

## Phytosanitary Procedures

# PM 3/86 (1) Raising public awareness of Quarantine and Emerging Pests

### Specific scope

This Standard provides National Plant Protection Organizations (NPPOs) with general guidance on when and how to raise public awareness of the possible presence of quarantine and emerging pests and how to respond appropriately to resulting reports of suspect pest findings.

### Specific approval and amendment

Approved as an EPPO Standard in 2019-09.

## 1. Background

Raising public awareness is important to involve the public in plant health issues and encourage good practices. It is also a longstanding way of encouraging and facilitating early reporting of findings of quarantine and emerging pests, enabling a quick response and improving the understanding and acceptance of preventative and control measures. Public awareness was a major element in the campaigns against Colorado beetle in the 1940s and 1950s, the period during which EPPO was formed. Some outbreaks of the insects *Anoplophora* spp., *Aromia bungii* and *Dryocosmus kuriphilus*, the fungus-like organism *Phytophthora ramorum* and the invasive plant *Ambrosia artemisiifolia* have been seen first by members of the public and then reported to official services. In principle, public awareness can create a large number of ‘citizen scientists’ who become interested in plant health and who are then more likely to see an outbreak in its early stages than inspectors are during official surveys, which are necessarily limited by available resources. It is therefore of benefit to the community to have well-informed members of the public who know which quarantine and emerging plant pests to look for, what they look like in comparison to similar indigenous or non-harmful organisms, which damage or symptoms they may cause, why they are a problem, where to find them (i.e. host plants, geographical and ecological niches) and what to do if they spot them (i.e. reporting mechanisms).

Clearly structured, unambiguous and timely communication is the key in building trust and transparency for any

awareness-raising activity, be it information on a new outbreak or presenting the facts on the impact of potential future threats. Information coupled with a call to action is a particularly effective means of both engagement and behavioural change.

This Standard provides guidance on how to raise public awareness generally and also how to mount a publicity campaign. A publicity campaign is a specific awareness-raising activity or set of activities organized as a project with an agreed time scale, geographic extent, resources, objectives and governance.

## 2. When to raise awareness and why

During the process of pest risk analysis (PRA)<sup>1</sup> appropriate risk management measures are identified. These may include measures to prevent introduction and spread, to contain or eradicate outbreaks, or to ensure early detection if the pest is introduced or spreads to a new area. Public awareness may make an important contribution to such measures.

The trigger for raising awareness may be a first finding of a pest in the country, the arrival of the pest in a neighbouring country, the identification of a new pathway

<sup>1</sup>All EPPO Standards on PRA can be retrieved from the EPPO Global Database (<https://gd.eppo.int/standards/PM5/>). All ISPMs related to PRA (ISPMs nos. 2, 11, 14 and 21) can be retrieved from the IPPC website (<https://www.ippc.int/en/core-activities/standards-setting/ispm/#publications>).

indicating that there is an increased risk of introduction or spread, or the implementation of requirements in plant health legislation.

Reasons for raising awareness may include:

- to involve citizens in surveillance
- to encourage pest reporting
- to explain measures being taken
- to reach consensus and encourage compliance with measures including:
  - Import controls (prohibitions and requirements)
  - Requirements for internal movement
  - Containment measures
  - Eradication measures
- to allow early detection and increase the success of the eradication of a quarantine pest
- to underline the importance of plant health by providing examples of threats.

It should be kept in mind that raising awareness may increase the number of reports of suspect findings and the likelihood of questions from the public whether or not this is its primary purpose.

### 3. Key factors when considering whether raising awareness of a pest is necessary and appropriate

Given the vast number of pests which are potential targets of pest management or phytosanitary measures, it is impractical and ineffective to raise awareness of all of these.

There are a number of factors to consider when deciding the following:

- whether raising public awareness is likely, on balance, to make a positive contribution to the agreed risk management objectives for a pest, and
- the degree of priority to give to different pests.

These factors include:

- regulations in place
- nature and magnitude of the risk
- likely pathways for entry and spread
- current geographic distribution
- likely location of outbreaks (i.e. likelihood of appearance in a particular area, country or region)
- ease of detection
- ease of management, eradication or containment
- ease of distinguishing the pest or its symptoms from other organisms and symptoms
- likely costs and benefits of the awareness-raising activity.

Some factors in favour of an awareness-raising activity are:

- risks of concern to the public (e.g. environmental risks, risks to gardens or street trees, risks to a species of socio-economic, cultural, historical or conservation importance, risks to humans, such as allergies, disease transmission or nuisance in homes)
- cases where early detection may lead to successful eradication

- outbreaks likely to be found first in parks, gardens or the wider environment<sup>2</sup>
- outbreaks likely to be found first in private gardens, which are unlikely to be detected by official surveys
- pest (or symptoms) are easy to spot
- pest (or symptoms) clearly distinct from other organisms, particularly indigenous species
- scope to avoid the need for other plant protection measures
- cases where increased awareness may encourage compliance with measures.

Factors suggesting caution about an awareness-raising activity are:

- low public role in compliance with measures
- outbreaks likely to be seen first in commercial production
- pest and symptoms are difficult to spot
- pest easily confused with indigenous species
- symptoms easily confused with those from other causes
- high risk of action being taken inappropriately against 'lookalikes'<sup>3</sup>
- high risk of negative impact to trade if messages conveyed to the public are confusing or unclear (e.g. on pest distribution or economic damage)
- high risk of adverse media coverage
- the costs of the awareness-raising activity exceed likely benefits (e.g. in the case of a low chance of the success of the control measures).

### 4. Audience

The scope of this Standard is limited to raising awareness of the public, but materials produced for the public may also be of value in addressing other audiences. Different messages may be appropriate for different groups, depending on the result required, but should in any case be consistent and based on the same factual background information.

Whether a public awareness campaign is effective about a specific pest can depend greatly on the targeting of the appropriate audience. With limited resources, targeting key audiences that will maximize benefit is essential. Consideration of the age demographic, availability, willingness to help, enthusiasm, ability, trustworthiness and capacity for any awareness raising should be investigated alongside aspects of the pest, including its location prior to initiation of the campaign (see examples of different targeted audiences in Fig. 1).

