

**National regulatory control systems**  
**Systèmes de lutte nationaux réglementaires****PM 9/5 (2) *Synchytrium endobioticum*****Specific scope**

This Standard describes the procedures for official control of *Synchytrium endobioticum*.

**Specific approval and amendment**

First approved in 2006-09. Revised in 2017-09 (editorial changes).

**Introduction**

*Synchytrium endobioticum*, the agent of potato wart disease, is an A2 pest for the EPPO region. The epidemiology of potato wart disease is distinctive. The pathogen mainly attacks the underground parts of the potato plant but stems, leaves and flowers can also be infected. It produces mobile zoospores that can move only small distances in the soil. It also produces overwintering zoosporangia that are very resistant and long-lived. Thus, the pathogen spreads very slowly under natural conditions but persists for very long periods in infested soil (over 30 years). It can, however, readily be spread by human activity (e.g. movement of soil) or anything which can carry the organism (e.g. potatoes, other plants, machinery or implements).

Wart disease is so important that for many years phytosanitary measures (both at the national level and at import) have been enforced to prevent its spread. Consequently although *S. endobioticum* has been found in almost all potato-growing countries, the pest is absent from the overwhelming majority of fields. A small number of plots scattered across potato-growing areas of the continent have been classified as ‘infested’ and have been ‘scheduled’ (i.e. have been placed under official control). Growing potatoes and plants for planting on the infested field is prohibited. In areas where climatic conditions are favourable, the disease occasionally appears in new plots. However, due to the phytosanitary measures applied in the EPPO region this hardly affects overall incidence, which remains very low.

If countries can demonstrate field freedom or that the field has been descheduled (see EPPO Standard PM 3/59 *Synchytrium endobioticum: descheduling of previously infested plots*), potatoes and plants from these areas will not be subject to the potato wart disease restrictions which otherwise apply.

Consequently the implementation of a national regulatory control system is recommended to all EPPO member countries for the detection, containment and suppression of the organism if present. This system is devised to ensure that countries which demonstrate that they apply it can export potatoes and other plants on the same basis as countries which have demonstrated that *S. endobioticum* does not occur in their territory. Thus countries can export both from areas where *S. endobioticum* is known not to occur and from areas where it is known to occur, provided they lie outside any ‘regulated areas’,<sup>1</sup> i.e. scheduled fields and buffer zones, for *S. endobioticum* and the production system is regulated to prevent reintroduction. Potato wart disease restrictions for potato commodities are specified in section 3 of EPPO Standard PM 8/1 *Commodity-specific phytosanitary measures for potato* and are intended to form part of the phytosanitary regulations of EPPO member countries concerning imports of plants and plant products.

This Standard presents the basis of a national regulatory control system for the monitoring, containment and suppression of *S. endobioticum* and describes:

- Elements of the monitoring programme that should be conducted to detect a new infestation or to delimit an infested area
- Measures aiming to suppress the pest where it is found. The national regulatory control system for *S. endobioticum* does not specifically declare eradication to be an objective. Nevertheless, the maintenance of

<sup>1</sup>The definition of ‘regulated area’ in ISPM no. 5 ‘Glossary for phytosanitary terms’ is as follows: ‘an area into which, within which and/or from which plants, plant products and other regulated articles are subjected to phytosanitary measures’.

official control over infected fields for long periods of time should finally succeed in total eradication

- Measures to contain the pest to prevent further spread in a country or to neighbouring countries.

### Monitoring of *S. endobioticum*

*Synchytrium endobioticum* should be considered a notifiable pest. All persons suspecting or confirming the presence of the disease should notify the fact to the NPPO.

A plot shall be regarded as being contaminated when symptoms of potato wart disease have been found on at least one plant or any viable sporangia are found in soil and the presence of *S. endobioticum* has been confirmed by official services.

### Surveys

Monitoring of *S. endobioticum* is usually based on the general surveillance of the potato production system (visual inspections carried out on seeds and ware potato tubers). Because potato tubers are not allowed to be grown on infected fields and restrictions apply in the buffer zones (see below) inspection of these areas after detection is not relevant except for inspection to verify that the phytosanitary measures imposed in these areas are being implemented.

### Detection and identification

Diagnosticians should be familiar with the EPPO Standard PM 7/28 Diagnostic protocol for *S. endobioticum* which describes how to detect and identify *S. endobioticum* and its pathotypes, as symptoms of potato wart disease may be confused with some other disorders. It is important to identify the pathotype present in order to determine which resistant varieties should be used.

### Containment and suppression of *S. endobioticum*

Suppression and prevention of spread of *S. endobioticum* to new areas is possible due to its particular epidemiology. Whenever even a single potato plant showing symptoms of wart disease is found, or any viable sporangia are found in soil, the plot in which it is growing is declared to be infested (is 'scheduled'), and a buffer zone around it is demarcated where measures are implemented.

### Delimitation of regulated areas

On detection of the pest, the contaminated field is scheduled.

A buffer zone large enough to ensure the protection of the areas surrounding the contaminated plot should also be demarcated. For determination of the boundaries of a buffer zone natural barriers may be considered, such as meadows, forest, rivers and roads.

### Measures for containment and suppression

#### *Scheduled plots*

All tubers and haulms of potatoes that were growing on the plot are 'treated' so as to destroy *S. endobioticum* (e.g. by steaming the tubers and incinerating plant debris, burying and treating with slaked lime) or processed under safe conditions. There are no effective plant protection products available for the treatment of tubers.

In scheduled plots it is prohibited to grow potatoes or to grow (or place in the soil) any plant for planting. Such simple measures have been implemented in European countries throughout the 20th century and have succeeded in keeping the incidence of the pest at a very low level.

#### *Buffer zone*

In the buffer zone only cultivars which are resistant to the pathotypes of *S. endobioticum* found in the contaminated field may be planted. A resistant variety is defined as one which reacts to the pathogenic agent in such a way that there is no danger of secondary infection.<sup>2</sup>

### Verification of pest eradication and descheduling

When a field has been tested and found to be in compliance with the requirements of EPPO Standard PM 3/59 it may be fully or partially descheduled. As a general principle, the plot should have been cultivated during the period of scheduling; it should not have been under permanent grassland.

After full descheduling, the field is released from official control and there are no limitations on its use.

After partial descheduling, the field may be used for growing resistant cultivars of ware potatoes; however, the plot may not be used for growing other types of potatoes (seed potatoes or susceptible cultivars of ware potatoes), or for plants for planting, until complete descheduling.

<sup>2</sup>An EPPO Standard describing the testing of potato varieties to assess resistance to *Synchytrium endobioticum* is under development.