## EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION

04/11055 WPPR Point 13.2

# **Report of a Pest Risk Assessment**

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:	<i>Sirococcus clavigignenti-juglandacearum</i> Nair, Kostichka & Kuntz. Butternut canker
PRA area:	Germany, including a less detailed assessment for the EPPO region
Assessor:	Dr. Gritta Schrader, Braunschweig, Germany
Date:	26 February 2004
1. INITIATION	
1.1 Reason for doing PRA:	The fungus is causing severe tree mortality on <i>Juglans cinerea</i> (butternut) in North America. Natural infection of <i>Juglans nigra</i> and <i>Juglans ailantifolia</i> var. <i>cordiformis</i> has been found in the USA. The pathogen has been put on the EPPO Alert List.
1.2. Taxonomic position of pest:	Fungi. Class: Coelomycetes. Subdivision: Deuteromycotina or Fungi Imperfecti. Order: Sphaeropsidales. Family: Phialosporae. Genus: <i>Sirococcus</i> ; anamorphic fungus

#### 2. PROBABILITY OF INTRODUCTION

## 2.1 Entry

2.1.1 Geographical distribution:	EPPO-Region: absent
	North America (USA and Canada): widely distributed
	not known to occur elsewhere
	Origin: not known
2.1.2 Major host plants:	Juglans cinerea (main host), J. nigra, J. ailantifolia var. cordiformis.
	It appears that other <i>Juglans</i> species (e.g. <i>J. ailantifolia</i> var. <i>cordiformis</i> , <i>J. regia</i> and <i>J. nigra</i> ) are susceptible to the disease. As <i>J. regia</i> and other <i>Juglans</i> species which are cultivated in Europe are not cultivated in North America no data is available on susceptibility of these species under natural conditions.

	However they are recorded as susceptible at least in laboratory experiments.
	Might be able to survive on <i>Carya illinoensis</i> , <i>Carya ovata</i> , <i>Prunus serotina</i> , <i>Quercus alba</i> , <i>Q. rubra</i> and <i>Q. velutina</i> , presenting a potential source of inoculum.
<b>2.1.3</b> Which pathway(s) is the pest likely to be introduced on:	Seeds (main pathway), propagative material and wood of <i>Juglans cinerea</i> , possibly also of other susceptible <i>Juglans</i> species.
2.2 Establishment	
<b>2.2.1</b> Crops at risk in the <b>PRA</b> area:	Juglans regia, Juglans nigra (but see 2.1.2)
2.2.2 Climatic similarity of present distribution with PRA area (or parts thereof):	Pathogen occurs in areas of North America, which are climatically comparable to Germany and other parts of central Europe.
2.2.3 Aspects of the pest's biology that would favour establishment:	Seed borne, clonal growth, easily spread by rain splashes, wind and insects, possibly also by birds.
2.2.4 Characteristics (other than climatic) of the PRA area that would favour establishment:	Host plants / potential host plants are available. Parts of the PRA area are very similar to the area of present distribution. <i>J. regia</i> is not tolerant to shade and prefers profound, nutrient rich, well-drained neutral to slightly chalky loams. It can grow up to an elevation of 800 m, in the Alps up to 1200 m. These factors are present in parts of the PRA area.
2.2.5 Which part of the PRA area is the endangered area:	Central and southern Germany, Hungary, Balkans, France, Italy, Turkey and possibly other parts of Europe.
3. ECONOMIC IMPACT ASSESSMENT	
3.1 Describe damage to potential hosts in PRA area:	Development of cankers and subsequent killing of susceptible <i>Juglans</i> species.
<b>3.2 How much economic impact does the pest have in its present distribution:</b>	Though wood from butternut is valuable, commercial impact is low, as there is no large commercialisation of this tree in North America. Environmental impact is high, as butternut is now (due to the impact of the pathogen) an endangered species in North America.
3.3 How much economic impact would the pest have in the PRA area:	Depends on the susceptibility of European proveniences of <i>Juglans</i> species (especially <i>J. regia</i> and <i>J. nigra</i> ). If susceptibility is high, economic impact could be low to medium for Germany, medium to high for France, Hungary, Balkans, Italy, Turkey and possibly other European countries, depending on the size of cultivation area (walnut has more economic importance in Southern/central European countries than in Germany).

Reliable control measures are not available at the moment.

### 4. CONCLUSIONS OF PRA

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

- interception of the pathogen has not been reported up to now,
- fungus has spread from USA to Canada, introduction into USA is very probable, but origin is not known,
- is established in areas with similar climatic conditions to the PRA area <u>and</u> causes serious environmental damage there,
- its reproductive strategy (clonal growth) is likely to help introduction,
- spreads quickly,

uncertainty for other Juglans species.

uncertainty for other Juglans species.

volumes are estimated to be very low.

low for the pathway 'wood of J. cinerea'

- reliable control measures are not available at the moment,
- existing phytosanitary measures are not sufficient to prevent introduction of the fungus

medium for the pathways 'plants' and 'seeds of J. cinerea'

estimated low to medium for Germany, medium to high for

France, Hungary, Balkans, Italy, Turkey and possibly other European countries, provided that European proveniences of *Juglans* species (esp. *Juglans regia*) are (highly) susceptible.

Susceptibility of European proveniences of *Juglans* species is not known. Up to now, it is not sure if *Juglans nigra* from heavily infested areas could act significantly as a pathway for the fungus. There are no exact data on the amount of seed, propagative material and wood of butternut and black walnut imported from North America to Germany or Europe, though

**4.2 Estimate the probability of**<br/>entry:low for the pathways 'plants' and 'wood of *J. cinerea'*medium for the pathway 'seeds of *J. cinerea'* 

**4.3 Estimate the probability of establishment:** 

4.4 Estimate the potential economic impact:

4.5 Degree of uncertainty

5. OVERALL CONCLUSIONS OF THE ASSESSOR S. clavigignenti-juglandacearum is much more aggressive than e.g. the fungi causing the chestnut blight and the Dutch elm disease, Cryphonectria parasitica and Ophiostoma ulmi/Ophiostoma novo-ulmi respectively. It is internally seed borne, i.e. it can be transmitted directly from seed to seedling, spread by infected seeds and seedlings on nursery stock is possible and has already taken place. The seed transferability of the pathogen represents the main phytosanitary risk and has to be specially considered when measures against the introduction of the fungus are taken.

It is recommended that *Sirococcus clavigignenti-juglandacearum* should be considered a quarantine pest, and phytosanitary measures should be taken against it.