<sup>2</sup>The wider environment covers all possible types of environments (e.g. woods, forests, meadows, coast lines, road sides) to which the public has access.

<sup>3</sup>A lookalike is an organism that closely resembles the pest, therefore confusion about the species identity is possible.

(A) General public – ‘Xylellu’ campaign on *Xylella fastidiosa* in Malta on public buses.



(B) International travellers



‘Xylellu’ campaign on *Xylella fastidiosa*: advertising material displayed at computer/mobile charging stations in the departure lounge of the Maltese International airport and luggage tag.

**Fig. 1** Examples of awareness-raising activities targeting different audiences. (A) General public. ‘Xylellu’ campaign on *Xylella fastidiosa* in Malta on public buses. (B) International travellers. ‘Xylellu’ campaign on *Xylella fastidiosa*: advertising material displayed at computer/mobile charging stations in the departure lounge of the Maltese international airport and luggage tag. Danish campaign ‘Biller i bagagen?’ (‘Bugs in your luggage?’). One-day campaign at Riga international airport, with a mascot and plant doctors in white coats to attract passengers’ attention. (C) Horticulturists, gardeners, plant lovers. ‘Xylellu’ campaign on *Xylella fastidiosa* during the annual spring festival of the Maltese Horticultural Society (C1). ‘Don’t Risk It!’ campaign during the Bloom Garden Festival in Ireland (C2 and C3). (D) Children. Children’s corner at the Copenhagen cultural night ‘Together we ensure healthy plants’ (Denmark, 2017): booklet of activities and dart game ‘knock down a quarantine pest’. (E) Customers in a demarcated area (outbreak) in France. (E1) Posters displayed in a nursery located in a demarcated area in the French Riviera. (E2) Official poster aims to be displayed in all nurseries, garden centres and markets of the French demarcated areas in order to inform customers.

Within the category of ‘public’, a number of subgroups may be identified:

- college and university teachers and students
- specialist amateur groups (e.g. entomologists)
- keen amateur gardeners and their advisers, including allotment gardeners
- school children and their families
- travellers
- well-informed members of the general public
- other members of the general public.

Other audiences for awareness-raising activities about pests may include:

- politicians and senior officials
- media and journalists
- producers (e.g. growers, farmers, foresters)
- professional gardeners of public green spaces
- manufacturers (e.g. wood packaging material manufacturers)
- traders (including Internet trade)
- scientists



Danish campaign 'Biller i bagagen? (Bugs in your luggage?)'.



One day campaign at the Riga international airport, with a mascot and plant doctors in white coats to attract passenger's attention.

(C) Horticulturists, gardeners, plant lovers.

'Xylellu' campaign on *Xylella fastidiosa* during the annual spring festival of the Maltese Horticultural Society (c1).



- non-governmental organizations
- professional organizations of growers (e.g. arboriculturists, horticulturalists and landscapers)
- trade associations
- inspectors and central authorities
- travel agency associations
- cargo companies and postal services.

Depending on the pest and its behaviour, occasionally targeting groups who would under normal circumstances

not be interested in plant health may still be effective. Sometimes pests affect plant products, such as long-horned beetles found in furniture or wood-packaging, and these unusual instances may be used to raise awareness in a wider public audience. School children are often a very enthusiastic audience and their families also become aware of the issues through the campaign.

Audiences may include groups involved in specific activities which have the potential to spread the pest. For





Children’s corner at the Copenhagen cultural night ‘Together we ensure healthy plants’ (Denmark, 2017): booklet of activities, and dart game ‘knock down a quarantine pest’.

(E) Customers in a demarcated area (outbreak) in France.



(E1)

(E2)

e1) Posters displayed in a nursery located in a demarcated area in the French Riviera. e2) Official poster aims to be displayed in all nurseries, garden centers and markets of the French demarcated areas in order to inform customers.

## 5. Geographical targeting

When establishing a publicity campaign, it is of particular importance to define the appropriate geographical extent.

- Should the campaign be international, national, or more localized (e.g. at borders, on a demarcated area, a particular forestry area, or public gardens)?
- Is there a need for collaborative activity between adjoining administrations?

- Does the pest have impacts on or is it expected to have impacts on a particular region of the country more than another?
- Is there a risk that the pest has spread more widely than originally thought?

The geographical extent of a campaign largely depends on what is its main purpose. If the purpose of the campaign is to raise awareness on plant health in general or encourage compliance with legislation, its geographical coverage

is likely to be wider than if the campaign targets a specific pest or a narrow audience (e.g. international travellers). In pest-specific campaigns, their geographical extent is affected by the biology of the pest and the characteristics of the environment possibly at risk.

Geographical variation can be due to the presence of a particular host plant in one region and not in another, as well as to environmental and ecological conditions favouring or not the establishment and spread in a localized area. Some areas have more or less imports (e.g. due to proximity of airports or sea ports), are enclosed (e.g. glasshouses), are nearer infested regions or are nearer other 'risky' areas (e.g. main roads, large markets, dense human settlements).

With an outbreak, the awareness campaign should consider the epicentre of the outbreak, the periphery of the established pest range (dependent on the nature of the pest) and high-risk areas beyond. In such a situation, the messages conveyed to the public and aiming at encouraging citizen activities to help manage the problem are likely to be different. In areas outside the epicentre where the pest is not known to be present, messages would focus on what to look for and where to find the pest and would encourage pest reporting. In the epicentre, messages would also focus on the direct impact of the pest and would invite the public to report findings and participate in risk reduction measures.

## 6. Resources

Awareness-raising activities require official resources not only to raise awareness but also, and less predictably, to respond to any resulting reports. Resources required include:

- human resources
- finances
- technical resources
- information resources.

The potential benefits of a campaign need to be balanced against the possible resulting demands. A pilot campaign in one area or with one specialist target group may provide useful information on resource requirements before a decision is made on a wider campaign.

