

VIII Incontro Nazionale sui Fitoplasmi e le Malattie da Fitoplasmi

Catania, 14-15 Ottobre 2021



V I I I Incontro Nazionale sui Fitoplasmi
e Malattie da Fitoplasmi

BOOK OF ABSTRACTS

Patrocinato da:



Frequency of “flavescence dorée” detected in adults of *Scaphoideus titanus* collected in vineyards with different epidemic pressure of the disease

A. Gelmetti, F. Ghidoni, C. Cainelli, M. Bottura

Fondazione E. Mach –Centro Trasferimento Tecnologico - S. Michele all'Adige (Trento) Italy

As per the routine control of the spread of quarantine diseases and harmful insects (PEST project) in the vineyards of the province of Trento, carried out by the staff of the Technological Transfer Center of the E. Mach Foundation, since 2016 molecular analysis' have been carried out (PCR) to verify the presence of “flavescence dorée” phytoplasma (FDp) in adults of the leafhopper *Scaphoideus titanus*. The insects are collecting during late summer in vineyards where their population density is known and the presence of diseased vines is monitored. The aim is to evaluate the potential role of leafhopper in the adult stage in the spread of FDp in the Trentino viticultural environment. The survey took into consideration, in the various vintages, the period of late August-early September, a potentially critical phase for the epidemiology of FD as the following factors may coexist: 1) the populations of *S. titanus* are potentially abundant in vineyards as the peak of flight occurs, usually, in August, 2) the insect vector is in adult stage with the ability to move 3) the presence in the field of most of the plants that have already manifested symptoms for that season 4) maximum concentration of phytoplasma in the tissues of the infected vines and high efficiency of acquisition of phytoplasma by the leafhopper. To avoid possible degradation (and therefore alteration of the results) and to have a photograph of the situation at a precise moment of the season, the insects to be analyzed were captured alive through the *frappage* technique performed on the canopy of the vines. For each vineyard monitored, the *frappage* operations lasted 60 minutes and involved a variable number of plants chosen randomly within the site. Molecular investigations were performed at the phytopathological diagnosis laboratories in S. Michele all'Adige (TN); the adults of *S. titanus* were analyzed individually using a qPCR with a probe TaqMan[®] specific for the pathogen *FD-related* phytoplasma. In total 49 vineyards were monitored for 5 years and 2087 individuals were collected and analyzed: those that tested positive for FD were 181 (8.7%) and come from 26 different sites (53% of the total). The number of plantations with infected individuals and the insect positivity rate varies according to the epidemic situation of FD in the vineyard. The sites where the insects were collected were divided into three “disease pressure” classes based on the results of visual inspections in the field: 1) low: no presence of symptomatic plants and low presence of cases of FD in that area, 2) medium: sporadic or limited presence of diseased vines in the vineyard (<1%) and in the surrounding area, 3) high: plants with many symptomatic plants in outbreak areas. In areas with “low disease pressure”, insects were collected from 17 vineyards for a total of 842 individuals. Only one sample was found positive to FD and, specifically, only to one individual among the 179 captured at that site (0.6%). In the 16 “medium disease pressure” vineyards, infected specimens were found in 63% of the samples with a generally low positivity rate: in 8 vineyards it was between 1 and 5.9%, but in 2 sites it reached values relatively high, 12.5% and 25%. In the “high disease pressure” situations, in 15 out of 16 samples of *S. titanus* adults were found positive for FD and with an average rate of 26.2%. The vineyards in which the highest levels of infected individuals were found (from 38.2% to 58.6%) were all characterized by an incidence of symptomatic vines greater than 20%. This work confirms therefore the role of primary importance of *S. titanus* in Trentino in spreading the disease vineyards during late summer.