot of cocoa) |  | 1 |  |  |  | 1 |  |  |
| Nematodes |  |  | 1 |  |  |  |  |  |
| *Pantoea stewartii* ssp. *stewartii* (maize bacterial blight) |  |  |  |  |  |  |  | 1 |
| Papaya meleira virus (PMeV) |  | 1 |  |  |  |  |  |  |
| *Phytophthora* spp. (black pod disease) *Phytophthora megakarya* |  |  |  |  |  | 1 |  |  |
| *Pleurostomophora richardsiae*  |  |  |  |  | 1 |  |  |  |
| Pospiviroid viroid |  |  |  |  |  |  |  | 1 |
| *Pseudomonas syringae* pv. *actinidiae* (Psa) (bacterial canker) |  |  |  |  |  |  | 1 |  |
| *Ralstonia solanacearum* |  |  |  |  |  |  |  | 1 |
| *Sirococcus tsugae* (shoot blight) |  |  |  |  |  |  |  | 1 |
| South American Leaf Blight (SALB)  |  |  | 1 |  |  |  | 1 |  |
| *Synchytrium endobioticum* (wart disease of potato) |  |  |  |  |  |  |  | 1 |
| *Thekopsora minima* (blueberry leaf rust) |  |  |  |  |  |  |  | 1 |
| Tomato leaf curl New Delhi virus (ToLCNDV) |  |  |  |  |  |  | 1 | 1 |
| Wheat rust disease |  |  |  |  |  | 1 |  |  |
| *Xanthomonas axonopodis* pv. *Allii* (Bacterial blight) |  |  |  |  |  | 1 |  | 1 |
| *Xylella fastidiosa* (‎Pierce's disease) |  |  |  |  | 1 |  | 1 | 1 |
| **Plant pest - other** |
| *Achea catocaloides* |  |  |  |  |  | 1 |  |  |
| *Aleurotrachelus trachoides* (pepper whitefly) |  |  |  |  |  |  |  | 1 |
| *Anoplolepis gracilipes* (yellow crazy ant) |  |  |  | 1 |  |  |  |  |
| *Anthonomus grandis* (boll weevil) |  |  |  |  |  |  | 1 |  |
| *Aromia bungii* (red neck longhorn beetle) |  |  |  |  |  |  | 1 |  |
| *Bactericera cockerelli* (potato psyllid) |  |  |  |  |  |  |  | 1 |
| *Ceratothripoides brunneus* (tomato thrips) |  |  |  |  |  |  |  | 1 |
| *Ceratothripoides claratris* |  |  |  |  |  |  |  | 1 |
| *Contarinia pseudotsugae* (needle midge) |  |  |  |  |  |  |  | 1 |
| *Dactylopius opuntiae* (prickly pear cochineal) |  |  |  |  | 1 |  |  |  |
| *Dendroctonus* spp. (pine bark beetle) |  | 1 |  |  |  |  |  |  |
| *Epitrix papa* (EPIXPP) |  |  |  |  |  |  |  | 1 |
| *Epitrix* spp. (Potato Flea Beetle) |  |  |  |  |  |  |  | 1 |
| Fruit fly (Tephritid: Medfly *Ceratitis capitat, Bactocera invadens, Bactrocera dorsalisI*, Solanum fruit fly *Bactrocera latifrons*, *Bactrocera zonata, Bactrocera zonatadorsalis*) (Drosophilid: *Drosophila suzukii*) (South American cucurbit fruit fly *Anastrepha grandis*) (lesser pumpkin fly *Dacus ciliatus*) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Giant African Snail |  | 1 |  |  |  |  | 1 |  |
| *Helicoverpa armigera* (cotton bollworm) |  |  |  |  |  |  | 1 |  |
| *Hypothenemus hampei* (coffee berry borer) |  | 1 |  |  |  |  |  |  |
| Leaf miner |  |  | 1 |  |  |  |  |  |
| *Leptinotarsa decemlineata* (Colorado potato beetle) |  |  |  |  |  |  |  | 1 |
| *Lobesia botrana* (grape berry moth) |  |  |  |  |  |  | 1 |  |
| Locust Plague (*Schistocerca piceifrons, Ceracris kiangsu*) |  |  | 1 |  | 1 | 1 |  |  |
| *Lycorma delicatula* (spotted lanternfly) |  |  |  |  |  |  |  | 1 |
| *Lymantria dispar asiatica* (Asian gypsy moth (AGM)) | 1 |  | 1 |  |  |  | 1 |  |
| *Lymantria mathura* (pink gypsy moth) |  |  |  |  |  |  | 1 |  |
| *Massicus raddei* |  |  |  |  |  |  |  | 1 |
| *Melanaphis sacchari* (Sorghum yellow aphid) |  | 1 |  |  |  |  |  |  |
| *Monochamus* spp. |  |  |  |  |  |  | 1 |  |
| *Oryctes rhinoceros* (coconut rhinoceros beetle (CRB)) |  |  |  | 1 |  |  |  |  |
| Others (not mentioned specificly) |  |  |  |  |  |  | 2 |  |
| *Philaenus spumarius*(Meadow Froghopper) |  |  |  |  | 1 |  |  |  |
| *Popillia japonica* (Japanese beetle) |  |  |  |  |  |  |  | 1 |
| *Prodiplosis longifila* |  |  |  |  |  |  |  | 1 |
| *Rhynchophorus ferrugineus* (red palm weevil) |  |  |  |  | 1 |  |  |  |
