Institut für nationale und internationale Angelegenheiten der Pflanzengesundheit

Institute for National and International Plant Health

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03-05-2023

Notification of the presence of a harmful organism – closing note

1 **General information**	
1.1 Title	Closing note of an outbreak of Citrus bark cracking viroid (CBCVd) in Germany (Bavaria)
1.2 Executive summary	In 2019, Citrus bark cracking viroid (CBCVd) has been found in hop plants in Bavaria. The grower who informed a hop grower association and finally the plant protection service found the plants with reduced growth. A survey is going on. So far, approximately 150 infested plants have been found in parts of 2 hop plots. Official phytosanitary measures will be taken. The details need to be determined based on the outcome of the survey. In the survey in 2019, CBCVd was found in 12 hop gardens (production sites) of three producers in Bavaria. In the much larger survey in 2020, CBCVd was found in 27 hop gardens of 7 producers. 15 of the infested fields belong to the three producers, where CBCVd was already found in 2019. In the survey in 2020, 672 hop gardens distributed over the whole hop production area in Bavaria were visually inspected. 2423 samples of hop leaves were taken from these hop gardens and tested. 158 of these samples were positive. Two out of ten tested rural districts were affected. A total of 93.6 ha of hop gardens showed one or more CBCVd-affected plants. The infection level varied strongly between the affected fields from one infected plant per field up to nearly 100 percent of infected plants. Infested planting material and sharing of machines could be verified as sources of infection and distribution. The number of infested hop gardens per producer varies strongly and also the degree of infestation is different within the plots. In the survey in 2021, infestations were found at two further hop producers. A total of 9 producers is currently involved including 32 hop plots with an area of 92 ha. The infestations occur at three locations, with no detection at one of the locations this year. Results of the survey

	indicate that CBCVd is already present in hop in Bavaria for at least seven years. Spreading from infected fields to surrounding fields managed by other producers seemed to be a low risk. At the moment, further distribution appeared to be limited to the concerned producers. Therefore, the official measures carried out will be continued in order to try to keep the infections in the known infested production sites. **Official containment measures were terminated because CBCVd is now regulated as a Regulated Non-Quarantine Pest (RNQP).**
2 **Information concerning the single authority and responsible persons**	
2.1 Notification from	Julius Kühn-Institut (JKI), Institute for National and International Plant Health, Germany
2.2 Official contact:	Katrin Kaminski, Tel: +49(0)531 299 3378, outbreaks@julius-kuehn.de
3 **Location**	
3.1 Location	In Bavaria
4 **Reason of the notification and the pest status**	
4.1 First finding in Germany or in the area	First confirmed presence of the pest in the territory of Germany.
4.2 Pest status of the area where the harmful organism has been found present, after the official confirmation.	**Present: in specific parts of the area where host plants are grown**
4.3 Pest status in Germany before the official confirmation of the presence, or suspected presence, of the harmful organism.	Absent: no pest records
4.4 Pest status in Germany after the official confirmation of the presence of the harmful organism.	**Present: in specific parts of the area where host plants are grown**
5 **Finding, sampling, testing and confirmation of the harmful organism**	
5.1 How the presence or appearance of the harmful organism was found.	Official inspection for purposes other than phytosanitary ones. The grower informed the hop grower association and the association informed the plant protection service.
5.2 Date of finding:	18-07-2019

5.3 Name and address of the Laboratory	BGD Bodengesundheitsdienst GmbH Marktbreiter Straße 74 97199 Ochsenfurt Germany Bayerische Landesanstalt für Landwirtschaft (LfL) - Institut für Pflanzenschutz Lange Point 10 85354 Freising Germany
5.4 Diagnostic method	According to peer reviewed protocols; Realtime RT-PCR, RT-PCR, Sequencing
5.5 Date of official confirmation of the harmful organism's identity.	26-07-2019
6 **Infested area, and the severity and source of the outbreak in that area**	
6.1 Size and delimitation of the infested area.	92 ha
6.2 Characteristics of the infested area and its vicinity.	Open air - production area: field (arable, pasture) Plant already planted, not to be reproduced or moved
6.3 Host plants in the infested area and its vicinity	*Humulus lupulus* (2000 ha)
6.4 Infested plant(s), plant product(s) and other object(s).	*Humulus lupulus* (92 ha) 32 hop plots (92 ha) at 9 producers were found to be infested. In the past 2 years, some hop plots were cleared and 5 ha of the infested area were deleted. 2 ha were newly added to the infested area.
6.5 Severity of the outbreak.	The infested hop plants were growing poorly.
6.6 Source of the outbreak	Unknown
7 **Official phytosanitary measures**	
7.1 Adoption of official phytosanitary measures.	Official phytosanitary measures will be taken. – infected plants have to be removed from the field (including the roots) and destroyed by burning or burying – hop residues of the whole production site may not be used in biogas plants or deployed outside of the production site – sharing of machines is forbidden for concerned producers

	– selling of planting material is forbidden for the concerned producers
7.2 Date of adoption of the official phytosanitary measures.	04-09-2019
7.3 Objective of the official phytosanitary measures.	Containment, eradication is not considered possible any more
7.4 Measures affecting the movement of goods.	Measures affect import into or movement within the Union of goods.
7.5 Specific surveys.	Yes, the survey was conducted from 22nd June to 31th July 2020. Two kinds of hop gardens were included in the survey: fields selected by a random generator and fields, which showed growth depressions on aerial pictures. One field per 10 ha was selected inside a radius of 5 km around the first outbreak from 2019 and one field per 40 ha outside of that radius. 672 hop gardens were finally inspected. First, the fields were inspected with a drone camera. If growth depressions were detected on these drone pictures, the concerned plants were sampled and tested. If no growth depressions were found in the field by drone pictures, the inspection team consisting of 4 persons visually inspected the whole field. Plants for testing were selected at random or plants with symptoms like growth reduction were sampled. Three samples were taken from each field. Each sample consisted of 10 leaves taken from one plant. Tested plants were marked. 500 mg of the ten leaves were grinded in the laboratory and analyzed by RNA-isolation and RT-PCR. The survey was continued in 2021 (2 further infested hop production places) and in 2022.
8 **Pest risk analysis/assessment**	Preliminary pest risk assessment exists (Express-PRA)