

Some informations on preventing ESCA with good pruning practices and the appropriate training systems

Introduction

« *Grapevine trunk diseases are considered the most destructive diseases of grapevine for the past three decades and are of rapidly growing concern in all wine producing countries (OIV, 2016).*

The worldwide economic cost for the replacement of dead grapevines is roughly estimated to be in excess of 1.5 billion dollars per year (Hofstetter et al., 2012).

Vine trunk diseases are very harmful for the sustainability of the winemaking heritage because the pathogens responsible for these diseases attack the long-lasting organs, causing the death of vines on shorter or longer term.

Esca, Eutypa and Botryosphaeria dieback are the leading players of these decay diseases.

As well as mature vineyards being affected, those being planted as replacement can also be affected.

Others like Petri disease or Black-foot disease (Campylocarpon, Cylindrocladiella, Dactylonectria, Ilyonectria and Neonectria spp.) are major diseases affecting young vineyards, reducing their productivity and longevity, thereby causing considerable economic loss to the industry (Gramaje and Armengol, 2011) ».

The influence of pruning and training system on ESCA

Leconte *et al.*, (2021), nicely illustrated the influence of vine training systems or pruning methods or regimes on the development of the grapevine wood disease, ESCA in a recent article published in IVES Technical Reviews (<https://doi.org/10.20870/IVES-TR.2021.4734>).

Let's quote the article :

« *A major conclusion was found that the extremely simplified vine training systems and pruning regimes that were too severe should be proscribed within the framework of the prevention and management of ESCA, notably for susceptible grapevine varieties* ».

What are the main causes of ESCA development ?

According to Leconte *et al.*, (2021), the main causes of ESCA are :

- Climate evolution
- Bad pruning practices
- Use of electric shear
- Wrong choice of the training system
- Wrong distance between vines within a row

What to do to prevent and/or reduce the impact of Esca ?

According to Leconte *et al.*, (2021), the main ways to prevent ESCA development could be :

- To avoid the concentration of pruning wounds (for exemple to avoid to form a willow head for Guyot pruning/cane pruning).
- To get long spurs on a Cordon instead of casting off the spurs while pruning
- To avoid electric shear
- To re-think the plantation distance in the row by increasing it allowing to get enough space to apply proper cordon or Guyot pruning methods that are described by Simonit & Sirch (www.simonitesirch.it)
- To review and adapt the technical specifications of appellations within the framework of a global reflection on plantation densities, vine training systems and pruning methods, these three elements work in unison.

More in :

Gramaje, D., & Armengol, J. (2011). "Fungal trunk pathogens in the grapevine propagation process: potential inoculum sources, detection, identification, and management strategies". *Plant Disease*, 95(9), 1040-1055.

Hofstetter, V., Buyck, B., Croll, D., Viret, O., Couloux, A., & Gindro, K. (2012). "What if esca disease of grapevine were not a fungal disease?" *Fungal Diversity*, 4, 51–67

Lecomte P., Diarra B., Boisseau M., Weingartner S., Rey P., (2021). Preventing ESCA in *Vitis vinifera* by proscribing vine training systems or mutilating pruning methods, IVES Technical Reviews, <https://doi.org/10.20870/IVES-TR.2021.4734>

OIV publications, 1st Edition: May 2016 (Paris, France ; ISBN : 979-10-91799-60-7)
untitled « Grapevine trunk disease. A review »



Photo Deloire A., 09/2021

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Example of ESCA (wood disease) symptoms on a leaf of Shiraz (*Vitis vinifera* L.)

Did you know that good pruning practices could help preventing or reducing wood diseases ?

Pascal Lecomte, Barka Diarra, Mathilde Boisseau, Sandrine Weingartner, Patrice Rey, 2021. Preventing ESCA in *Vitis vinifera* by proscribing vine training systems or mutilating pruning methods, IVES Technical Reviews, <https://ives-technicalreviews.eu/article/view/4734>

Deloire A., 2021

Figure 1 : Exemple of ESCA symptoms on a leaf of Shiraz

About Wood Diseases: ESCA

A. Deloire, 2018

Esca on Ugni blanc vine (Cognac, 2018)

A. Deloire, 2018

Esca on Ugni blanc leaf (Cognac, 2018)

A) Symptoms associated with Esca: Anthracnose (*Elsinoë ampelina*), (Fabre & Duval, 1853).
 A) Esca, from H. Boissgontier (Viala, 1926).
 B) Esca, from A. Millot (Viala, 1926).
 C) Esca, from H. Boissgontier (Viala, 1926).

A. Deloire, 2020

Figure 2 : Exemple of ESCA symptoms on Ugni Blanc vine and leaf.



(a) Evolution of foliar expression of Black Dead Arm symptoms on grapevine leaves



(b) Evolution of foliar expression of Esca symptoms on grapevine leaves

Photos from : Leconte P., Darrieutort G., Liminana J.-M., Comont G., Muruamendiaraz A., Legorburu F.-J., Choueiri E., Jreijiri F., El Amil R., et Fermaud M. 2012. New Insights into Esca of Grapevine: The Development of Foliar Symptoms and Their Association with Xylem Discoloration. *Plant Disease*. 96 (7), p. 924-934.

Deloire A., 2020

Figure 3 : Exemple of (a) The evolution of foliar expression of DBS and (b) The evolution of foliar expression of ESCA