Plant Protection Service
P.O. Box 9102
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Short PRA

***Scyphophorus acupunctatus*, Sisal weevil**

November 2009

1. Reason for performing the PRA

Since 1980, *Scyphophorus acupunctatus* has been found 13 times at post import inspections in the Netherlands, on plants mainly originating from Guatemala:

Beaucarnea	(1984, 1987, 1989, 1997-2x, 2001-2x, 2003, 2004, 2006)
Yucca	(1980, 2001)
Dasylirion	(1989)

In all cases, one individual beetle was found except the one in 2006 when 3 larvae and 2 beetles were found on Beaucarnea. In 2006, insecticide treatments (with carbofuran) were carried out at the importing company and no further beetles or larvae were observed. Pest status in the Netherlands: absent.

2. Scientific names and taxonomy

Class:	Insecta
Order:	Coleoptera
Family:	Curculionidae
Subfamily:	Dryophthorinae
Genus:	*Scyphophorus*
Species:	*acupunctatus* Gyllenhal

Source: http://www.itis.gov/ (website visited May 2009)

Common names: sisal weevil, sisal borer, Agave weevil (CABI, 2007)

3. Key aspects of biology & international phytosanitary status

Beetles lay eggs in plant tissue. A female can lay about 60 eggs during a period of 3 months (Harris, 1936 referred to in CABI, 2007). Larvae of *Scyphophorus acupunctatus* bore galleries into the plants. Adults are about 9-15 mm and a fully developed larvae is about 18 mm long. The life cycle takes about 50 – 90 days (*http://www.eppo.org/QUARANTINE/Alert_List/deletions.htm*; website visited May 2009). Pre-oviposition takes about one month and about 4 generations are possible per year. Adults drill holes in the base of plants, causing mechanical damage and facilitating the entry of micro-organisms (bacterial wilt) that decompose the plant tissues, often resulting in plant death. (CABI, 2007).

International phytosanitary status:

- Removed from EPPO alert list in 2006 (no action taken by any country),
- Regarded as low risk in *Draceana* commodity PRA of New Zealand (MAF Biosecurity, 2002)
- Quarantine pest in China and Southern Africa (EPPO PQR-system).

4. PRA-area

The Netherlands

5. Host plant range (Worldwide)

Agavaceae and Dracaenaceae.

Agave (many different species, e.g. species used for fibre production: *A. sisalana* (sisal), *A. fourcroydes* (fibre hemp); for beverage: *A. tequilana* (tequila);
Ornamental plants: *A. americana*, *Beaucarnea*, *Dasylirion longissimum*, *Dracaena* spp, *Furcraea*, *Yucca* (e.g. *Y. aloifolia*, *Y. elephantipes*, *Y. glauca*), *Polianthes tuberose, Dasylirion spp*.
Sources: CABI, 2007; Waring & Smith, 1986.

6. Host plant range (NL)
Dracaena spp
51 companies, 28 ha in 2004. (LEI/CBS, 2005)

Beaucarnea, Dasylirion, Yucca spp.
Few companies in the Netherlands (source: NPPO of the Netherlands).

7. What is the current area of distribution of the pest?
Europe: found in glasshouses on imported Beaucarnea in Italy in Lombardia in 1998 and again in 2000, infested plants were destroyed (EPPO RS 2002/046). Findings on imported Beaucarnea, Yucca and Dasylirion in the Netherlands between 1980 and 2006; pest eradicated and absent from the Netherlands (NPPO of the Netherlands). Found in Sicily in Italy in 2006; uncertain if the pest has established (EPPO RS 2008/179). Infested plants found in France in a public parc; infested plants were destroyed (EPPO RS 2008/220).

Asia: Indonesia (Java, Kalimantan, Sumatra), Saudi Arabia.
Africa: Kenya, South Africa, Tanzania.
North America: Mexico, USA (Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Kansas, Nevada, New Mexico, Texas).
Central America and Carribean: Cayman islands, Costa Rica, Cuba, Netherlands Antilles (including Curaçao), Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Virgin Islands (US).
South America: Belize, Brazil, Colombia, Venezuela.
Oceania: Australia (Queensland).
Source: CABI, 2007

8. Does the pest occur in the PRA-area?
No

9. **Probability of entry – moderate - high**
Plants for planting (including pot plants) of *Agave, Beaucarnea, Dasylirion, Dracaena* and *Yucca* from countries where *S. acupunctatus* occurs. The findings on imported lots (13 since 1980) show that the pest can enter Dutch glasshouse production sites and the probability of entry is assessed as “moderate to high”.

10. Probability of establishment
(a) Outdoors - **very unlikely**
The current geographic distribution of the organism is restricted to climates much warmer than the climate in the Netherlands. No information could be found on the development threshold temperature of the organism or on minimum survival temperatures. Host plants are only incidentally present outdoors in the Netherlands.

