

## Incidence of *Plum Pox Virus* in Romanian Plum Orchards

Ioan ZAGRAI<sup>1)</sup>, Luminita ZAGRAI<sup>1)</sup>, Silvia PREDA<sup>2)</sup>, Maria ISAC<sup>2)</sup>, Eugen CARDEI<sup>3)</sup>

<sup>1)</sup> Fruit Research & Development Station Bistrița, Romania, 3 Drumul Dumitrei Nou Street, 420127, Bistrita, Romania; izagrai@yahoo.com

<sup>2)</sup> Fruit Research & Development Station Valcea, 464 Calea lui Traian Street, Rm. Valcea, Romania

<sup>3)</sup> Fruit Research & Development Station Iasi, 175 Voinești Street, Iasi, Romania

### SUMMARY

Sharka caused by *Plum pox virus* (PPV) is the most detrimental viral pathogen of stone fruits. *Plum pox virus* was identified on the Romanian territory in 1922 by Traian Savulescu, but systematic research on the disease only started in the 1960's (Minoiu, 1997). Presently, in Romania PPV is spread in all plum growing areas and became one of the significant limiting factors for a profitable plum growing. Romanian fruit crops (stone and pome fruits) include about 158 000 ha of orchards. Stone fruit species cover 87 000 ha (55 %). The plum is the dominant fruit specie in Romania, covering approximately 75 000 ha (48 %) (FAO 2008) and hence is of great economic importance. The total plums production in 2008 was about 475 000 tones. The very low average plum yield (average 6.3 to/ha) could be explained in the most part by serious losses due to PPV. For some cultivars such as 'Vinete Romanesti' and 'Vinete de Italia' the yield losses can reach to 85 % (Minoiu, 1997). To assess the current PPV incidence, a large scale survey was performed in 27 orchards from main plum growing areas of Romania during 2006-2009. It were survey 14 plum orchards from Transylvania area, 7 plum orchards from Muntenia, and 6 plum orchards from Moldavia. The monitoring of disease based on visual observations of PPV symptoms on leaves and by serological and molecular diagnosis. Serological tests were performed by DAS-ELISA using polyclonal antibodies. Molecular detection was made by IC/RT-PCR using the polyvalent primer pairs (Wetzel *et al.*, 1991). Two blocks of 100 plum trees from each orchard were monitored. The results revealed a high incidence of PPV in all areas, as follow: Transylvania - average rate of PPV infection = 76.1%, Moldavia - average rate of PPV infection = 73.8% and Muntenia 55.6%. No orchard was found PPV free. Only one orchard recorded an infection rate under 25 %. The majority of the orchards recorded an infection rate over 70%. The average rate of infection at country level (68.5%) confirmed the very critical and uncontrolled PPV situation in Romania. Due to the critical situation regarding to PPV in Romania, it is clear that strict measures over the long-term are necessary for the containment of sharka disease. The most efficient strategy for PPV containment in Romania should be based on the development and use of PPV resistant plum varieties associated with propagation of virus-free *Prunus*.

**Keywords:** *Plum pox virus*, incidence, plum, orchards, Romania

### REFERENCES

1. Minoiu, N. (1997). Bolile si daunatorii prunului. In: Prunul, Ed.Conphys.pp. 346-420.
2. Wetzel, T., T. Candresse, M. Ravelonandro and J. Dunez (1991). A polymerase chain reaction assay adapted to plum pox potyvirus detection. Journal of Virological Methods, 33: 355-365.