

Highlights on some EPPO activities in plant quarantine

Francoise PETTER, Muriel SUFFERT, Anne Sophie ROY, Damien GRIESSINGER, Madeleine MCMULLEN
European and Mediterranean Plant Protection Organization, 21 Boulevard Richard Lenoir 75016, Paris, France

Abstract

One of the aims of EPPO is to help its member countries to prevent entry or spread of dangerous pests (plant quarantine). The Organization has therefore been given the task of identifying pests which may present a risk (early warning), evaluating their risk for the region and making proposals on the phytosanitary measures which can be taken against them (Pest Risk Analysis). To perform these activities, much information on pests presenting a risk to the EPPO region is required and is collected by the Organization and made available to its member countries. In addition, as identifying the pests is important EPPO has established since 1998, a work programme in the area of diagnostics to harmonize procedures across the region. The different activities conducted in the framework of this programme are presented.

Key words: pests, emergence, alert systems, diagnostics, accreditation.

Emerging plant diseases

Human societies have throughout their histories faced the emergence of new plant diseases which damaged crops or the environment. In plant pathology, the classical example remains the disastrous consequences of the introduction of potato late blight which caused famine in Ireland in the 1840s and now causes problems in potato production worldwide. In more recent history, many new plant diseases have emerged in different parts of the world, and this phenomenon seems to have accelerated. Although there is no agreed definition of what is an emerging plant disease, it can correspond to an already known disease whose incidence or geographical distribution is notably increasing but it may also be caused by newly described pathogens. The causes of plant disease emergence are multiple and quite complex, but it is generally accepted that human activities (e.g. trade of plants, accidental introduction of vectors, modifications of agricultural practices or land use) play an important role.

In the European and Mediterranean region, agriculture is an economically important sector covering a large variety of plants which are subject to an ever increasing trade and at the same time potentially threatened by a wide range of pests and diseases. Therefore, it is essential for Plant Protection Services to avoid the introduction and spread of new pests via commercial exchanges. Over the years, EPPO has made recommendations to its fifty member countries on phytosanitary measures which should be implemented to avoid the introduction of damaging pathogens (e.g. *Xanthomonas citri* pv. *citri*, *Liberibacter* species associated with citrus huanglongbing which are currently emerging in the Americas) or to prevent further spread of diseases which already occur in the region (e.g. Citrus tristeza virus, Plum pox virus). However, these existing phytosanitary measures can be challenged by the emergence of new diseases. In the EPPO strategy, it is felt essential to assess the risks associated with emerging diseases and, whenever appropriate, to propose management measures (i.e. restrictions on trade) against them. EPPO has

elaborated a Pest Risk Analysis (PRA) scheme which will be presented. When new diseases are emerging, it is also important to provide early warning to Plant Protection Services so that they can put into place import inspections and surveillance programmes on their territories. Since 1998, EPPO has set up an Alert List on its website (www.eppo.org) to provide data on emerging diseases (e.g. stolbur phytoplasmas, *Chalara fraxinea*, *Fusarium oxysporum* f. sp. lactucae, *Phytophthora kernoviae*, *Pseudomonas syringae* pv. *actinidiae*, viroids of solanaceous plants, new tomato viruses). Some of these emerging pathogens may later be submitted to a PRA and eventually be recommended for regulation as quarantine pests. When a quarantine status is considered appropriate for an emerging pathogen, EPPO Standards can also be developed in order to provide guidance on diagnostics, certification schemes, eradication and containment programmes.

Diagnostics

Since 1998, EPPO has established a work programme in the area of diagnostics to harmonize procedures across the region. The different activities conducted in the framework of this programme are presented.

Diagnostic protocols

In 1998, a programme was initiated to develop diagnostic protocols for as many as possible of the pests of the EPPO A1 and A2 lists (Zlof *et al.*, 2000). The preparation of protocols involves close collaboration between different Panels composed of diagnostic experts: the Panels on Diagnostics (coordination role), on Bacterial Diseases, on Nematodes, on Certification of Fruit Crops and the European Mycological Network. Each first draft is prepared by an individual expert according to a common format and should contain all the information necessary to detect and positively identify a particular pathogen or pest. The draft is then reviewed by relevant Panels. 92 diagnostic protocols for specific pests and 3 horizontal standards have now been

approved as (see www.eppo.org). 15 protocols are in different stages of preparation.

A survey on the use of the protocols was conducted in 2008 on a selection of 58 protocols in all disciplines of plant health diagnosis (Petter and Suffert, 2010). Laboratories registered in the EPPO database on Diagnostic Expertise (see below) were asked to indicate the number of samples that they tested in 2007 and which test they used. From this survey it can be concluded that many of the tests for detection mentioned in EPPO diagnostic protocols are widely used in laboratories in the EPPO Region.

Accreditation and quality management

In 2003, a separate Panel was created to develop standards on quality assurance (two standards have been developed so far OEPP/EPPO, 2007 and 2010). A joint informative document between EPPO and EA (European Co-operation for Accreditation, the European network of nationally recognised accreditation bodies) states that “EA will recommend that assessors from Accreditation Bodies take note of EPPO documents when evaluating plant pest diagnostic laboratories”. It is also envisaged to create a database where validation data from laboratories could be shared between EPPO countries. EPPO also organized two workshops on quality assurance in 2007 and 2009, to allow experts to share their experience on quality assurance and accreditation.

EPPO database on diagnostic expertise

In 2004, EPPO Council stressed that the implementation of phytosanitary regulations for quarantine pests was jeopardized by decreasing knowledge in plant protection. The Panel on Diagnostics proposed that an inventory should be made of the available expertise on diagnostics in Europe. The database on Diagnostic Expertise was created (Roy *et al.*, 2010) to allow identification of experts who can provide diagnosis of regulated species and those who can help in the identification of

new or unusual species. EPPO member countries were contacted and as of May 2010, 70 laboratories from 25 countries have provided data corresponding to more than 500 experts. These results are available in a searchable database on the EPPO website. The database can also help national accreditation bodies identify auditors for pest diagnostic laboratories for accreditation.

The EPPO Secretariat considers that these initiatives and future plans will aid the optimization of diagnostic activities in laboratories in the EPPO region.

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Corresponding author: Françoise PETTER (fp@eppo.fr), European and Mediterranean Plant Protection Organization, 21 Boulevard Richard Lenoir, 75016 Paris, France.