| *Scaphoideus titanus* |  |  |  |  |  |  |  | 1 |
| *Thaumastocoris peregrinus* (bronze bug) |  |  |  |  |  |  | 1 |  |
| *Thaumatotibia leucofreta* (False codling moth) |  |  |  |  |  | 1 |  |  |
| Thrips |  |  |  |  |  | 1 |  |  |
| *Thrips setosus* (Japanese flower thrips) |  |  |  |  |  |  |  | 1 |
| *Tomicus piniperda* (common pine shoot beetle) |  |  |  |  |  |  | 1 |  |
| *Trogoderma granarium* (Khapra beetle) | 1 |  |  |  | 1 |  |  |  |
| *Tuta absoluta* (tomato leaf miner) |  |  | 1 |  | 1 | 1 |  |  |
| **Plant pest - weed** |
| *Microstegium vimineum* (Trin.) (Nepalese browntop/Japanese Stiltgrass) |  |  |  |  |  |  |  | 1 |
| Others (not mentioned specificly) |  |  |  |  |  | 1 |  |  |
| *Parthenium hysterophorus* |  |  | 1 |  | 1 | 1 |  |  |
| *Pistia stratiotes* (water cabbage) |  |  |  |  | 1 |  |  |  |
| *Solanum elaeagnifolium* (silverleaf nightshade) |  |  |  |  | 1 |  |  |  |
| **Activities/projects on surveillance** |
| AGM offshore ship inspection and certification program | 1 |  |  |  |  |  |  |  |
| Developed and updated factsheets/pest list/national surveillance database |  | 2 | 1 | 2 | 1 | 2 | 1 |  |
| Developed websites/posters/video/flyers/other awareness materials |  | 3 |  | 1 |  |  |  |  |
| FAO project: Strengthening the phytosanitary capacity for pest control red palm weevil |  |  |  |  | 1 |  |  |  |
| FAO project: Three Year Locust Plague Programme in Madagascar |  |  |  |  |  | 1 |  |  |
| FAO Regional Project: Enhancing Capacity for Detection, Surveillance and Suppression of Exotic and Established Fruit Fly Species  |  |  |  |  |  | 1 |  |  |
| New research facilities built/new methods applied |  |  |  |  | 1 | 2 |  |  |
| Pest free area established/maintained |  |  | 1 |  |  |  |  |  |
| Project: Strengthening the capacities of national phytosanitary control services |  |  |  |  |  |  | 3 | 1 |
| STDF project: Strengthening phytosanitary inspection and diagnostic services |  |  |  |  |  |  |  | 3 |
| Surveillance Information Management System |  | 1 | 2 | 1 | 1 |  |  |  |
| Surveys on pests and diseases |  |  | 1 |  | 2 |  |  |  |
| **Meetings related to surveillance** |
| International Phytosanitary Conference |  |  |  |  |  | 1 |  |  |
| Panel meeting on Diagnostics |  |  | 1 |  | 1 |  | 1 | 5 |
| Panel meeting on Phytosanitary Measures |  |  |  |  |  |  |  | 2 |
| Panel meeting on the Plant Health |  |  |  |  |  |  | 1 | 5 |
| Pest Diagnostic Network  |  |  |  |  |  |  | 1 |  |
| Scientific Network for Risk Assessment in Plant Health | 1 | 1 |  |  |  | 1 | 1 | 1 |
| Working Group on Emergency Response |  | 1 | 1 |  |  |  |  |  |
| Working Group on fruit fly | 1 | 2 |  |  |  | 2 | 2 |  |
| **Trainings related to surveillance** |
| IPPC Regional Workshop on surveillance |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Other trainings to technical people at national level | 1 | 1 | 5 | 1 | 1 | 2 |  | 4 |
| Workshop on *Rhynchophorus ferrugineus* (red palm weevil) |  |  |  |  | 1 |  |  |  |
| Workshop on South American Leaf Blight (SALB)  |  |  | 1 |  |  |  |  |  |
| Workshop on fruit fly |  | 3 | 2 | 2 |  | 1 | 1 |  |
| Workshop on weeds |  |  | 2 |  |  |  |  |  |
| Workshop on *Xylella Fastidiosa*  |  |  |  |  | 5 |  |  | 2 |
| Workshop: Application of Sanitary/Phytosanitary Measures  |  | 1 | 1 |  | 3 |  |  |  |
| Workshop: Modelling in Plant Health, PRA, Decision-making | 3 | 3 | 2 | 3 |  | 1 |  | 3 |
| Workshop: Phytosanitary Inspection, Pest Identification, Diagnostics |  | 4 | 3 | 1 | 1 | 1 |  | 2 |
| Workshop: Standards and Plant Quarantine Regime related to surveillance | 1 |  | 2 |  |  |  |  | 1 |