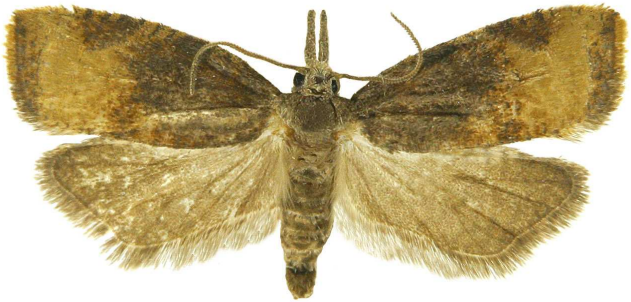
Quick scan number: ENT–2012-04

	Quick scan date: 22 september 2012	
1	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? Add picture of organism/damage if available and publication allowed.	***Platynota stultana* Walsingham, 1884 (omnivorous leafroller)** Lepidoptera, Tortricidae, Tortricinae, Sparganothini. Synonym: *Platynota chiquitana* Barnes & Busck, 1920. Length adult ca. 10 - 14 mm (forewing length male: 4,5 – 6 mm, forewing length female: 6,5 – 7,5 mm) Length larva ca. 12 – 15 mm. (Powell & Brown, 2012)   Photo larva : with permission from the Univ. of California Statewide IPM program, Jack Kelly Clark, photographer. Photo adult (male): T. M. Gilligan & M. E. Epstein, TortAI (http://idtools.org/id/leps/tortai/).
2	What prompted this quick scan? *Organism detected in produce for import, export, in cultivation, nature, mentioned in publications, e.g. EPPO alert list, etc.*	Information on the establishment of the species in Spain based on three sources: • The diagnostic specialist of the NPPO of the Netherlands received information from the diagnostic specialist of USDA-Aphis about the interception of the species in two* consignments of sweet pepper exported from Spain in December 2011. • A Spanish Tortricid expert then sent the article “Platynota stultana, un nuevo lepidóptero plaga en el sudeste Español (Anonymous, 2011)”. This article states the presence of the pest in Murcia and Almeria in greenhouses growing sweet peppers since at least 2009 (year the species was officially identified for the first time in Spain). The first reports were published on the internet in Spanish in a blog from Homo Agricola in October 2009: http://elhocino-adra.blogspot.nl/2009/10/platynota-stultana.html [acc. 31 aug. 2012]. • Information from Dutch private collectors who collected the first specimens of the species in Spain in 2005 in the wild (pers. comm. Dutch Tortricid expert). * Other interceptions on sweet pepper from Spain may have been the same species, but were not identified to species level.

3	What is the (most likely) area of distribution?	• North America*: Mexico, USA (California, Arizona, Texas, Florida, Hawaii (Gilligan & Epstein, 2012). It has also been recorded from Virginia, Massachusetts, Michigan, Illinois, Colorado, North Carolina, Pennsylvania, Maryland, Oklahoma and Arkansas (CABI, 2012). Gilligan & Epstein (2012) however, consider the records from eastern USA questionable. These concern records from more northern parts of the USA. • Europe: Spain (see at 2). A website on pest control in the Canary Islands offers pheromone for the species; this suggests that the species may also be present there, or, at least, that establishment is expected. http://www.floresalud.es/fitosanitarios/feromonas_tienda_1.html#salto3. • The situation in other European countries is unknown (no data found). * The species' native range is the north western part of Mexico and the adjacent south western part of the USA (Powell, 1983). From here it expanded into California and further into Arizona and Texas. From the 1960's on it was found in Florida where it has now been proven to have established (Brown, 2009). Since the mid 1980's it has established in Hawaii (Miller & Hodges, 1995). In both cases the pathway to these new areas is unknown.
4	Has the organism been detected, sighted and/or has it established itself in nearby countries (DE, BE, LU, FR, UK) *Yes/no. If 'yes', provide details. No interceptions*	No. As far as known there are no records of the species being established in other European countries but Spain.
