RESOLUTION OIV-VITI 758-2025

OIV RECOMMENDATIONS FOR LIMITING OUTBREAKS OF GRAPEVINE FLAVESCENCE DORÉE

THE GENERAL ASSEMBLY,

UPON THE PROPOSAL of Commission 1 Viticulture and having noted the work and decisions of the Group of Experts "Protection of Vine and Viticultural Techniques (PROTEC)" concerning the continuing epidemic outbreaks attributable to Flavescence dorée (FD) and the serious phytosanitary problems that this disease entails for the vine-growing areas concerned and may entail in the future,

GIVEN Article 2, paragraphs 2b i and c, iii of the Agreement of 3 April 2001 establishing the International Organisation of Vine and Wine, in accordance with the guidelines of the OIV Strategic Plan 2025-2029, with reference to the Scientific Priority "2. Promote resilient and sustainable viticulture", and the related Focus Area “2.2. Protect grapevines against significant pest and disease threats”,

CONSIDERING that OIV Resolution VITI 3/2006 examines a series of measures aimed at containing grapevine phytoplasma yellows (GY) in their entirety and identified at world level,

CONSIDERING that grapevine Flavescence dorée (FD), although it is one of the GY, is caused by harmful organisms that are classified as quarantine pests in many vine-growing countries and is therefore subject to regulation,

CONSIDERING that FD, the spread of which takes place mainly through leafhoppers, primarily *Scaphoideus titanus Ball.*, can affect the genus Vitis with varying degrees of damage and intensity depending on the different species and varieties of vine cultivated,

CONSIDERING that:

- Epidemics of FD are continuosly spreading in many worldwide European vine-growing regions where vectors are present, and they represent a threat worldwide.
- Sanitary and vector control measures in nurseries and vineyards have not proved sufficient to prevent the spread of the disease.
- Damage caused by FD has long-term economic repercussions in relation to varietal susceptibility, ability for survival of diseased vines, loss of production and

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reduced longevity of vineyards.

- Compulsory FD vector control measures, based on the use of insecticides, may pose risks to health, environmental sustainability, ecosystem balances, and towards possible resistance phenomena.
- The following state of the art and the studies related to the outbreaks of grapevine Flavescence dorée,

Scientific research has so far been able to identify different diseases in the genus Vitis caused by infections induced by phytoplasmas, non-culturable and phloem restricted bacteria of the class Mollicutes. In grapevines, phytoplasmas of different phylogenetic groups and subgroups have been identified and classified, all causing similar symptoms but presenting different epidemiological traits, resulting in different levels of severity, danger, and harmfulness.

Phytoplasmas associated with FD sensu stricto (i.e. transmissible by the main vector, *Scaphoideus titanus*) are classified in the phylogenetic group 16SrV, subgroups C and D. Besides vineyards, they commonly occur in abandoned rootstocks and wild Vitis species or hybrids, and occasionally in a few other botanical species such as *Clematis vitalba, Ailanthus altissima, Alnus glutinosa,* which are considered occasional sources of new infections in grapevine in the presence of specific vector insects.

The spread of grapevine FD occurs not only by grafting cuttings harvested from infected plants (grafted plants or rootstocks), but also naturally by leafhoppers and planthoppers; among these, the cicadellid S. titanus Ball. is the most important, as it is closely associated with the grapevine. Recent research has ascertained that the transmission to grapevines of FD-associated phytoplasmas and other similar phytoplasmas of the 16SrV-C group may occasionally take place by means of other leafhoppers and planthoppers (e.g. *Oncopsis alni, Orientus ishidae, Dictyophara europaea, Phlogotettix cyclops, Allygus* sp.), present in the environment and not usually associated with grapevines.

Studies developed over the years have achieved important results:

- Symptoms attributable to phytoplasma diseases are common to different phytoplasma species and are widely documented.
- Current biomolecular diagnostic techniques make it possible to identify with high reliability phytoplasmas in grapevine leaf and shoot samples and to differentiate between the presence of phytoplasma groups, subgroups and isolates detected.