### 6.1. Human resources

Assistance with publicity campaigns may require input from social scientists and experts in public relations and social media, as well as NPPO staff and researchers. These may be available to plant health services from press and publicity teams within the government or from specialist consultancies through government contracts. Getting public volunteers will increase demands on technical services, such as diagnostic teams or those staffing helplines. However, initial filtering by trained public groups may help to reduce the demands made to technical services. An ongoing awareness-raising activity into new threats and common pests will help raise

knowledge that plants get sick and make the general public think about what are the common indigenous pests, so they are more likely to spot when something is new or unusual.

### 6.2. Finances

Availability of budget needs to be considered for each campaign. The cost of obtaining images, producing leaflets, attending promotional events and utilising professionals to carry out activities should be ascertained prior to carrying out any awareness campaign and appropriate budgets should be agreed. Resources for publicity campaigns may be available under central publicity or surveillance budgets from other government departments or agencies or inter-governmental bodies. These resources may be provided in the form of advice, materials or co-funding.

### 6.3. Technical resources

Telephone hotlines, social media and IT tools may facilitate reporting, arising from increased awareness. IT tools such as interactive websites and apps may help to target the reporting and reduce the incidence of false alerts.

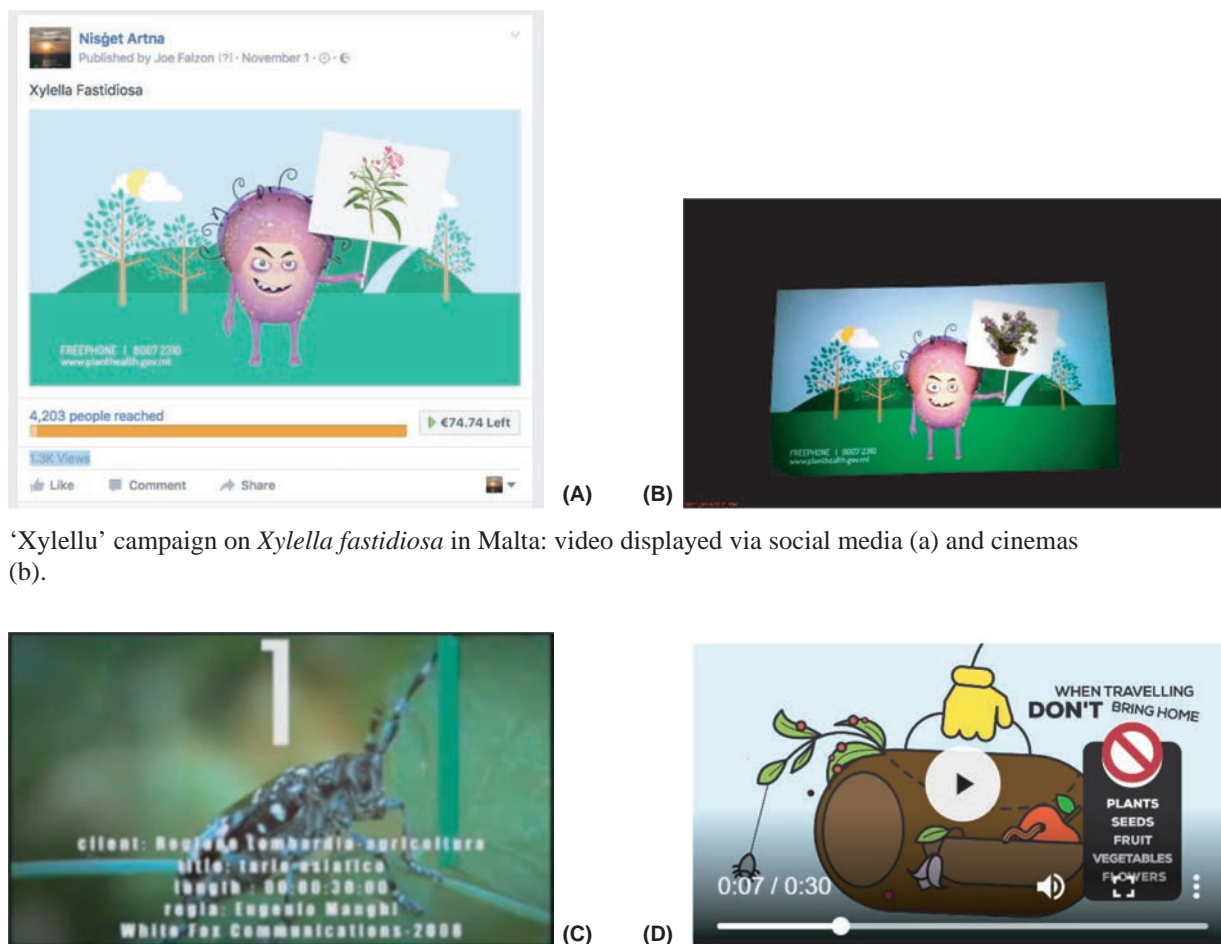
### 6.4. Information resources

Availability of good resource materials such as photographs, video footage, maps and datasheets is critical for any awareness campaign. These materials are used to prepare information leaflets, posters and video clips, or miscellaneous products such as badges and postcards. Specimens or models of the pest itself or of symptoms can be particularly effective. Quarantine risks are likely to preclude showing specimens of the live pest but some pests can be shown encased in resin, for example.

Availability of good quality representative images of quarantine pests (including symptoms) that have never been seen in a particular country requires an effective network at international level. Even so, for some pests [e.g. some EPPO A1 listed pathogens, such as potato smut (*Thecaphora solani*)], it may be difficult to obtain images.

## 7. Legal constraints

Legal authority, liability and constraints need to be clear to all parties concerned before members of the public are asked to carry out actions through directed plant health awareness-raising activities. The public may not have authorized access to land (e.g. private land, nature reserves, land beside motorways and railways). Informed members of the public who are encouraged to report suspect findings have no authority over other members of the public or businesses and should defer to official services in all matters relating to official surveys and other measures. The authority should ensure that it is able to provide adequate support



'Xylellu' campaign on *Xylella fastidiosa* in Malta: video displayed via social media (a) and cinemas (b).