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? *Yes/no + host plants + short explanation of symptoms. Please indicate also when the organism is otherwise harmful (e.g. predator, human/veterinary pathogen vector, etc.).*	Yes. • CABI, 2012: "The omnivorous leafroller can cause serious damage in vineyards in California, USA (Bentley et al., 2000d). The main damage to grapes is caused by bunch-rot organisms which enter through larval feeding holes in the skin, and may result in at least 25% yield loss (Lynn, 1969). It is also an occasional pest of citrus in California (Grafton-Cardwell et al., 2000). In the 1980s it became a serious pest in many pomegranate orchards in central California (LaRue, 1980)." • Powell & Brown, 2012: "*Platynota stultana* is the "omnivorous leafroller" of American economic entomology literature (e.g. Shaw et al.)....". On the situation in California: "During subsequent decades this species adapted to urban situations and became a pest of citrus, avocado, and field crops including tomato and cut flowers.....the omnivorous leafroller was recorded sporadically in greenhouses in the Sacramento Valley and San Francisco areas....then it spread northwards gaining notoriety as a pest of grapes." • Since 2009 the species is present in green houses growing peppers in parts of Spain; the exact damage caused by this species is unknown, since usually other Lepidoptera-pest causing damage are also present in the greenhouses. The damage in recent years is said to be incidental (Anonymous, 2011). A leaflet of a pesticide company however states that the problems with *Platynota stultana* are increasing "*Platynota stultana*, lepidóptero que incrementa su presencia en cultivos hortícolas" (Dupont, 2011). • Several Spanish suppliers offer pheromone traps for the species e.g. for use in stonefruit, suggesting the species causes damage on these crops in Spain (http://www.controlbiologico.info/index.php/es/2012-01-11-19-14-23/el-control-biologico/feromonas#f-hueso).

6	Indicate the (provisional) probability of establishment of the organism in the Netherlands regarding climate and ecology. No risk In greenhouses (low, medium, high risk) Outdoors (low, medium, high risk) Otherwise (e.g. storage facilities, human environment) *Please illustrate with information/references*	Greenhouses: Establishment is very likely. In Spain the species has already establish in greenhouses (Anonymous, 2011). The species is also known from greenhouses in the USA (Powell & Brown, 2012). Outdoors: In Southern Europe the pest has already established outdoors in Spain since 2005 (see 2.) In the northern part of Europe the risk of establishment outdoors is hard to predict. Development of transient populations on host plants outdoors during spring, summer and autumn is very likely, but temperatures for survival during the winter period outdoors might be too low. This opinion is however based on the current distribution in the USA *with* the assumption that the presence of the species in the more northern states of the USA is questionable (see 3). On the other hand the development threshold for the species is comparable to many common lepidopterous species present outdoors in Northern Europe. *Platynota stultana* has a development threshold of 8,9°C and a generation time of 649 degree-days (in °C) to 698° degree-days (resp. Univ. of California, 2012 & Anonymous, 2011). The carnation tortrix (*Cacoecimorpha pronubana*), for example, has a development threshold of about 11°C and a generation time of 790 degree-days °C (Sekerskaya, 1986); this species, originally from Southern Europe, established outside in Northern Europe some decades ago and is now a relevant pest in greenhouses. The tortricid *Clepsis spectrana*, which is native in the Netherlands and has also become a relevant pest in greenhouses, has a development threshold of ca. 10°C (Bos, 1983) (information on generation time was not found). Furthermore, in California *Platynota stultana* shows hibernating behaviour, when temperatures are low (Powell & Brown, 2012); this is similar behaviour to e.g. *Cacoecimorpha pronubana* (the carnation tortrix) and *Cydalima perspectalis* (the boxtree pyralid), which has established in Europe recently. Based on these data there is reason to believe that establishment outdoors in the more northern parts of Europe might be well possible.