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- Only the timeliness and repeatability of field controls make it possible to identify diseased plants starting from the nursery, from new vine plantings and throughout the life of the vineyard.
- Different levels of susceptibility and tolerance/resistance to phytoplasma diseases exist within wine grape, table grape and rootstock vine varieties.
- The uprooting and elimination of diseased vines during the vegetative phase as soon as possible after confirmation of infection, is a valid and efficient method of prophylaxis against the spread of an epidemic.
- The strict control of phytoplasma vectors is recommended and is commensurate with their population density, phenology, and the prevalence of FD-infected vines.
- To date, there are no practical alternatives to the use of insecticides for vector control, while in the future it might be possible to act against phytoplasma vectors with increasingly sustainable control methods and technological modalities (e.g. vibrational mating disruption[1]).
- In the nursery or before planting new vines, the disinfection treatment of vine propagation and propagation material with hot water treatment is the currently best option for prophylaxis purposes (Resolution OIV-VITI 565-2022).

DECIDES to adopt the following "OIV recommendations to avoid introduction, and to eradicate or contain grapevine Flavescence dorée epidemics" with specific prophylactic measures and agronomic interventions, which supplement the recommendations already expressed in Resolution VITI OIV 3/2006,

RECOMMENDS that these OIV recommendations should be periodically updated based on advances in scientific knowledge and results in the vineyard.

OIV recommendations to avoid introduction, and to eradicate or contain grapevine Flavescence dorée epidemics

1. General objectives

The numerous scientific works[2] developed since the second half of the 20th century have achieved important milestones in vineyard and laboratory diagnostics. However, the control guidelines have not proved to be entirely sufficient to contain the spread of epidemics in vine-growing areas already affected by FD, nor to avoid the extension

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to FD-free areas. On the contrary, for a variety of reasons, some of which are not always clearly identifiable, the FD epidemics are not always slowing down, are still expanding territorially, albeit at a slower rate than the first epidemics, and are causing significant and continuous damage to the vine-growing sector. Causes of the failure to prevent the epidemic spreading include:

- Incomplete knowledge about FD, such as symptomatology, transmission, varietal susceptibility, and vector control strategies by the vine-growers, whether in contaminated or free zones.
- Insecticide treatments that may not be adapted to the phenological stage of the vector, poor spraying quality.
- Because of a widespread drive towards sustainable practices, among which the sustainable use of phytosanitary protection, reluctance of growers to eradicate diseased grapevines, to control the vector, which may limit the success of collective fight.
- The reduction in the number and in the use of insecticides in the vineyard on various insects (associated with integrated pest management, development of mating disruption against other insects, limit to the use of proven effective products) may have led to less effective control of *S. titanus*.
- Similarity with other GY symptoms, for example Bois noir.
- Abandoned vineyards, woody or uncultivated areas close to vineyards.

1.1. Improving and transferring knowledge

Although a great deal of work has already been carried out, it is essential to develop research based on local conditions (agronomic, agricultural and environmental characteristics of vine-growing areas) to better understand the dynamics of vector and phytoplasma propagation and better manage control methods.

The OIV, without prejudice to the general premises, invites the Member States, their phytosanitary services, the territorial institutions, and the interprofessional associations to strengthen training and technology transfer and to promote new scientific research that focuses on a portfolio of short, medium, and long term approaches to provide useful answers for containement of the spread of FD epidemics, including:

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A. Modelling and harmonisation of disease and vector monitoring, also using modern, digital, and computerised techniques.

B. Plant-pathogen interaction:
   a. Varietal responses to infection and other mechanisms (resilience, immunisation) regulating differing susceptibilities, distribution, and maintenance of phytoplasma within infected plants.
   b. Genetic improvement of grapevine for disease resistance.
   c. Stimulation in the field by elicitor products of endogenous grapevine defences against the disease and the vector.