Video on *Anoplophora chinensis* (Tarlo asiatico) in Lombardia region (Italy) (c) and video from Toscana region (Italy) - Don't Risk It! campaign (d).

**Fig. 2** Examples of videos. 'Xylellu' campaign on *Xylella fastidiosa* in Malta: video displayed via social media (A) and cinemas (B). Video on *Anoplophora chinensis* (Tarlo asiatico) in Lombardia region (Italy) (C) and video from Tuscany region (Italy) – 'Don't Risk It!' campaign (D).

to any volunteers and to establish a relationship of trust with them.

## 8. Collaborations

In planning a public awareness-raising campaign, wider collaborations should be considered. Considering the geographical extent of the campaign and the audience, collaboration with adjoining administrations (e.g. local, national) or other stakeholders may need to be implemented. Stakeholders (e.g. trade and producer associations), whose sectors may be affected by the campaign, can also help to ensure that the right messages are communicated effectively to their members and to their members' customers. In some settings, such as seaports and airports, it may be possible to include messages on plant pests alongside other campaigns on regulations such as animal health and invasive species.

## 9. Practical ways to raise public awareness

### 9.1. Message

The general message that will be conveyed by the campaign should be well thought through and clear to the NPPO and possible partners involved in its elaboration. The format, message and languages of all communication materials should be adapted to the target audience. The wording of key messages should be carefully chosen and clear. In most cases, short messages are preferable to lengthy ones.

### 9.2. Pre-prepared resources

A literature survey prior to any awareness campaign can save resources and avoid repetition. Numerous smartphone applications along with web pages and databases dedicated



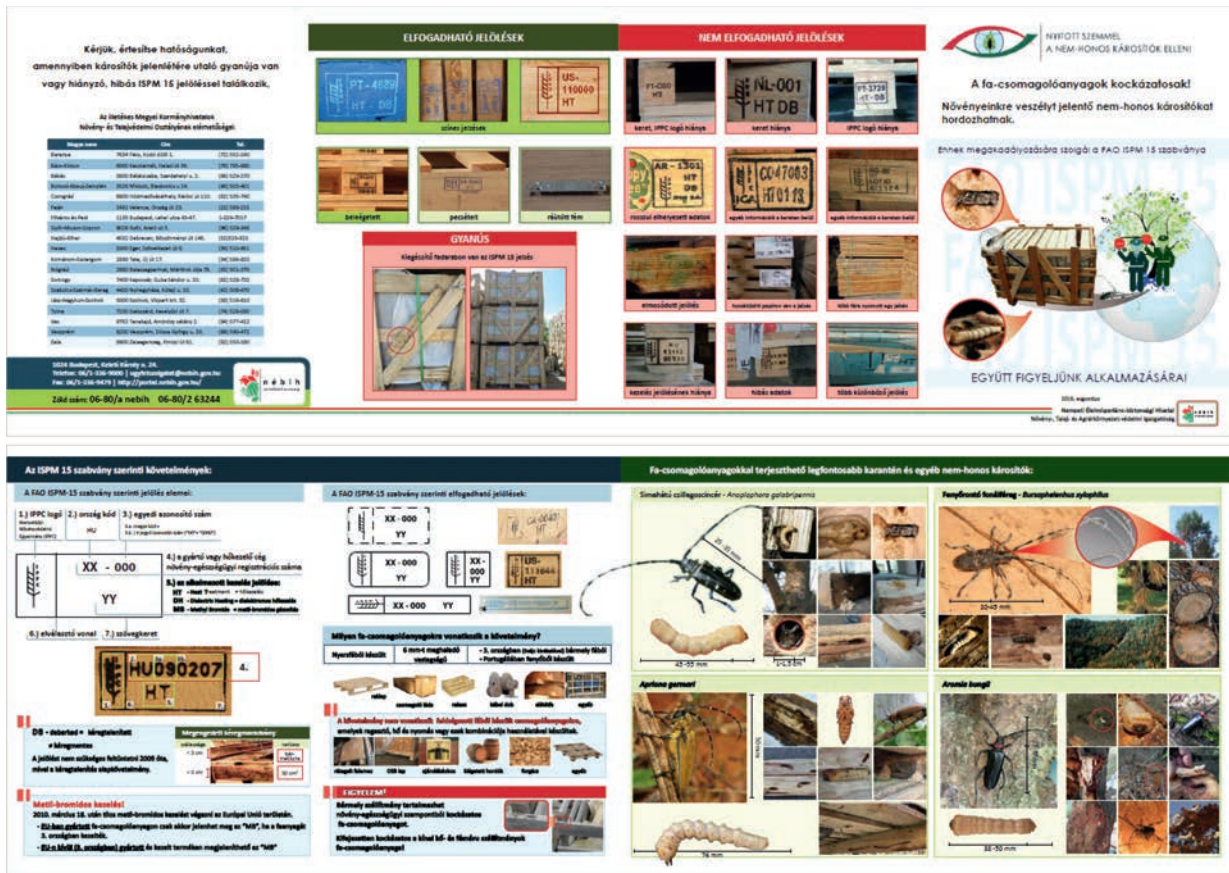


Fig. 3 Example of a Hungarian poster/leaflet on wood packaging material.

to plant pests are available for purchase, subscription or freely available, and if from a reliable source will aid a campaign. Examples of useful pre-prepared sources are provided in Appendix 1.

9.3. Images

High-quality images of the pest itself and its symptoms should be available. For some pests, these can be variable (e.g. for fungal pathogens such as the EPPO A1 listed Japanese pear rust (*Gymnosporangium asiaticum*) – the aecial stage on pear is significantly different to the telial stage observed on juniper). Clear photographs or drawings showing the range of symptoms on each host, including early stage symptoms, also helps to reduce the risk of overlooking the pest. Pictures of healthy plants, and of ‘lookalikes’ are useful for comparison. Drawings of life cycles are a good way to explain the pest biology and improve public understanding. Examples of useful sources are provided in Appendix 2.