7	If the organism would become established in the Netherlands, what kind of damage would it likely cause ? *Indicate whether damage is expected to be comparable or different to that in area of present distribution : see question 5.*	The nature of the damage caused by *Platynota stultana* is expected to be similar to that in the area of the present distribution. They feed on leaves and are (mostly) external feeders on the fruits. Economic loss is mainly due to cosmetic damage and to rotting of the fruits as a result of secundary infections. For instance, damage on apple is therefore comparable to that of other external feeding native tortricids like *Adoxophyes orana* and *Archips* spp.. The same behaviour is observed on pepper where the larvae feed mainly on the leaves at the top of the plants, but also tie leaves to fruits. They then feed on the skin of the fruits. However, they also tend to penetrate the fruits right under the stalk, with silk and frass extruding from the entrance holes (Anonymous, 2011). In the fruits they feed especially in galleries in between the seeds (Ref: D. Alcázar, Un. Ent. Lab. Prod. y Sanidad Vegetal, Almería; in Dupont, 2011).
8	Which commercially grown host plants are present and which host plants are present in the natural environment in the Netherlands? *If establishment is restricted to greenhouse climate, list only host plants in greenhouses.*	The common English name for *Platynota stultana* is “omnivorous leafroller” expressing the polyphagous nature of the species. It is known from more then 66 host plants of 20 different plant families. Among the economically important host plants are: *Capsicum, Lycopersicum esculentum, Zea mays, Vitis vinifera, Citrus*, *Phaseolus, Beta, Rubus, Rosa, Dianthus.* It is also being reported from e.g. *Aster, Cyclamen, Juniperus, Taxus, Pinus, Salix, Juglans, Apium graveolens, Trifolium* (Gilligan & Epstein, 2012)). The species can also attack *Malus, Pyrus* and *Prunus* (Univ. of California, 2012) and is also reported from *Lactuca, Fragaria* and *Asparagus officinalis* (Powell & Brown, 2012). Among the many wild host plants several may be grown as ornamentals. For a full list see e.g. Gilligan & Epstein (2012) and CABI (2012).

9	Provide a provisional estimation of type and probable amount of direct and indirect economic damage (e.g. lower quality, lower production, export restrictions, threat to biodiversity, etc.) likely to occur if the organism would become established?	Exact figures on yield losses or economic losses are scarce; in California yield loss of 25% is reported in grapes (see 5). Apart from direct yield losses economic losses can be significant due to the fact that many host plants grown in the Netherlands have a zero tolerance for cosmetic damage. Further there is the risk of import prohibition by countries that have regulations against the pest. Several countries like Argentina, Chili, Panama, Australia, China and India consider *Platynota stultana* a risk and have measurements implemented against importation of the species (Anonymous, 2011). Apart from Argentina and Chili it is also listed A1 in Paraquay, Uruquay and Brasil (EPPO, 2012), and in Peru (http://www.senasa.gob.pe/RepositorioAPS/0/2/JER/NOTIFICACON_CUARENT/lpc_may_2007%5B1%5D.pdf).
10	What are the possibilities of spreading, either by natural dispersal or human activity?	Spreading by natural dispersal will be slow: the flight capacity of *Platynota stultana* is not known, but in general species of Tortricids only fly relatively short distances. In conditions with host plants nearby normal flight distances are about 50 – 100 meters. However in several species it is shown, that a minor percentage of the population fly over distances up to several kilometres (Timm, 2005). It is likely that dispersal due to human activity will cause the more rapid spreading of the species.
11	In what manner could the organism enter the Netherlands? *Mention pathways*.	Fruits: In the USA the species is often intercepted on fruits of *Capsicum* from Mexico (pers. comm. J. Brown, USDA-Aphis). There is a large trade volume of sweet pepper from Spain and import of fruit of *Capsicum* is considered a likely pathway for introduction of this pest. It should, however, be noted that, compared to e.g. *Tuta absoluta*, *Platynota stultana* develops more slowly. The larvae intercepted in the USA from Spain where middle instars. Also the larvae normally leave the fruit to pupate, so pupae are less likely to be found in the consignments, as is the case with *Tuta absoluta*. The chance that a specimen in a consignment of fruit will reach the adult stage, which can transfer to a suitable host plant, is therefore lower than for *Tuta absoluta*. Plants for planting: The species can be present on all aboveground plant parts. It is important to realise that there are many more host plants than listed under 8. Many wild plants, of which cultivars may be grown as ornamentals, are also host plants for the species. Therefore *Platynota stultana* can be present in all consignments of host plants bearing leaves. The slower development, as mentioned for the pathway 'fruits', is irrelevant in this pathway.
