



**INTERNATIONAL STANDARDS FOR
PHYTOSANITARY MEASURES**

ISPM No. 6

GUIDELINES FOR SURVEILLANCE

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ENDORSEMENT

This standard was endorsed by the 29th Session of the FAO Conference in November 1997.

INTRODUCTION

SCOPE

This standard describes the components of survey and monitoring systems for the purpose of pest detection and the supply of information for use in pest risk analyses, the establishment of pest free areas and, where appropriate, the preparation of pest lists.

REFERENCES

Agreement on the Application of Sanitary and Phytosanitary Measures, 1994. World Trade Organization, Geneva.
Bayer coding system, 1996. European and Mediterranean Plant Protection Organization, Paris.
Glossary of phytosanitary terms, 1997. ISPM No. 5, FAO, Rome.
International Plant Protection Convention, 1992. FAO, Rome.
Principles of plant quarantine as related to international trade, 1995. ISPM No. 1, FAO, Rome.
Requirements for the establishment of pest free areas, 1996. ISPM No. 4, FAO, Rome.

DEFINITIONS

Definitions of phytosanitary terms used in the present standard can be found in ISPM No. 5 (*Glossary of phytosanitary terms*).

OUTLINE OF REQUIREMENTS

Under the international standard for phytosanitary measures: Principles of plant quarantine as related to international trade, countries are required to justify their phytosanitary measures on the basis of pest risk analysis. These principles also endorse the concept of “pest free areas”, a description of which is provided in the standard: Requirements for the establishment of pest free areas. These concepts are also referred to in the World Trade Organization’s “Agreement on the Application of Sanitary and Phytosanitary Measures”. The collecting and recording of pest information is fundamental to all these concepts. The implication is that National Plant Protection Organizations (NPPOs) should be in a position to validate declarations of the absence or limited distribution of quarantine pests.

There are two major types of surveillance systems:

- general surveillance
- specific surveys.

General surveillance is a process whereby information on particular pests which are of concern for an area is gathered from many sources, wherever it is available and provided for use by the NPPO.

Specific surveys are procedures by which NPPOs obtain information on pests of concern on specific sites in an area over a defined period of time.

The verified information acquired may be used to determine the presence or distribution of pests in an area, or on a host or commodity, or their absence from an area (in the establishment and maintenance of pest free areas).

REQUIREMENTS

1. General Surveillance

1.1 Sources

Within countries there are many sources of pest information. These sources may include: NPPOs, other national and local government agencies, research institutions, universities, scientific societies (including amateur specialists), producers, consultants, museums, the general public, scientific and trade journals, unpublished data and contemporary observations. In addition, the NPPO may obtain information from international sources such as FAO, Regional Plant Protection Organizations (RPPOs), etc.

1.2 Collection, storage and retrieval of information

To utilize data from these sources, it is recommended that NPPOs develop a system whereby appropriate information on the particular pest(s) of concern is collected, verified and compiled.

Components of such a system should include:

- the NPPO or another institution designated by the NPPO acting as the national repository for plant pest records
- a record keeping and retrieval system
- data verification procedures
- communication channels to transfer information from the sources to the NPPO.

Components of such a system may also include:

- incentives to report such as:
 - legislative obligations (for the general public or specific agencies)
 - cooperative agreements (between the NPPO and specific agencies)
 - use of contact personnel to enhance communication channels to and from NPPOs
 - public education/awareness programmes.

1.3 Use of information

Information gathered through such general surveillance will most often be used:

- to support NPPO declarations of pest freedom
- to aid early detection of new pests
- for reporting to other organizations such as RPPOs and FAO
- in the compilation of host and commodity pest lists and distribution records.

2. Specific Surveys

Specific surveys may be detection, delimiting or monitoring surveys. These are official surveys and should follow a plan which is approved by the NPPO.

The survey plan should include:

- definition of the purpose (e.g. early detection, assurances for pest free areas, information for a commodity pest list) and the specification of the phytosanitary requirements to be met
- identification of the target pest(s)
- identification of scope (e.g. geographical area, production system, season)
- identification of timing (dates, frequency, duration)
- in the case of commodity pest lists, the target commodity
- indication of the statistical basis, (e.g. level of confidence, number of samples, selection and number of sites, frequency of sampling, assumptions)
- description of survey methodology and quality management including an explanation of:
 - sampling procedures (e.g. attractant trapping, whole plant sampling, visual inspection, sample collection and laboratory analysis); the procedure would be determined by the biology of pest and/or purpose of survey
 - diagnostic procedures
 - reporting procedures.