9.4. Videos

Videos (see Fig. 2) can be a useful resource to quickly and effectively raise awareness of a particular outbreak. Using

video-sharing platforms can attract large audiences. Care should be taken with the title and tags to ensure that videos are found through Internet searches. If videos are to be displayed at events, they need to be generally short (30 seconds to 2 minutes) and in a repeated loop. In such a case, consideration should be given to whether audio is needed or not. For social media, videos should be not more than 30 seconds and of a suitable format and size. If necessary, split the material between a number of short videos with similar titles. Examples of useful sources are provided in Appendix 3.

9.5. Posters and information leaflets

Posters and information leaflets are useful in awareness-raising campaigns. In some cases, it is useful to prepare them simultaneously using similar visual material, as these documents can complement one another. Some documents can also be prepared in such a way that they can be used either as a poster or as a leaflet (Fig. 3).

Posters (Fig. 4) can be designed in various sizes (from A3 to several metres wide) to be printed on paper (e.g. on laminated paper to be more durable) or displayed on screens. Posters should be eye-catching and should show only limited critical information that can be read quickly. For example,



Poster on the *Bactrocera dorsalis* outbreak in Campania (IT), inviting members of the public to report pest findings



Poster from Slovenia on *Xylella fastidiosa* informing members of the public of the potential future risks (*X. fastidiosa* being absent from Slovenia)



Awareness raising poster on 10 'wanted' pests in Denmark (most of them being absent)



EPPO poster to inform international travellers about the risks of moving plants/plant products and encourage responsible behaviour

Fig. 4 Examples of posters.

posters have commonly been used to raise awareness about specific and local pest problems, inform the public about potential future risks and achieve early warning, or to inform passengers about the risk of introducing new pests with plant material brought back as 'souvenirs'. Posters should be placed at key and strategic spots which will have to be chosen according to the aim of the campaign (e.g. close to infested places for pest outbreaks; in airports, harbours or highway rest areas when communicating with travellers).

Information leaflets (Fig. 5) are not always required in a paper form. The advantages and disadvantages of paper versus electronic format should be considered when preparing them. The content of information leaflets should be well-crafted, i.e. succinct, clear, accurate and compelling. A map of host plants or recent spread may be helpful. Effective awareness campaigns use a range of styles and sizes to portray the messages, from large poster size sheets to postcard or business cards (see Fig. 3). For each pest, consider a few key points with the most important mentioned first, and if the campaign has an additional behavioural change element, a few points highlighting the

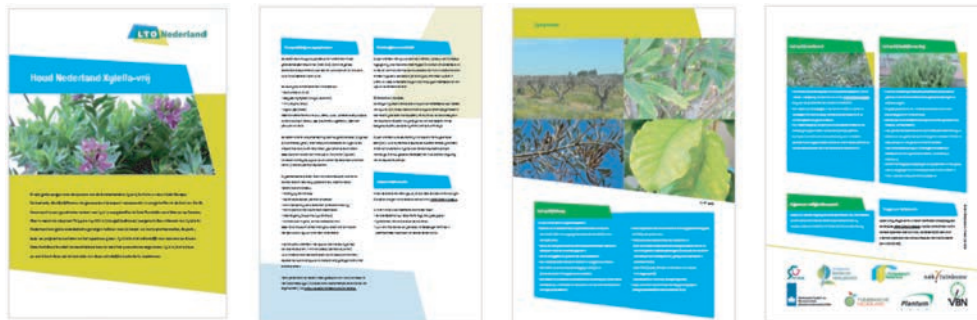
simple steps that people can take to reduce risk of introduction or spread of pest may be added. It is a good idea for each point to stand alone and not be reliant on any of the other points.

For any information leaflets, it is good practice to issue a similar style for each pest covered, i.e. font, titles, text order and wording. Plan information resources wisely. It may not be practical to print many thousands of leaflets for a pest that is not present in a region or for which key scientific evidence is not available, as this can lead to the necessity to reprint, thus involving extra time and costs. It is useful to also have more detailed leaflets that can be given to those who are seeking further information about a pest. These can include links to external resources, smartphone applications, databases (e.g. CABI compendia, EPPO Global Database). All information leaflets should contain guidance on what to do if a pest is found.

For example, Fig. 5C is a biosecurity information card handed out at events which indicates a few simple points for good biosecurity practice in the garden and when out and about, respectively. The other example (Fig. 5D) is a postcard about a specific pest (Colorado beetle) with a little



(a) A targeted campaign sheet highlighting the increase in numbers of a quarantine whitefly detected in the United Kingdom over a particular period.



(b) A four-page Dutch leaflet on *Xylella fastidiosa*.



(c) Plant biosecurity information postcard (front and reverse).



(d) Specific pest example information postcard size (front and reverse)

**Fig. 5** Examples of leaflets. (A) A targeted campaign sheet highlighting the increase in numbers of a quarantine whitefly detected in the United Kingdom over a particular period. (B) A four-page Dutch leaflet on *Xylella fastidiosa*. (C) Plant biosecurity information postcard (front and reverse). (D) Specific pest example information postcard size (front and reverse).

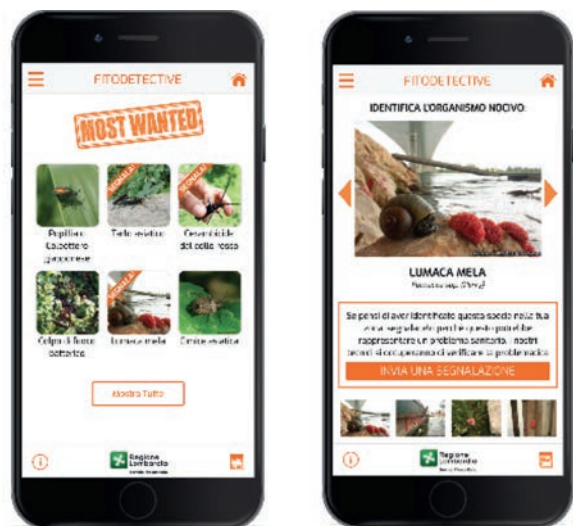


Fig. 6 FitoDetective, a smartphone application developed in Lombardia (Italy) to report pest findings to phytosanitary authorities.

more information about the pest (its appearance, significance and what to do if you spot it).