12	Has the organism been detected on/in a product (cut flowers, fruit...) destined for the consumer market? *If "no", please go to question 14*	Yes, in this case (interceptions in the USA) it was found on fruits, but since the species feeds mostly on leaves, it might be found on plants for planting (e.g. ornamentals) as well.
13	If the organism has been found on/in a consumer product, are there any risks of introduction and establishment in crop areas and/or natural environment in the Netherlands?	Yes. When the species is present in end consumer products like *Capsicum* fruits, the risk of transfer to a suitable host plant is medium, when handling of imported product and produce of suitable host plants are located within close range of each other. The fact that the species has a wide range of host plants makes the risk of transfer to a suitable host however higher. Also, risk of establishment outdoors can not be ruled out (see 6). Establishment in the past (see 3) shows that the species is able to transfer and establish in new remote area's. See also 11 and 12.

14	Additional remarks	• The species was added to the EPPO alert list in 1999 and deleted in 2002 as a result of routine re-evalutions: "To keep the Alert List reasonably short, entries will not be kept for more than 3 years, if no new information is found" (EPPO, 1999; http://www.eppo.int/QUARANTINE/Alert_List/deletions.htm). • In the USA the species was on the quarantine list of California in the 1930th, due to many interception on sweet peppers from southern parts of California, before it had expanded to the major part of the state at the beginning of the 1960th (Powell, 1983). • The species has shown a high ability to adapt to new host plants and climatic conditions. Powel, 1983, states: "In the process of the 1960's expansion it adapted to a wider diversity of plants, including conifers and both dicotyledons and monocotyledons, a much greater taxonomic array featuring more divers chemical and physical characteristics, than the herbaceous angiosperms adapted in southern California during the early part of the century.....". Further he states: "....it seems apparent that after colonization around the turn of the century, *Platynota stultana,* became widely established and adapted in southern California during the following 20 years, remained stable for another 30 years, then expanded its range in a relatively short time to encompass low elevation areas in most of the rest of the state. The maximum area.... occupied in California during 1915 – 1950, some 80,00 km^2, more than tripled to ca. 270,000 km^2 during 1956 – 1968... At the same time there was adaptation to a considerably greater spectrum of environmental conditions, particularly larval foods, shorter frost-free season, and increased total precipitation.". • The species has no winter diapause and can, under favourable conditions like in California, have 4 – 6, partly overlapping, generations a year. At lower temperatures the larva overwinters in a webbed nest but continues to feed at a reduced rate when temperatures are not too low (Powell & Brown, 2012). • Eggs are laid in masses containing an average of 97 individual eggs per mass (Gilligan & Epstein, 2012)). • Pheromone is available in Wageningen http://www.pri.wur.nl/UK/products/Pherobank/ [acc. 28 august 2012].
15	References:	• Anonymous, 2011. *Platynota stultana*, un nuevo lepidóptero plaga en el sudeste Español. Homo agricola no.1, juni 2011 : 33-38. • Bos, J. vd., 1983. The isolating effect of greenhouses on arthropod pests: a case-study on *Clepsis spectrana* (Lepidoptera: Tortricidae). Thesis, Wageningen University & Research. • Brown, J.W. 2009. Platynota Stultana Walsingham, the omnivorous Leafroller, resident in Florida?. Journal of Lepidopterists Society. 31(3):4 • CABI, 2012. Crop Protection Compendium online. CAB International, Wallingford, UK. http://www.cabi.org/cpc/?compid=1&dsid=41858&loadmodule=datasheet&page=868&site=161 [acc. 16 august 2012] • Dupont, E.I., 2011. Noticias DUPONT Hortícolas Agosto – 2011. http://www2.dupont.com/Crop_Protection/es_ES/assets/downloads/pdfs/tecnica/Boletin_%20Agosto_%202011.pdf [acc. 30 aug. 2012) • EPPO, 1999. Reporting Service 1999, No. 8 • EPPO, 2012. PQR-EPPO database on quarantine pest. http://www.eppo.int [acc. 28 august 2012] • Gilligan, T. M. & M. E. Epstein. 2012. TortAI, Tortricids of Agricultural Importance to the United States (Lepidoptera: Tortricidae). Identification Technology Program (ITP), USDA/APHIS/PPQ/CPHST, Fort Collins, CO. http://idtools.org/id/leps/tortai/Platynota_stultana.htm [acc. 16 august 2012]. • Miller, S.E. & R.W. Hodges, 1995. *Platynota stultana,* the Omnivorous leaf-roller, established in the Hawaiian Islands (Lepidoptera: Tortricidae). Bishop Mus. Occ. Papers 42: 36-39. • Powell, J.A., 1983. Expanding geopgraphical and ecological range of *Platynota stultana* in California. Pan-Pacific Entomologist 59 (1-4): 233-239.

