




Netherlands Food and Consumer  
Product Safety Authority  
Ministry of Economic Affairs

National Plant Protection Organization, the Netherlands

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Quick scan date: 6 November 2015		
1	<p>What is the scientific name (if possible up to species level + author, also include (sub)family and order) and English/common name of the organism? <i>Add picture of organism/damage if available and publication allowed.</i></p>	<p><i>Spodoptera latifascia</i> (Walker, 1856) (Lepidoptera, Noctuidae) (Pogue 2002) Synonyms: <i>Prodenia latifascia</i> Walker 1856, <i>Prodenia variolosa</i> Walker 1857. Common names: a.o. velvet armyworm, orange-striped armyworm, lateral-lined armyworm.</p>  <p>Fullgrown larva (left) &amp; adult male (right); length larva &amp; wingspan: 36 – 40 mm</p>
2	<p>What prompted this quick scan? <i>Organism detected in produce for import, export, in cultivation, nature, mentioned in publications, e.g. EPPO alert list, etc.</i></p>	<p>The finding of a male adult on 8 October 2015 during an import inspection of 5140 plants of <i>Areca</i> (Arecaceae (Palmae)) from Honduras, intended for further cultivation in a greenhouse (sample number 4940980).</p>

3	What is the current area of distribution?	<i>Spodoptera latifascia</i> is present in Central America (except Panama), southern USA and the Caribbean, except Trinidad (Pogue 2002). In the USA it is continuously breeding in Florida, and Texas; further it is resident in all Gulf-states (a.o. Alabama and South-Carolina); and transient populations or strays are regularly found in Mississippi, North-Carolina, Georgia and California (Wagner 2012, Patterson 2014). Wagner (2012) states that <i>S. latifascia</i> is becoming more common and widespread in the USA nowadays, with also a finding in New Jersey in 2006.
4	What are the host plants?	<i>Spodoptera latifascia</i> is a polyphagous species and host plants include <i>Lycopersicon esculentum</i> , <i>Lactuca sativa</i> , <i>Solanum tuberosum</i> , <i>Zea mais</i> , <i>Gossypium hirsutum</i> (Pogue 2002), <i>Capsicum annum</i> , <i>Allium sepa</i> , <i>Citrus</i> , <i>Beta cicla</i> , <i>Helianthus annuus</i> , <i>Medicago sativa</i> (Robinson 2010), <i>Apium graveolens</i> (Musgrave et al. 1979) and <i>Solanum melongena</i> (Zagatti 1995). It has also been recorded on ornamentals e.g. <i>Plumbago</i> (Robinson 2010) and <i>Schefflera</i> , on which it was intercepted and reared to adult by the NVWA in 2006. There are no specific data that Arecaceae are host plants for this species.
5	Does the organism cause any kind of plant damage in the current area of distribution and/or does the consignment demonstrate damage suspected to have been caused by this organism? <i>Yes/no + plant species on which damage has been reported + short description of symptoms. Please indicate also when the organism is otherwise harmful (e.g. predator, human/veterinary pathogen vector, etc.).</i>	<i>Spodoptera latifascia</i> is considered a pest in certain areas of its distribution. In South-Eastern USA <i>S. latifascia</i> is a common species, but few reports are found on actual damage; only from Florida it is reported as an (occasional) pest (e.g. Musgrave et al. 1979). In tropical areas, however, it is considered an important pest, for example on lettuce and tomato in Costa Rica, on corn and tomato in Honduras and on cotton in Barbados and Honduras (Pogue 2002). In Honduras it is considered a common pest species (Passoa 1991, Cordero et al. 2000). In the Antilles it is frequently found on vegetable crops (tomato and egg-plant) (Zagatti 1995). Economic damage so far seems to be limited to tropical climates. Data on the amount and of the damage are, however, lacking.
6	Assess the probability of establishment in the Netherlands (NL) (i.e. the suitability of the environment for establishment). a. In greenhouses (low, medium, high) b. Outdoors (low, medium, high) c. Otherwise (e.g. storage facilities, human environment)	The current distribution of <i>Spodoptera latifascia</i> is limited to areas with a tropical or subtropical climate, with only strays or at most transient populations in areas with a temperate climate. In the Netherlands the species is, therefore, unlikely to establish outdoors, although transient populations in summer might be possible. In greenhouses establishment may be possible. Several known host plants (e.g. tomato and peppers) are grown under protected conditions. However, no records of the species were found on greenhouse crops.
7	Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).	Based on its current distribution it is likely that <i>S. latifascia</i> is able to establish outdoors in southern parts of the EU and possibly also under protected conditions (see at 6).
8	What are the possible pathways that can contribute	After introduction, <i>S. latifascia</i> is expected to spread by natural dispersal. No data are known on the