### 9.6. Citizen science projects

In some countries, there are established citizen science projects which may be an effective way to engage enthusiastic groups or individuals. Using resources produced by these activities both promotes the project and reduces the impact on resource. For example, in the UK, alignment with citizen science groups (e.g. Open Air Laboratories (OPAL); Observatree, a government-funded citizen science project training volunteers) who have produced study packs on tree health highlighting some of the ‘most unwanted’ quarantine pests, provided useful additional materials. FitoDetective (Italy, see Fig. 6) and Ephytia/Agir (France) are examples of smartphone applications that can be used by citizens to

alert the authorities about the presence of pests and invasive species.

### 9.7. Media and social media

Official information on pest findings will usually be issued in a press release following well-established national procedures. Various channels can be used (e.g. newspapers, newsletters, TV, radio, websites) to convey and elaborate on the information in the news release. Mailing lists for specific interest groups, held by either governments or stakeholders, can usefully supplement these channels.

For rapid distribution of information on new outbreaks, new campaign approaches and updates, social media can be an effective resource (Fig. 7). A careful balance should be ensured between the speed of publication on social media and checks of accuracy. It may be appropriate to allocate social media correspondence to a few trained and trusted key individuals who are checking other social media for repetitiveness or correcting errors.

The involvement of influencers (e.g. bloggers) may be envisaged. Their collaboration might help to control to a certain extent the accuracy of the information that is spread via social media and widen the audience.

### 9.8. Display equipment

Special events such as exhibitions, fairs and shows related to plants or the environment, as well as NPPO and laboratory open days, can provide useful opportunities to engage with the public. During these events, specifically designed display equipment is useful to attract the public’s attention (Fig. 8). Pop-up back-drop displays are easily transportable and can have a considerable impact when displaying images and messages. Pop-up displays can be pre-printed with your own designs or made of carpet-like material that enables interchangeable images to be easily fixed onto them. Pop-ups are often modular and can come as single or

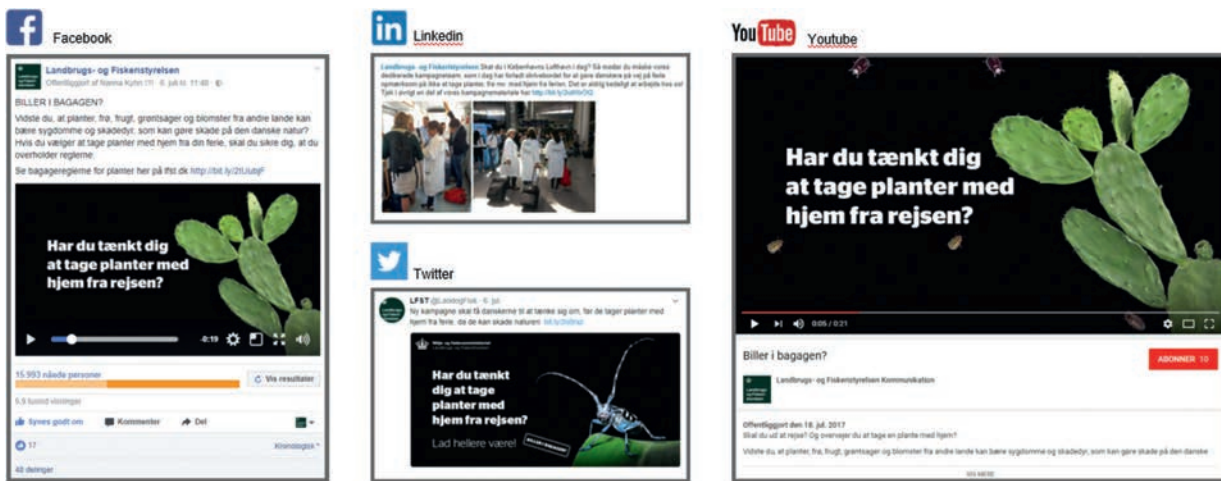


Fig. 7 Danish campaign ‘Biller i bagagen?’ (‘Bugs in your luggage?’) in different social media.



(a) A combination of pre-printed and changeable pop-ups used in the United Kingdom.



(b) Display equipment in Malta (left) and Ireland (right).

**Fig. 8** Examples of display equipment. (A) A combination of pre-printed and changeable pop-ups used in the United Kingdom. (B) Display equipment in Malta (left) and Ireland (right).

multiple units. In some cases, modular pop-up units can be re-used in full or in part for different events.

Other useful resources include models which enhance awareness campaigns and act as focal points for conversations (Fig. 9).

### 9.9. Verbal presentations

Presentations and training either at events or stand alone to groups require additional resources, such as suitable buildings or spaces, projectors, screens, pointers, microphones and training equipment. The organization by NPPOs of training courses or workshops for professionals (e.g. growers, landscapers, traders) is useful as presentations focus on the biology, symptoms and geographical distribution of specific pests or important groups of pests, as well as on control measures including legal requirements when producing and trading plant material. These courses have a 'train the trainer' and 'multiplying' effect as the participants spread the information to their colleagues and business partners. Consideration may be given to subsequent use of the training material prepared for these verbal presentations for e-learning purposes.

### 9.10 Activity initiation form

When considering whether a particular event will be of value and identify resource requirements, it can be helpful

for the primary individual who has identified the opportunity to complete a form to provide the following information:

- date and time of event
- location
- key contacts
- anticipated audience
- key messages
- if the event has been done before (where, when, outcomes)
- potential links with other organizations/citizen science projects
- staff resource requirement
- equipment resource requirement
- if there is a statutory requirement to carry out the awareness activity
- approval required (internal/external/national/international)
- potential impact
- evaluation (outputs<sup>4</sup> outcomes<sup>5</sup>).

<sup>4</sup>Outputs are: number of visitors, number of distributed leaflets.

<sup>5</sup>Outcomes are consequential changes of a campaign: a pest is subsequently reported by an attendee following an event, a behavioural change element is embedded in policy or code of conduct.

