

Report of a Pest Risk Assessment
Tecia solanivora

This summary presents the main features of a pest risk assessment which has been conducted on the pest, according to EPPO Standard PP 5/3(1) Pest Risk Assessment Scheme.

Pest: *Tecia solanivora*
PRA area: EPPO region
Assessors: J.F. Germain, A. McLeod, EPPO Secretariat, Panel on Phytosanitary Measures
Date: 2000-02-15, modified in 2001 and 2002

1. INITIATION

1.1 Reason for doing PRA: This species was first identified as a potential quarantine pest of potato. It was necessary to assess its potential as a quarantine pest for Europe. In the meantime, it has been listed on EPPO Alert List.

1.2. Taxonomic position of pest: Insecta: Lepidoptera: Gelechiidae: *Tecia solanivora* Povolny

2. PROBABILITY OF INTRODUCTION**2.1 Entry**

2.1.1 Geographical distribution: **EPPO Region:** Spain (Canary islands: north of Tenerife, details in data sheet)
Central America: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama.
South America: Colombia, Ecuador, Venezuela.

2.1.2 Major host plants: *Solanum tuberosum*.

2.1.3 Which pathway(s) is the pest likely to be introduced on: Mostly seed and ware potatoes. May also be carried on potato plants (eggs occasionally laid on leaves and stems), potato bags (which may carry eggs and pupae), infested soil (which may carry eggs or pupae). Owing to existing prohibitions on account of other pests, pathway does not currently exist from Central/South America, but the pest is now present in the EPPO region (Canary islands, Spain), originating from potatoes illegally imported from South America (Venezuela, Ecuador or Colombia).

2.2 Establishment

2.2.1 Crops at risk in the PRA area: *Solanum tuberosum*.

2.2.2 Climatic similarity of present distribution with PRA area (or parts thereof): *Analysis from Germain:* in South America, regions above 3000 m could compare with some European regions with an annual temperature of 14°C. This level is reached only in the south of Europe.
Analysis from McLeod: as shown by its spread in Central and South America, *Tecia solanivora* can adapt to different climatic conditions, from subtropical zones at 1,000m up to colder climates at 3,500 m. Extrapolation of data for UK and EU shows that conditions would be suitable.

2.2.3 Aspects of the pest's biology that would favour establishment: This species can develop both in store and in the field. It has proved its ability to survive transit by arriving from South America to Islas Canarias. Entry holes of larvae in the tubers may remain inconspicuous at early larval

stages. In store, there may be generations at 4-5 week intervals. The pest may survive in cracks and holes in floors or walls of stores, as well as on bags. Pest spread at a local scale either by infected tubers or by adult flight between adjacent crops. The pest may remain undetected at earlier larval stages, i.e. infested seed potatoes could be planted without the pest being detected.

Development is rapid and exponential, particularly where potatoes are cropped all year round and in store.

T. solanivora is considered as the most important insect pest in some South American countries, and more serious than *Premnotrypes vorax*.

2.2.4 Characteristics (other than climatic) of the PRA area that would favour establishment:

Potatoes are widely grown and stored in the EPPO region. There is a very large trade of potatoes between EPPO countries, which could facilitate spread.

2.2.5 Which part of the PRA area is the endangered area:

Potato is used for consumption in the whole of the EPPO region. Climatic conditions in the present distribution are different from those in Europe. From past experience with *Phthorimaea operculella* (another potato tuber moth), it can be considered that the southern part of Europe may be more at risk, although the pest could threaten stored potatoes in other countries. The particular risk at present would be to those countries which currently import ware potatoes from Islas Canarias (if any).

3. ECONOMIC IMPACT ASSESSMENT

3.1 Describe damage to potential hosts in PRA area:

Larvae feed exclusively on potato tubers, in the field and in store. Quality of tubers is much reduced and heavily infested tubers can no longer be used for human or animal consumption. Total destruction of potatoes in store or in fields has been reported.

3.2 How much economic impact does the pest have in its present distribution:

T. solanivora has high economic impact in its present distribution. Heavy damage and rapid spread is reported from South America both in the field and in store. Many pesticide applications are required, raising the likelihood of resistance. There is heavy reduction of expected production in Islas Canarias. Spanish local newspapers report that in 2001, it was estimated that in the north of Tenerife, potato production was reduced by 50% because of *T. solanivora* and a severe drought, leading to economic losses of at least 150 millions pesetas (about 900,000 EUR). There is much debate in Islas Canarias about measures and actions to be taken to protect the potato industry.

Although integrated control is being applied where the pest is present, it seems to have limited success, especially where resources are not available to apply adequate measures.

3.3 How much economic impact would the pest have in the PRA area:

Economic impact would be high in the field. Although the pest is more serious where potato is grown continuously, it could cause heavy damage in all potato crops. Impact on potatoes in store following import is likely to be lower, at least if infestations are detected early.

4. CONCLUSIONS OF PRA

4.1 Summarize the major factors that influence the acceptability of the risk from this pest:

Potato is a very important crop in the EPPO region.

T. solanivora causes problems on potato crops and stocks in countries where it is present.

It has been introduced into countries with international movement of (seed) potatoes. Its spread in Central and South America has been quite rapid in recent years, partly due to the trade and use of infected seed, ware or farmer-produced seed in the fields. It now occurs in Islas Canarias, where damage and rising concern has been reported.

- 4.2 Estimate the probability of entry:** High. The pest is widespread in countries where it is present, and already occurs in the EPPO region. There is no doubt that it could survive transit.
- 4.3 Estimate the probability of establishment:** High for establishment outdoors in southern countries following the use of contaminated seed potatoes. Medium to low (?) elsewhere.
Low for establishment following storage of contaminated consignments: likely to be detected if the commodity is stored for a certain time; eradication could be conducted in store.
Due to rapid development, establishment is very likely if infestations are not detected early.
- 4.4 Estimate the potential economic impact:** Highest where conditions are more suitable for development and build up of large populations, i.e. warmer climates. High in individual stores, but low in general in store if individual foci can be detected and controlled.
- 4.5 Degree of uncertainty** There may be a need to study closer the possible survival of the pest in EPPO countries (see diverging opinions under point 2.2.2); however, it is recognized that it could establish at least in the south of the region.
- 5. OVERALL CONCLUSIONS OF THE ASSESSOR** This case could be considered as similar to that of other South American insects already listed on EPPO quarantine lists, such as *Premnotrypes* spp. The risk from this pest increased with the recent introduction of *T. solanivora* in the Canary Islands. It is therefore proposed that *T. solanivora* should be proposed for addition to EPPO A2 quarantine list.