C. Role of FD-associated phytoplasma vectors:
   a. Ethology of S. titanus, its adaptation to climate change and changes in farming practices.
   d. Factors and mechanisms for disruption of the reproductive process.
   e. Control and survey strategies.
   f. Vector biocontrol agents, including biotechnological ones.
   g. Evaluation of the potential role of the mechanised practices in distributing or facilitating FD epidemics.

D. Vector-pathogen interactions: mechanisms of pathogen acquisition, multiplication, and transmission.

E. Interactions with the environment: role of secondary host plants, vectors associated with these hosts, and role of abandoned vines.

F. Economic and environmental sustainability: impact of epidemics on wine production, longevity of vineyards, eradication methods and environmental and health sustainability of insecticide treatments.

1.2. Prophylaxis and eradication measures

Among the criteria for combating FD epidemics, the OIV considers it essential that greater and more widespread importance is given to the training and technical updating of vine-growers and their staff. The support and technical guidance of

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professional organisations and technical assistance services, including commercial ones, are essential for the management of correct prophylactic measures, to be applied on a large scale and collectively. Disregard for disease control guidelines by even a few operators is detrimental to the community. Quarantine regulations and phytosanitary controls in nurseries are the first and foremost prevention strategy. The possible presence of symptomatic, GY-infected, and specifically FD-infected plants from nurseries can be detected in the summer of the first year of planting in the vineyard. Moreover, the monitoring of all young vines is essential.

1.2.1. Prophylaxis in FD-free vine-growing territories

There are still vine-growing territories and areas where FD has not been detected and is not present. It is also mandatory to identify areas where FD phytoplasma is not yet present in vineyards, but which have already been colonised by the main vector associated with epidemic development, *S. titanus*, because, in this case, preventive measures need strengthening. Surveillance measures are therefore absolutely necessary to prevent the introduction and establishment of the pathogen and/or its vector. The prevention rules in use (quarantine, certification of propagation material) may represent an effective means of prophylaxis, without however guaranteeing the absolute absence of phytoplasmas and vector. Particular risk is relatated to the presence and viability of *S. titanus* eggs laid under the rhytidome and bark of vine shoots two or more years old, this being possible in the nursery if recommended prevention measures are not respected.

In view of this, the following actions are recommended:

A. The phytosanitary control and territorial surveillance authorities should establish, on the basis of sufficient monitoring, the disease-free nature of a vine-growing area.

B. The phytosanitary control and territorial surveillance authorities, together with technicians and vine-growers, are advised to implement all known strategies to identify the potential presence of *S. titanus* and other identified potential vectors in their territories (all habitats besides vineyard where grapevines - including feral and wild - can be found).

C. Implement coordinated prevention, prophylactic (including agronomic) and control tools against *S. titanus* and other possible vectors of FD-associated phytoplasma.

D. Immediate diagnostic test and uprooting of GY symptomatic vines.

E. Promptly report the presence of symptomatic vines or vines with suspected FD to the Plant Protection Service or territorial bodies.

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F. Submit leaf and/or shoot samples for diagnostic tests in specialised laboratories (Plant Health Services - Research Centres/Institutes - Universities) for the diagnosis of pathogens in accordance with established and reliable sampling and conservation methods.

G. In the absence of positive responses, issue of official quarantine pathogen-free certification on vine propagation and propagation material, including in the case of replacement of vines.

1.2.2. Control and surveillance measures in vine-growing areas of first establishment of FD

Once the presence of FD-infected plants has been detected in an area that was previously considered free from FD, in addition to what is indicated in point “1.2.1” above, the following technical guidelines are recommended, aimed at limiting, as much as possible in terms of space and time, the further spread of the epidemic:

A. The positive results of the tests on the samples collected must be promptly communicated to the competent control bodies and to the vine-grower in order to implement the eradication measures required by applicable law.