	to spread of the organism after introduction? How rapid is the organism expected to spread (by natural dispersal and human activity)?	<p>flight capacity of <i>S. latifascia</i>, but adults of <i>Spodoptera</i> species are generally known to be good flyers and <i>S. latifascia</i> is known to sometimes stray northward in the USA (Wagner 2012). Several <i>Spodoptera</i> species are migratory and can fly up to hundred kilometres during their lifetime. The related species <i>S. littoralis</i> does not migrate, however, and is known to spread only 3 to 8 kilometres per generation (Ellis 2004).</p> <p>Spread by human assistance is likely. Larvae can be detected relatively easily due to the symptoms caused by feeding on the foliage and other above ground plant parts. Eggs may, however, easily be overlooked especially in crops or commodities with dense foliage. Furthermore, pupation takes (normally) place in the soil and the species could spread by soil attached to plants. Adults fly at night and do not move during the day unless disturbed.</p>
9	Provide an assessment of the type and amount of direct and indirect damage (e.g. lower quality, lower production, export restrictions, threat to biodiversity, etc.) likely to occur if the organism would become established in NL and the EU, respectively?	<p>It is hard to assess the amount of damage that may occur under European conditions. The host plant range includes several crops of major economic importance. In tropical areas the species is considered an important pest on some of these crops. However, the species does not seem to cause much damage in the USA. Therefore, the possible damage in southern Europe outdoors is assessed minor.</p> <p>The potential economic impact for crops under protected conditions in Europe is uncertain because it is uncertain how suitable greenhouse conditions are for the species. No reports are known on damage in greenhouse crops.</p>
10	Has the organism been detected on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables)? <i>If "no", go to question 12</i>	No
11	If the organism has been found on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables), what is the probability of introduction (entry + establishment)? <i>Only to be answered in case of an interception or a find.</i>	
12	Additional remarks	<ul style="list-style-type: none"> <li>• <i>S. latifascia</i> is one of the largests species of the genus <i>Spodoptera</i>, with larvae growing up to 40 - 43 mm. Eggs are laid in batches with up to more than hundred eggs per batch.</li> <li>• Size and colouration of adults resemble that of some other pest species present in greenhouses in the EU. Larvae of <i>S. latifascia</i> in their later stages differ clearly from larvae of most of the common pest species occurring in greenhouses. However, there are several common species outdoors of which the larvae are very similar (e.g. <i>Noctua pronuba</i>). For this reason, an infestation of <i>S. latifascia</i> may remain undetected for a long time during which spread can occur.</li> </ul>