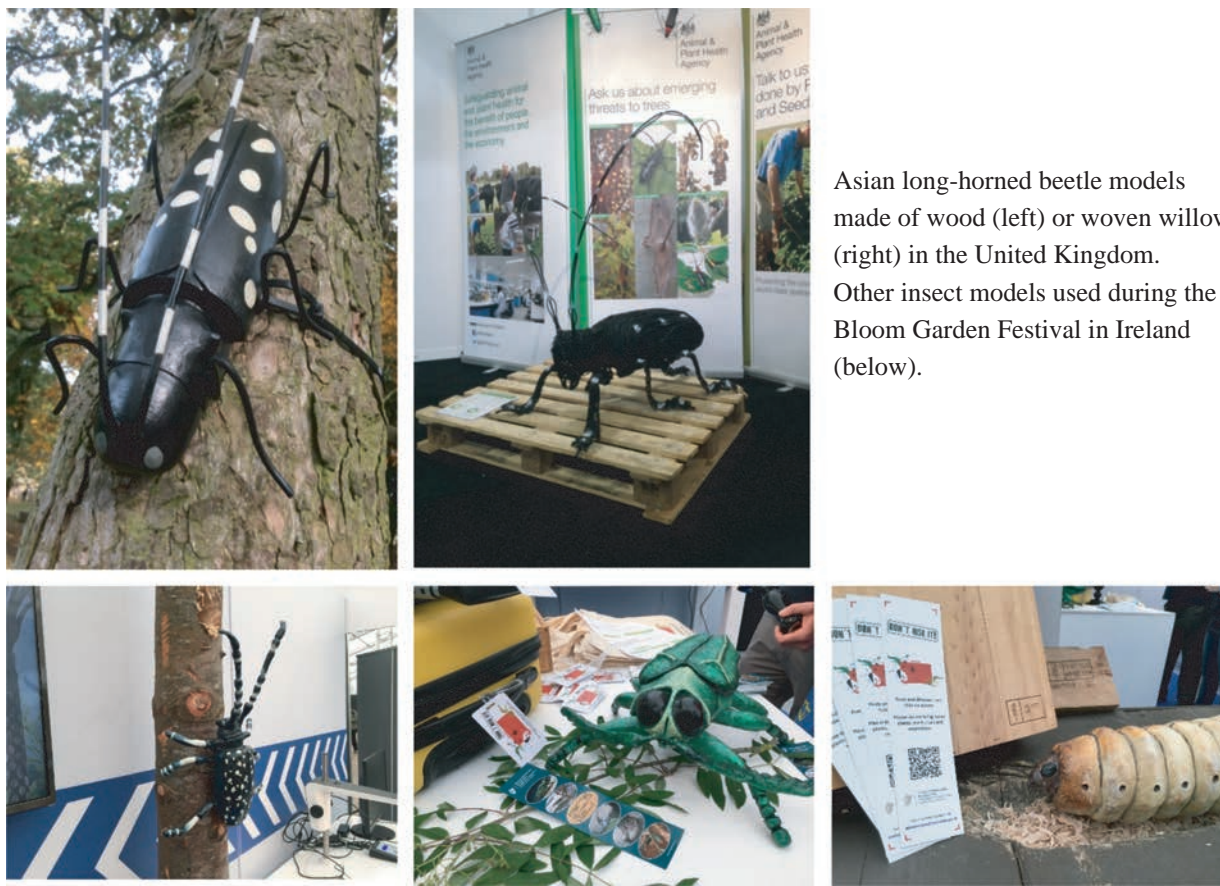


Fig. 9 Examples of insect models.

Asian long-horned beetle models made of wood (left) or woven willow (right) in the United Kingdom. Other insect models used during the Bloom Garden Festival in Ireland (below).

### 9.11 Activity list and evaluation

Activities should be clearly planned and listed with a time schedule. This will facilitate the organization of the campaign, its monitoring and subsequent evaluation.

When planning a campaign, decisions should be made about the methods that will be used to evaluate the different activities. Subsequent evaluation enables a consistency of approach to awareness-raising events, ensures necessary questions are thought through at the start, identifies required resources, and enables an audit trail detailing awareness campaigns and reasons why resources have been spent. Those leading in engagement and awareness raising can then see the bigger picture, set up working groups as required and plan more effectively.

## 10. Reporting suspected findings

Reporting procedures need to be clearly defined and highlighted throughout campaigns (e.g. on literature, displays, videos, apps, social media or business cards; see Fig. 10). A single point of contact, e.g. via an email address, website or a manned telephone number, should be identified, set up and maintained. Resources need to be made available to

ensure coverage throughout operating times or diverted to other numbers, whilst retaining the single number as the point of contact. If nobody is available, an answering system should be in place which highlights any follow-up actions that will occur. Any contacts should be recorded. Phone conversations should also be recorded either electronically (with prior permission from caller) or written. In some cases, stamped pre-addressed envelopes can be provided where a written response is expected. Although this will add to the cost resource, the benefits are that more people are likely to engage when there is no additional cost on their behalf and the risk of errors when writing return addresses is reduced. Provision of a specific, easy-to-type and memorable reporting email address should also be included on any materials. Ensure any follow-up with the reporting individual occurs as soon as possible.

Reports from the public should ideally include photographs of the pest or symptoms seen, the hosts affected, details of location, and the date and time of the sighting. The public should not normally be encouraged to take samples, which should be a responsibility of official services, but may be encouraged to capture adult beetles in a secure container, for example, pending a visit from an Inspector.



Fig. 10 Examples of business card sized information and of a magnet providing clear contact points to report suspect findings.

Some reporting mechanisms allow the use of e-forms to rapidly capture information including, for example, automated location details from GPS systems. A UK-developed system referred to as Tree-Alert (<http://www.forestry.gov.uk/treealert>) enables anyone with access to the free web-based app to report UK plant health issues.