B. Territorial monitoring of the disease and phytosanitary inspections of the entire vine-growing area and its uncultivated land, where the first outbreaks were discovered; on the basis of the number of infected plants, the extent of the first outbreak and the results of the molecular analyses, the phytosanitary services and scientific experts in epidemiology will be able to delimitate an infested area and hypothesise the time of the disease's onset and its potential origins. It should be noted that according to historical data, FD is identified between 2 and 9 years after the arrival of the vector in a given territory, with an average of more than 4 years (EFSA, 2019).

C. Immediate uprooting of all symptomatic vines of any age or the entire vineyard if the percentage of diseased vines reaches 20%.

D. Monitoring and uprooting of abandoned, uncultivated vineyards, unmantained rootstocks, which may act as a refuge for the vector and a source of the disease. Care should be exercised for areas where populations of wild grapevines (Vitis vinifera ssp. sylvestris) are known to exist and have been inventoried to make sure no unnecessary loss of irreplaceable genetic diversity is incurred.

E. Monitoring of the vector *S. titanus* throughout the entire vineyard area and its

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uncultivated areas, hedges, embankments, escarpments, and borders: survey of juveniles on vine shoots and survey of adults by means of chromotropic traps placed at several points in the vineyard, intensified at the vineyard margins, especially near roads, hedges, water channels, fallow land, and areas of presumed penetration by winged vectors. The aim of this monitoring is to evaluate the population level of vectors and adjust the treatment dates accordingly, as described below.

F. Obligation for insect control measures to be applied, including the suitable number of treatments per year, in the phenological phases indicated by the competent phytosanitary authorities for the area of interest and determined as follows:
    a. First treatment in the presence of juvenile stages of *S. titanus* of third larval stage.

    h. Eventually further necessary treatments on juvenile and adult stages to be applied as deemed necessary by the phytosanitary authorities, as strictly as possible to suppress the vector.

Use of phytosanitary products authorised against *S. titanus* in accordance with organic, integrated, or conventional production specifications and applicable local law and regulations.

A. Hot water treatment, based on risk analysis, of propagating material grown in infested area.

B. Based on the above points, eradication guidelines are needed that entail for the following years:
    a. The treatments already set out in the above points, also in the surrounding vineyards.

    b. Identification of the possible presence of symptomatic plants in the nursery or symptomatic graft mother vines and subsequently in the new vineyards.

1.3. Interventions in vine-growing areas historically affected by FD: expansion and containment zones

This definition refers to vine-growing areas where FD has been widespread, regardless of the epidemic severity demonstrated over time.

Without prejudice to all the measures indicated in points “1.2.2. A” and “1.2.2. B.”, it is

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recommended:

A. Uprooting of symptomatic plants.

B. Insecticide treatments with possible relaxation of the number of interventions commensurate with the historical trend of the epidemic in plots where a process of containment of the epidemic has been underway for some years, determined based on the reduction of new diseased vines and the reduced presence of *S. titanus*, defined on the basis of the number of larvae observed and adults captured.

C. Removal of overgrown rootstocks and abandoned grapevines from the surrounding of vineyards. Effective and sustainable control within the vineyard requires an appropriate habitat management in order that the main infestation sites of *S. titanus* are not located outside the cultivated vineyards, where no sprayings take place.

D. Hot water treatment, based on risk analysis, of propagating material.

1.4. Measures of common interest

To enable a methodological approach of control and surveillance, it is recommended to:

A. Deploy a validated model biology of *S. titanus* as developed by the official services of agriculture, to support the application of control measures and predict the evolution and spread of the insect on the territory.

B. Establish an integrated system between the scientific community, control authorities (phytosanitary services, technical assistance), professional organisations, vine-growers, and field and market operators.

C. Eliminate potential sources of infection, which may prevent vector insects from being infected; in any case, the goal of zero spread of FD and other GY and the complete annihilation of *S. titanus* and other potential vectors cannot be guaranteed.

