Netherlands Food and Consumer
Product Safety Authority
Ministry of Economic Affairs

National Plant Protection Organization, the Netherlands

Quick scan number: QS. VIR. 2013.01

	Quick scan date: 17th June 2013	
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*.	Lettuce necrotic leaf curl virus (LNLCV), a proposed member of the genus *Torradovirus.*
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.*	The virus was detected in circa 30 lettuce plants in the open air in the Netherlands in 2011. Symptomatic plants were irregularly spread over the field. At that time, however, the virus could not be identified. In 2012, the virus was included in an outsourcing project Next Generation Sequencing, executed at Plant Research International. The complete sequence of the virus genome was obtained and additional biological characteristics were disclosed [1]. On the basis of these data, the virus was considered a new species within the genus *Torradovirus*. The finding and charcterization of a new virus species prompted this quick scan.
3	What is the (most likely) area of distribution?	Symptoms of the virus have only been observed in a single plot of lettuce in the open air in the Netherlands in 2011. Further distribution is not known.
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 data are known from nearby countries.

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.).*	The virus causes necrosis and distortion in lettuce plants.
6	Indicate the (provisional) probability of establishment of the organism in the Netherlands regarding climate and ecology. a. In greenhouses (low, medium, high) b. Outdoors (low, medium, high) c. Otherwise (e.g. storage facilities, human environment) *Please illustrate with information/references*	The only report of the virus is from the Netherlands, where the virus may be established. However, since symptoms were only observed on a single plot in 2011, establishment in the Netherlands is unclear.
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 virus causes necrosis and distortion in lettuce plants, making them unmarketable. The extent of symptomatic plants in the field is unknown and may vary due to the presence of a vector.
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.*	So far, lettuce is the only known commercially grown host of the virus. This crop is grown in glasshouses, fields and kitchen gardens. The experimental host range includes some solanaceous host of the genera *Nicotiana* and *Physalis*. Consequently, some weeds may be hosts too. In experiments, LNLCV could not infect tomato, which is the main host of the other known torradoviruses [1].
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?	The extent of yield losses will strongly depend on the presence of an efficient vector of the virus because torradoviruses are generally not readily spread mechanically. As long as no vector is known, an estimation on impact is not possible.
10	What are the possibilities of spreading, either by natural dispersal or human activity?	A vector of the virus is not known yet. In experiments, the greenhouse whitefly *Trialeurodes vaporariorum* – vector of the related *Tomato torrado virus* - was not able to transmit the virus [1]. Subsequently, spreading by natural dispersal cannot be estimated. Due to the type of virus, spread by cropping practices is estimated to be limited. The virus may be spread efficiently by trade of infected planting material of host crops (lettuce).
11	In what manner could the organism enter the Netherlands? *Mention pathways*.	New introductions of LNLCV into the Netherlands may occur via planting material. Data on seed transmission are not available for LNLCV nor for other torradoviruses.

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*	The virus has only been detected once, in a plot of lettuce.
13	If the organism has been found on/in product other than plants for planting (e.g. cut flowers, fruit, vegetables), are there any risks of introduction and establishment in crop areas and/or natural environment in the Netherlands?	The risk of establishment after introduction of LNLCV via consumer products is low in comparison with the risk posed by planting material for professional production.
14	Additional remarks	
15	References:	1. Verbeek M, Dullemans A, Van Raaij H, Verhoeven JThJ & Van der Vlugt RAA. Lettuce necrotic leaf curl virus, a new plant virus infecting lettuce and a proposed member of the genus *Torradovirus* (in preparation).
16	**Conclusions**	This Quick scan concerns a recently identified new plant virus. It has been isolated from symptomatic lettuce plants in the Netherlands in 2011. The proposed name of this new virus is Lettuce necrotic leaf curl virus (LNLCV). Hardly anything is known about this virus. Thus far, symptoms of the virus are only known from the single field in which it was detected in 2011. It is a Torradovirus and, therefore, most likely transmitted by an insect vector. Considering the symptoms observed and the fact that similar symptoms were obtained after artificial inoculation of healthy plants, the virus can potentially have a major impact on lettuce production if an efficient vector would be present. However, the possible vector species is unknown.
17	**Follow-up measures**	- Communication to stakeholders. - A more detailed pest risk assessment may be considered when more information would become available about this virus.