

**Phytosanitary procedures****PM 3/69 (2) *Meloidogyne chitwoodi* and *M. fallax*: sampling potato tubers for detection****Specific scope**

This Standard procedure describes primarily the procedure by which potato lots are tested to determine area freedom, place of production freedom and/or lot freedom from *Meloidogyne chitwoodi* and *M. fallax*.

**Specific approval and amendment**

First approved in 2006-09.  
Revision approved in 2019-09.

**Introduction**

*Meloidogyne chitwoodi* and *M. fallax* are pests included in the EPPO A2 List of pests recommended for regulation. Details and details of their biology, distribution and economic importance can be found in the data sheets covering the pests (EPPO/CABI, 1997 and EPPO, 1999).

Consignments of seed potatoes from countries where *Meloidogyne chitwoodi* and/or *M. fallax* are known to occur must either<sup>1</sup>

- come from a pest-free area, or
- come from a place of production found free by means of inspection of crops of any host plants during the last growing season and by inspection of whole and cut tubers from the harvest of all potato crops, or
- have been found free from these nematodes by testing after harvest by the present procedure.

This Standard provides procedures for sampling of the consignment and inspection of tubers. It can also be used for surveillance (see EPPO Standard PM 9/17 National regulatory control systems for *Meloidogyne chitwoodi* and *Meloidogyne fallax*).

**Sampling of potato lots**

After harvest, 200 tubers are randomly sampled from the lot (typically 25 tonnes). The sample should be processed with either method A or method B.

<sup>1</sup>See EPPO Standard PM 8/1 Commodity-specific phytosanitary measures for potato and PM 9/17 National regulatory control systems for *Meloidogyne chitwoodi* and *Meloidogyne fallax*.

**Method A: Visual method****(1) Incubation**

The sampled tubers are stored at a temperature around 18°C until a temperature sum of at least 2150 day-degrees from the day of planting has been reached. During this storage period, *Meloidogyne* spp. continue their lifecycle and symptoms may become visible if these nematodes are present. The temperature sum is calculated as the degrees above 5°C (mean soil temperature at a depth of 10 cm), starting from the planting date of the potatoes. Recommended storage conditions are in open plastic bags or crates in a well-ventilated storage place.

**(2) Visual inspection of tubers**

Each incubated tuber should be inspected visually after cutting. On potato tubers, *M. chitwoodi* and *M. fallax* cause numerous small pimple-like, raised areas on the surface (in *M. hapla* these swellings are usually not evident). However, some potato cultivars may remain free from visible external symptoms, even though they are heavily infested. Internal potato tissue just below the skin is necrotic and brownish. Adult females are visible just below the surface, in the cortex layer, only as glistening, white, pear-shaped bodies surrounded by a brownish layer, usually indicative of the presence of eggs.

**(3) Extraction**

If symptoms are seen, nematodes should be extracted either by dissecting the visible females from the tissue or by digestion of tubers with cellulase and pectinase (see EPPO Standard PM 7/119 Nematode extraction).

## Method B: Isolation method

Mature females and/or other developmental stages of *Meloidogyne chitwoodi* and *M. fallax* can be extracted from tubers by following methods detailed in the EPPO Standard PM 7/119 Nematode extraction.

*Meloidogyne chitwoodi* and *M. fallax* can also be identified directly from potato peels following the test described in Appendix 6 (The MeloTuber Test) of EPPO Standard PM 7/41.

## Identification

After using one of the above methods, identification should be carried out according to the description in EPPO Standard PM 7/41 Diagnostic protocol for *Meloidogyne chitwoodi* and *M. fallax*.

## References

**Links to the latest version of the EPPO Standards, published in the EPPO Bulletin can be found on the EPPO website <https://www.eppo.int>**

EPPO/CABI (1997) *Meloidogyne chitwoodi*. In *Quarantine Pests for Europe* (Ed. Smith IM, McNamara DG, Scott PR, & Holderness M), 2nd edn, pp. 612–618. CAB International, Wallingford (GB).

EPPO Standard PM 7/41 Diagnostic protocol for regulated pests: *Meloidogyne chitwoodi* and *Meloidogyne fallax*. <https://gd.eppo.int/standards/PM7/>

EPPO Standard PM 7/119 Nematode extraction. <https://gd.eppo.int/standards/PM7/>

EPPO Standard PM 8/1 Commodity-specific phytosanitary measures for potato. <https://gd.eppo.int/standards/PM8/>

EPPO Standard PM 9/17 National regulatory control systems for *Meloidogyne chitwoodi* and *Meloidogyne fallax*. <https://gd.eppo.int/standards/PM9/>

EPPO (1999) Data sheets on quarantine pests, *Meloidogyne fallax*. *Bulletin OEPP/EPPO Bulletin* **29**, 493–496.