(b) In protected cultivation – **unlikely - moderately likely**
Establishment is not very likely because the pest has a generation time of about 3 months and *Dracaena*, *Dasyrilon* and *Yucca* plants remain only for several months after import at the glasshouse before being sold. For *Beaucarnea* plants the situation may be different as these plants may remain up to one year at the glasshouse before being sold. Theoretically, a population could be maintained if there is a continuous presence of host plants in the same glasshouse and adults emerging from an infested lot will lay eggs in plants of other younger lots. It is, however, expected that large populations will not be build up because of the relatively long generation time and the fact that

plants are sold within one year after import and usually within several months. Moreover, growers will take measures (removal of infested plants) to avoid plant losses. Since 1980, the NPPO of the Netherlands has found *Scyphophorus acupunctatus* 13 times during post-import inspections at glasshouse production sites. In 12 out of 13 cases, the NPPO found only one beetle and in one case 2 beetles and 3 larvae were found. Thus, the NPPO has never found a population of the pest in a glasshouse although the findings show that the pest has entered production sites many times since 1980. These observations also suggest that establishment is not very likely to occur in Dutch glasshouses. Establishment can, however, not be excluded since the climatic conditions in a glasshouse are probably favourable for establishment. We, therefore, assess the probability of establishment as unlikely to moderately likely with a medium uncertainty.

11. How likely is the pest to spread in the PRA-area? (*naturally and by human assistance*)

Very unlikely

Natural dispersal: **unlikely**
No information was found in literature on flight distances of *S. acupunctatus*. In general, members of the Dryophthorinae do not fly over large distances (e.g. more than 1 km). Recently, a PRA has been made of another species belonging to the Rhynchophorinae: *Rhabdoscelus obscurus* and *Metamasius hemipterus* (Van der Gaag & Wessel-Berk, 2008; EPPO-PRA on http://www.eppo.org/QUARANTINE/Pest_Risk_Analysis/PRA_documents.htm). In a mark-recapture study, beetles of *Rhabdoscelus obscurus* were found up to about 0.5 km from the original point of release (Van Zwaluwenburg & Rosa, 1940). *Metamasius hemipterus* was observed to fly 30 m in a single flight (Alpizar, undated). Spread between glasshouses where host plants are present was assessed as unlikely in the PRA of *Rhabdoscelus obscurus* for the following reasons: the conditions within the glasshouse will be more favourable to the pest (warmer) than outdoor conditions. Moreover, the number of glasshouses with plant species is limited (total glasshouse area with palm trees is 20-30 ha; the total glasshouse area of host plant species of *S. acupunctatus* will a bit larger but still less than 50 ha) and distances between glasshouses will be usually more than several km's. For the same reasons, we also assess natural spread of *S. acupunctatus* between glasshouses in the Netherlands as unlikely.

Human assistance: **moderately likely**
Infested plants may be moved/traded between glasshouse production sites in the Netherlands. Infested plants may be sold to consumers, but is highly unlikely that sustainable populations can establish in private buildings. The pest cannot establish outdoors (See 10b).

12. What is the potential damage when the pest would become introduced? (without the use of control measures)

Very low
Scyphophorus acupunctatus is considered a major pest of Agave and other host plants in (sub)tropical areas where it is present (CABI, 2007). Establishment in Dutch glasshouses is, however, not likely to occur. Incidentally, infested plants may be imported but it is not expected that (large) populations will be built up in glasshouses and cause significant damage (see question 10).

13. What is the expected damage when the pest would become introduced? (with the use of available control measures?)

Very low.
Larvae will be difficult to control because they are hidden in the plant tissue. Intensive inspection and removal of infested plants will be the best option for glasshouses. See the answers to questions 10 and 12.

14. Conclusion

Scyphophorus acupunctatus is considered a pest with a low phytosanitary risk for the Netherlands for the following reasons:

- The pest can probably not establish outdoors;
- The probability that the pest will enter glasshouses due to import of host plants from areas where the pest is present is moderate to high, but:
    - Significant population build-up and damage is not expected in glasshouses in the Netherlands;
    - It is expected that damage will be (mainly) limited to plants already infested at time of import.
- The low probability of natural dispersal of the pest (also due to the low acreage of host plants in the Netherlands (*Dracaena* spp, *Dasylirion* spp., *Yucca* spp., *Beaucarnea* spp.) of less than 50 ha).

15. References

CABI, 2007. CABI Crop protection compendium. Datasheet *Scyphophorus acupunctatus*.

EPPO RS: EPPO Reporting service (several issues as indicated in the references)

LEI/CBS, 2005. Land- en tuinbouwcijfers 2005. LEI, Wageningen, Centraal Bureau voor de Statistiek. ISBN 90-5242-585-x

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Van Zwaluwenburg, R.H., Rosa, J.S., 1940. Field movement of sugar cane beetle borer adults. Hawaiian Planters Record. 44: 3-6.

Waring, G.L. & Smith, R.L. (1986). Natural history and ecology of *Scyphophorus acupunctatus* (Coleoptera: Curculionidae) and its associated microbes in cultivated and native agaves. Ann. Entomol. Soc. Am. 79: 334-340.

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