Information collected will be collated and whether it is accurate and appropriate will be ascertained (which may require a laboratory diagnosis). Depending on the quality of information received, further educational awareness activities may be needed. The team receiving all information should be well trained and capable of assessing the impact of the new information received and taking action as appropriate using available literature (including online information), updating scientific knowledge (e.g. via laboratories, academics, professional societies or expert working groups), and networking of national and international colleagues, particularly those who may have more information pertaining to a particular pest (e.g. regions that have the pest). The team needs to ascertain if the report is accurate, trustworthy, sufficient, timely, relevant, not repeated or if further information is required. Finally, only the pertinent, relevant information is summarized and used to take the appropriate next steps.

Where a high level of awareness is achieved, the absence of reports may also provide supporting evidence of the absence of a pest from an area (but determination of pest status is outside the scope of this Standard). Appropriate responses to an individual reporting are dependent on the nature and content of the report. This could range from nothing (if, for example, part of a large-scale campaign with numerous active participants with a final or dynamic online 'live' report where data from all individuals can be viewed in one location, e.g. on a map of recorded findings), to a telephone call seeking further information or samples through a site visit with the individual. The latter may be appropriate particularly with sensitive sites/findings.

Reporting mechanisms should be reviewed periodically to assess which ones are most effective and whether any adjustments are needed.

## 11. Risks

There are always associated risks when engaging non-experts in plant health activities. These include the following:

- **Inaccurate information:** One of the greatest risks to public responses from awareness raising is reports of findings that are inaccurate. These can take up valuable time resources and attempts to reduce them should be investigated. Experience has shown that pest reporting is generally done in good faith, but there are occasions where malicious reports may be given (e.g. for commercial gain). During awareness raising, ensure that clear, concise information is readily available and include details of similar looking pests/symptoms. Identifying groups who are willing to engage and help with activities and providing additional training (e.g. outbreak site visits to show field symptoms) can also help to reduce numbers of inaccurate reports.
- **Raising questions about the pest and action being taken:** A set of frequently asked questions with agreed answers should be prepared for use by all those involved in the campaign. Examples of the sort of questions which should be addressed are shown in Appendix 4.
- **Overloading of information from keen individuals or groups:** Depending on resource availability, particularly during activation of a contingency plan following a pest outbreak, there could be an influx of information which could overstretch resource availability and become unmanageable. Clearly defined requests, simple reporting systems and targeted request campaigns can help mitigate this.
- **Health and well-being:** Associated health risks need to be ascertained when requesting individuals to seek out particular pests. Risks and liability if somebody is injured when looking for a pest, e.g. climbing trees, falling in pits (e.g. in areas of Cornwall, UK, deserted partially covered deep tin mines are present in areas where *Phytophthora ramorum* is present). Weather effects, such as heat and cold should also be considered.

- Land-owner risks: Sensitivities of land borders/ownership/cultures. Prior knowledge of land ownership and borders and accessibility should be highlighted when engaging with those who may make observations.
- Competing activities: Clashes with other groups carrying out similar campaigns could occur if prior investigation of national/regional approaches towards a pest are not examined.
- Raising expectations of effective action to control the pest where this may not be possible in all parts of the area targeted by the campaign. Messages need to be transparent and realistic about what can be achieved.
- Political sensitivities: As pests do not respect political borders, there are potential risks of misunderstandings. Clearly communicating plans for publicity campaigns to neighbouring countries will help to mitigate these.
- Effects on trade: Certain findings and the way in which they are reported can have a profound impact on local or international trade. Campaigns should respect national rules on data protection and freedom of information. They should normally avoid naming sites and businesses and be expressed in more general geographic terms.
- Media: Local or regional media may pick up on activities and report inappropriately, which can have a severe negative impact on the current and any future campaigns. Agreed answers to frequently asked questions (see Appendix 4) will help to mitigate this risk. Unless the relevant persons have undergone media training, it is good practice to refer any media requests to the media team of the relevant Ministry or agency.

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## Appendix 1 – Possible sources for literature surveys

EPPO Global Database: <https://gd.eppo.int/>  
 EPPO Platform on PRAs: <http://pra.eppo.int/>  
 CABI Compendia (only the Invasive Species Compendium is free access): <https://www.cabi.org/publishing-products/compendia/>  
 CABI abstracts (subject to fees): <https://www.cabi.org/publishing-products/online-information-resources/cab-abstracts/>

EFSA opinions about pests: <https://www.efsa.europa.eu/>  
 Official pest reports on the IPPC website (<https://www.ippc.int/>)  
 Internet search engines (searching for specific pests)

## Appendix 2 – Possible sources of pest and plant images

EPPO Global Database: <https://gd.eppo.int/>  
 Bugwood (University of Georgia, US): <https://www.bugwood.org/ImageArchives.html>  
 USDA-ARS Photo gallery on flickr (album plant protection and quarantine): <https://www.flickr.com/photos/usda-aphis/albums/72157684996642396>

## Appendix 3 – Possible sources of pest videos.<sup>6</sup>

EPPO Scoop.it: Pests in videos: <https://www.scoop.it/pests-on-videos>  
 YouTube: <https://www.youtube.com>

## Appendix 4 – Examples of frequently asked questions (FAQs)

The questions listed below are not meant to be exhaustive but are only examples given to help NPPOs when preparing FAQs. These questions have to be adapted to the pest concerned and to the phytosanitary situation that is being faced, as well as to the targeted audience.

### About the pest itself

What is <pest x>?  
 Why is it harmful to plants/plant products/environment?  
 Is it dangerous for humans?

### About its host plants and damage

Which plant species/plant products are affected?  
 What are the symptoms/damage?  
 What are the economic/social/environmental impacts?

### About its geographical distribution

Where is it from?  
 Where is it present now?

### About its epidemiology

How does it spread?

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<sup>6</sup>An EPPO database on communication material (<https://media.eppo.int/>) is under development and will replace at least Appendix 2.



How can the pest reach my country/production site/garden?

What are the main pathways for its introduction and spread?

What is a disease vector?

Which are the vectors (if appropriate)?

### **About the measures that are taken**

What are the management options?

What is being done to prevent entry and spread of the pest?

What is being done to control/contain/eradicate the pest?

### **About what people could do to help**

How, where and when can I observe/find the pest?

As a nurseryman/farmer/trader/homeowner/citizen what should I do?

Whom should I contact in case of a finding?

Where can I find more information?