D. Institute continuous education and professional training for vine-growers, consultants, technicians, suppliers of technical means/agrochemicals, on the symptomatologic peculiarities of FD and other GY, the biology and infection mechanisms of FD-associated phytoplasma and vectors, the epidemic trends of the

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disease, and on containment methods.

E. Harmonising vector control criteria, modelled in relation to epidemic risk, disease severity, available technical means, and imposed guidelines.

F. Optimise and synchronise insecticide treatments at a district level, which, regardless of the active substance used, must:

   a. Be distributed, as much as possible, in the evening hours or on cooler days to avoid rapid evaporation of the insecticide solution, without mixing with other substances.

   b. Avoid applications immediately after rain events, strong winds or another treatment or other works, to give time for the young individuals of the vector to return to the vine.

   c. Provide adequate foliar wetting, moderating the speed, using suitable and calibrated nozzles and sufficient spray liquid to ensure complete wetting of the leaves, in compatibility with the equipment used.

   d. Ensure a homogeneous distribution of insecticide sprays over the vegetation, using suitable equipment and spraying every row of vines.

   e. Involve the entire vegetative part up to the foot of the plant; treat first the edges of the plot.

A. Remove all leaves and branches from the tractor and agricultural equipment after trimming before moving on to a new plot to avoid carrying the insect.

B. Optimise agronomic practices: contain canopy development; mow the grass 1-2 days before insecticide treatments; eliminate suckers and keep the trunk clean; remove infected and explanted vines; remove pruning shoots; supplement insecticide treatments with other products that have a proven secondary effect against the vector; use propagating material treated with hot water, especially if it comes from areas infected by the disease.

Official references

1. EFSA (European Food Safety Authority), Baker R, Gilioli G, Behring C, Candiani D, Gogin A, Kaluski T, Kinkar M, Mosbach-Schulz O, Neri FM, Preti S, Rosace MC,

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Siligato R, Stancanelli G and Tramontini S, 2019. Grapevine flavescence dorée – Pest Report and Datasheet to support ranking of EU candidate priority pests. Zenodo. 10.5281/zenodo.2789594.

2. EFSA (European Food Safety Authority), Tramontini S, Delbianco A and Vos S, 2020. Pest survey card on flavescence dorée phytoplasma and its vector Scaphoideus titanus. EFSA supporting publication 2020:EN-1909. 36 pp. doi:10.2903/sp.efsa.2020.EN-1909
3. EFSA PLH Panel (EFSA Panel on Plant Health), 2014. Scientific Opinion on pest categorisation of Grapevine Flavescence Dorée. EFSA Journal 2014; 12(10):3851, 31 pp. doi:10.2903/j.efsa.2014.3851
4. EFSA PLH Panel (EFSA Panel on Plant Health), Jeger M, Bragard C, Caffier D, Candresse T, Chatzivassiliou E, Dehnen-Schmutz K, Gilioli G, Jaques Miret JA, MacLeod A, Navajas Navarro M, Niere B, Parnell S, Potting R, Rafoss T, Urek G, Rossi V, Van Bruggen A, Van Der Werf W, West J, Winter S, Bosco D, Foissac X, Strauss G, Hollo G, Mosbach-Schulz O and Grégoire J-C, 2016. Scientific opinion on the risk to plant health of Flavescence dorée for the EU territory. EFSA Journal 2016;14(12):4603, 83 pp. doi:10.2903/j.efsa.2016.4603
5. EU Commission Implementing Regulation 2022/1630 of 21 September 2022 establishing measures for the containment of Grapevine flavescence dorée phytoplasma within certain demarcated areas.

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[1] Zaffaroni-Caorsi V., Nieri R., Pugno N.M., and Mazzoni V., 2022. Effect of vibrational mating disruption on flight activity and oviposition to control the grapevine pest, Scaphoideus titanus, Arthropod Structure & Development,
69, 101173

[2] https://gd.eppo.int/taxon/PHYP64/distribution

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