2.1 Pest surveys

Surveys for specific pests will provide information to be used mainly:

- to support NPPO declarations of pest freedom

but also:

- to aid early detection of new pests
- for reporting to other organizations such as RPPOs and FAO.

The selection of suitable survey sites may be determined by the:

- previously reported presence and distribution of the pest
- biology of the pest
- distribution of host plants of the pest and especially of their areas of commercial production
- climatic suitability of sites for the pest.

The timing of survey procedures may be determined by:

- the life cycle of the pest
- the phenology of the pest and its hosts
- the timing of pest management programmes
- whether the pest is best detected on crops in active growth or in the harvested crop.

For pests which are only likely to be present as a result of recent introduction, the selection of suitable survey sites may in addition relate, for example, to points of possible entry, possible pathways of spread, sites where imported commodities are marketed, and sites where imported commodities are used as planting material.

The selection of survey procedures may be determined by the type of sign or symptom by which the pest can be recognized, and by the accuracy or sensitivity of techniques used to test for the pest.

2.2 Commodity or host surveys

Specific commodity surveys can provide useful information for pest lists of commodities produced under specific cultural practices. Surveys could also be used for the preparation of host pest lists where data from general surveillance is lacking.

The selection of suitable survey sites may be determined by:

- geographical distribution of production areas and/or their size
- pest management programmes (commercial and non-commercial sites)
- cultivars present
- points of consolidation of the harvested commodity.

Survey procedures will be timed in relation to crop harvesting and will depend on the selection of a sampling technique appropriate to the type of harvested commodity.

2.3 Targeted and random sampling

Surveys should normally be designed to favour detection of specific pests concerned. However, the survey plan should also include some random sampling to detect unexpected events. It should be noted that if a quantitative indication of the prevalence of a pest in an area is required, the results from targeted surveys will be biased and may not provide an accurate assessment.

3. Good Surveillance Practice

Personnel involved in general surveillance should be adequately trained in appropriate fields of plant protection and data management. Personnel involved in surveys should be adequately trained, and where appropriate audited, in sampling methods, preservation and transportation of samples for identification and record keeping associated with samples. Appropriate equipment and supplies should be used and maintained adequately. The methodology used should be technically valid.

4. Technical Requirements for Diagnostic Services

The NPPO should provide appropriate diagnostic services to support general surveillance and specific survey activities, or ensure access to such services. Characteristics of the diagnostic services include:

- expertise in disciplines relevant to pest (and host) identification
- adequate facilities and equipment
- access to specialists for verification where necessary
- facilities for record keeping
- facilities for processing and storing of voucher specimens
- use of standard operating procedures, where appropriate and available.

Verification of diagnoses by other recognized authorities will provide increased confidence in the survey results.

5. Record Keeping

The NPPO should keep appropriate records derived from general surveillance and specific surveys. Information kept should be appropriate for the intended purpose, for example support of specific pest risk analyses, establishment of pest free areas and preparation of pest lists. Voucher specimens should be deposited, where appropriate.

Information in the records should include to the extent possible:

- scientific name of pest and Bayer code if available
- family/order
- scientific name of host and Bayer code if available, and plant part affected or means of collection (e.g. attractant trap, soil sample, sweep net)
- locality, e.g. location codes, addresses, coordinates
- date of collection and name of collector
- date of identification and name of identifier
- date of verification and name of verifier
- references, if any
- additional information, e.g. nature of host relationship, infestation status, growth stage of plant affected, or found only in greenhouses.

Reports of pest occurrence on commodities need not be so specific on locality or verification, but should refer precisely to the exact type of commodity, the collector and the date, and if appropriate the means of collection.

Reports of new occurrences of pests should also include information on any measures taken, and such reports made available on request.

6. Transparency

The NPPO should on request, distribute reports of pest presence, distribution, or absence derived from general surveillance and specific surveys. Reports should be adequately referenced in relation to pest occurrences.