		• Powell, J.A. & J.W. Brown, 2012. Tortricoidea, Tortricidae (part), Tortricinae (part): Sparganothini and Atteriini. *In* Hodges, R.W. et al., *The Moths of North America,* fasc. 8.1. • Sekerskaya, N. P., 1986. Rearing of the carnation tortrix on an artificial diet. Trudy Gosudarstvennogo Nikitskogo Botanicheskogo Sada 99: 92-101. • Timm, A.E. 2005. Morphological and molecular studies of Tortricid moths of economic importance to the South African fruit industry, PhD dissertation, University of Stellenbosch • Varela-Fuentes, S., Brown, J.W. & Silva-Aguirre, G. 2009. Registro de Platynota rostrana (Walker) and P. Stultana Walsingham (Lepidoptera: Tortricidae) en citricos de Mexico. Acta Zoologica Mexicana. 25(3):651-654. • University of California, 2012. Statewide IPM Program Online. http://www.ipm.ucdavis.edu/PMG/r611303011.html & http://www.ipm.ucdavis.edu/PMG/r603300611.html & http://www.ipm.ucdavis.edu/PMG/r4300911.html [acc. 24 august 2012]
16	**Conclusions**	*Platynota stultana* is a polyphagous pest as also indicated by its common name “omnivorous leafroller”. The pest is known to be present in Mexico and several states in the USA and is also present in Spain since some years. The year of introduction into Spain is not known but *P. stultana* might have been introduced before 2005. The pest can likely establish in glasshouses in the Netherlands. Establishment outdoors is uncertain. Because of its polyphagous nature there are many (potential) pathways by which the pest could be introduced into the Netherlands (e.g. fruit of *Capsicum*, tomato and grapes). The USA have intercepted the pest on sweet pepper originating from Spain and there is a large trade volume of fruits of *Capsicum* spp. and other kinds of fruits from Spain into the Netherlands. If *P. stultana* establishes in the Netherlands, it can likely cause economic damage to various glasshouse crops and control measures will likely be necessary to reduce or avoid crop damage. A full Pest Risk Analysis would be necessary to assess the potential impact, the number and kind of pathways and the probability of introduction more accurately. *P. stultana* has been reported as a pest of various fruit crops. In recent years several other fruit pests have been introduced into the EU (e.g. *Tuta absoluta*, *Drosophila suzukii* and *Anthonomus eugenii* of which the latter one is under eradication). The most likely pathway by which these pests were introduced seems import of fruits. *P. stultana* can be associated with flowers, fruits and leaves (CABI, 2012) and also for *P. stultana* import of fruit might have been the pathway of introduction. It may be worthwhile to investigate the import of fruits into the EU, the pests that may be associated with these imports and to evaluate measures to reduce the probability of introduction of these pests.
17	**Follow-up measures**	Regulation of the (potentially) many pathways will be difficult within the European Union. Products intended for consumption (fruits, vegetables) and also cut flowers are currently not regulated in the EU. Stakeholders will be informed about the presence of the pest (*Platynota stultana*) in Spain and advised to take precautionary measures to reduce the probability of introduction of the pest especially by import of sweet pepper and other fruit products that are packed and sorted in glasshouse areas.