		<ul style="list-style-type: none"> <li>• Untill 1997 <i>S. cosmioides</i> was considered a synonym of <i>S. latifascia</i> and therefore untill then <i>S. latifascia</i> was considered to be present in Southern-America. Since 1997 <i>S. cosmioides</i> is reinstated as separate species again; it is now suggested that <i>S. latifascia</i> does not occur in Southern-America at all. Literature from Southern-America on (the presence of) <i>S. latifascia</i> therefore probably concerns <i>S. cosmioides</i> and must be treated with caution.</li> <li>• Due to the incorrect synonymizing of <i>S. latifascia</i> and <i>S. cosmioides</i> the information in many sources cannot unambiguously be related to the species it actually concerns. In this quickscan it is tried, as far as possible, to include only information that is unambiguous in this respect.</li> <li>• Pheromone composition is known (Monti et al. 1995) and is commercially available (<a href="http://www.chemtica.com/site/?p=3086">http://www.chemtica.com/site/?p=3086</a>).</li> </ul>
13	References (websites last accessed 13 October 2015)	<ul style="list-style-type: none"> <li>• Cordero RJ, Pitre HN, Cave RD (2000) Influence of weed management and parasitoids of lepidopterous pests in intercropped sorghum and maize in southern Honduras. <i>CEIBA</i> 41(1): 41-52.</li> <li>• Ellis, S. E. (2004). New Pest Response Guidelines: <i>Spodoptera</i>. USDA/APHIS/PPQ/PDMP. <a href="http://www.aphis.usda.gov/ppq/manuals/">http://www.aphis.usda.gov/ppq/manuals/</a>.</li> <li>• Monti L, Lalaine-cassou B, Lucas P, Malosse C, Silvan J-F (1995) Differences in sex pheromone communication systems of closely related species: <i>Spodoptera latifascia</i> (Walker) and <i>S. descoinsi</i> Lalanne-Cassou &amp; Silvain (Lepidoptera: Noctuidae). <i>Journal of Chemical Ecology</i> 21: 641-660.</li> <li>• Musgrave CA, Beck HW, Poe SL, Denton WH, Strandberg JO, White JM, Genung WG, Guzman VL (1979) Dispersion analysis and sampling plans for insect pests in Florida USA Celery. <i>Proceedings of the Florida State Horticultural Society</i> 92: 106-108.</li> <li>• Patterson B (2014) Moth photographers group: <a href="http://mothphotographersgroup.msstate.edu/species.php?hodges=9676">http://mothphotographersgroup.msstate.edu/species.php?hodges=9676</a></li> <li>• Pogue MG (2002) A world revision of the genus <i>Spodoptera</i> Guenée (Lepidoptera: Noctuidae). <i>Memoirs of the American Entomological Society</i> 43: 1-202.</li> <li>• Passoa S (1991) Color identification of economically important Spodoptera larvae in Honduras (Lepidoptera: Noctuidae). <i>Insecta Mundi</i> 5(3-4):185-195.</li> <li>• Robinson GS, Ackery PR, Kitching IJ, Beccaloni GW &amp; Hernández LM (2010) HOSTS - A Database of the World's Lepidopteran Hostplants. NHM, London. <a href="http://www.nhm.ac.uk/hosts">http://www.nhm.ac.uk/hosts</a>.</li> <li>• Wagner DL, Schweitzer DF, Bolling Sullivan J, Reardon RC (2012) <i>Owlet Caterpillars of Eastern North America</i>. Princeton University Press, Princeton.</li> <li>• Zagatti P, Lalanne-Cassou B &amp; le Duchat d'Aubigny J (2006) <i>Catalogue of the Lepidoptera of the French Antilles</i>. INRA 1995-2006. <a href="http://www.inra.fr/papillon/noctuid/noctuide.htm#Amphipyriinae">http://www.inra.fr/papillon/noctuid/noctuide.htm#Amphipyriinae</a></li> </ul>

14	<b>Conclusions</b>	<p>This Quicksan for <i>Spodoptera latifascia</i> was made after the interception of one male adult in a lot of plants for planting of <i>Areca</i> sp. from Honduras. No immature stages nor damage was observed on the plants after intensive examination and the adult was probably a hitchhiker and the only specimen in the plant lot.</p> <p>The species is present in Central America, the Caribbean and southern USA. It is considered a pest in various crops in tropical parts of its current area of distribution but no or only an occasional pest in southern USA. Therefore, the risk of the species seems low for outdoor grown crops in the EU. The risk for greenhouse grown crops in the EU is uncertain. No reports are known on damage in greenhouses.</p>
15	<b>Follow-up measures</b>	<p>The greenhouse where the <i>Areca</i> plants were placed will be inspected for presence of <i>Spodoptera latifascia</i>.</p> <p>A Pest Risk Analysis is being prepared for <i>Spodoptera</i> spp. present in South-, Central and North-America in which the risk for <i>S. latifascia</i> and other <i>Spodoptera</i> spp. will be assessed in more detail.</p>