

***Diabrotica speciosa* (Germar)****PRA Area :** EuropeAuthor : J.F. Germain  
Date : 15th February 2000**1. INITIATION****1.1 Reason for doing PRA :**

This species is listed as a potentially harmful insect by several member countries. It is necessary to assess its potential as a quarantine pest for Europe.

**1.2 Taxonomic position of pest :**

Insecta: Coleoptera: Chrysomelidae: Galerucinae: *Diabrotica speciosa* (Germar)

**2. PROBABILITY OF INTRODUCTION****2.1 Entry****2.1.1 Geographical distribution :**

Not present in Europe; South-American species : Argentina, Brazil, Peru, Paraguay, Uruguay.

**2.1.2 Major host plants :**

Very polyphagous species. Main host plants : *Phaseolus vulgaris*, *Zea mays*, *Arachis hypogea*, *Solanum tuberosum*, *Glycine max*, *Lycopersicum esculentum*, *Triticum aestivum*, *Brassica napus*, *Ipomoea batatas*, *Malus*, *Prunus*, *Brassica oleracea*, var. *capitata*, L., *Citrus sp.*. In Argentina, *D. speciosa* was observed on a variety of crops and wild plants; Christensen (1943) mentions 60 plant species belonging to 22 families.

**2.1.3 Which pathway(s) is the pest likely to be introduced on :**

Larvae could be present on root systems, tubers; adults on foliage; eggs in substrate, if any remains, since females lay their eggs on the soil.

**2.2 Establishment****2.2.1 Crops at risk in the PRA area :**

*Triticum aestivum*, *Zea mays*, *Phaseolus vulgaris* et *Solanum tuberosum* are the main crops at risk in the PRA area. The host plants cultivated in South America nearly all occur in Europe.

**2.2.2 Climatic similarity of present distribution with PRA area (or parts thereof) :**

Argentinian plains, Uruguay and coastal areas of southern Brazil are rather similar to temperate and Mediterranean regions of Europe ('temperate and continental zone', 'Mediterranean and subtropical zone').

Climatic conditions of regions around 3000m high in the Andes are also similar to temperate European climate.

### **2.2.3 Aspects of the pest's biology that would favour establishment :**

The fact that it is very polyphagous multiplies opportunities to meet an environment suitable for the development in case of introduction. The pest has 3 generations per year in Buenos-Aires region. The pest overwinters as adults; egg laying starts in spring and embryo development lasts about 10 days. This species is cold-resistant. The spring following winter 1918 was especially cold in Argentina and populations of *D. speciosa* proliferated because of its resistance to cold and of the disappearance of predators and parasitoids.

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

Its distribution in Argentina corresponds exactly to that of field crops, vegetable and fruit crops, which are the same as in Europe.

### **2.2.5 Which part of the PRA area is the endangered area**

The whole of Europe below the 60° parallel.

## **3. ECONOMIC IMPACT ASSESSMENT**

### **3.1 Describe damage potential hosts in PRA area :**

Larvae attack the roots of host plants, while adults feed on leaves, flowers and even on fruits. On maize, 5 larvae per plant can cause 73,3% decrease of production; the weight and number of grains decrease with 4 insects per plant (experimental conditions in glasshouse, Fogaca & Calafiori, 1992).

This pest is known as a vector of viruses such as *Passionfruit yellowmosaic virus*, *Mimosa mosaic virus*, *Purple granadillamosaic virus*.

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

*Diabrotica speciosa* is considered as an important pest. Research programmes on parasitoids and entomopathogenic nematodes are conducted in Argentina and in Brazil.

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

Very important

## **4. CONCLUSION OF PRA**

### **4.1 Summarize the major factors that make the risk from this pest unacceptable :**

**Climatic conditions in the area of origin correspond to that of most parts of Europe**

**Important pest in South America**

**Very polyphagous insect, wide variety of host plants (cultivated or wild)**

**High behavioural adaptability, occurs from temperate Argentina to tropical Brazil**

**Attacks plants of high economic importance (wheat, maize, potato)**

These factors make risk important but can be tempered by the fact that there has been no or few interceptions and that it has not spread outside South America.

#### **4.2 Give an estimate of the probability of entry :**

Low if phytosanitary controls are fulfilled.

#### **4.3 Give an estimate of probability of establishment :**

High if the pest does not have predators/parasitoids that would maintain its populations at an economically acceptable level. Its entry into Europe would lead to a situation rather similar to that of *Diabrotica virgifera*, whose spread is apparently not limited by indigenous natural enemies.

#### **4.4 Give an estimate of potential economic impact :**

High given the economic importance and variety of potential host plants in Europe. This estimate may be different if the effect on the pest of possible parasitoids/predators occurring in Europe and of treatments targeting other pests was known.

#### **References**

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