



DETECTION OF CHERRY LEAF ROLL VIRUS IN INTENSIVELY MANAGED GRAFTED ENGLISH (PERSIAN) WALNUT TREES IN ITALY

Blackline disease, caused by *Cherry leaf roll virus* (CLRV), is considered a serious threat limiting English walnut (*Juglans regia* L.) production in Italy and the EU if walnut species other than *J. regia* are used as rootstock. In spring 2014, canopy decline or death of several walnut trees associated with presence of a necrotic strip at the rootstock-scion junction was observed on plants grafted onto 'Paradox' (*J. hindsii* × *J. regia*) in a commercial orchard located in the Veneto region (north-eastern Italy). To ascertain the presence of CLRV in this orchard and in other walnut intensively managed orchards located in the same region, a monitoring was carried out in 2014-2015.



MATERIALS AND METHODS

Monitoring was based on visual inspection of plants and DAS-ELISA test. Symptom observations were carried out throughout the growing season, while sampling was done during spring-early summer. All plants showing canopy decline or death were carefully examined at the graft union for blackline symptoms. A total of 1,684 samples either from symptomatic or asymptomatic walnut trees, belonging to different rootstock-scion combinations from four different intensively managed orchards, were collected and analyzed by DAS-ELISA from leaf tissue.

RESULTS

Trees with blackline symptoms at the scion-rootstock junction were found only in one commercial orchard on trees older than ten years of cvs. Tulare and Chandler, grafted onto 'Paradox' rootstock imported from USA. In turn, no symptomatic plants were found for cv. Lara grown in an adjacent plot of the same orchard and in the other investigated farms (see table).

Cultivar/Rootstock (Origin)	Visual inspection		DAS-ELISA test				
	Inspected plants	Plants showing blackline	Collected samples (2014-2015)	Samples from plants showing blackline	Positive samples/ Tested (2014)	Positive samples/ Tested (2015)	Positives with blackline/Tot positives (2014-2015)
Chandler/Paradox (U.S.A.)	1,420	129	580	48	28/367	19/213	6/47
Tulare/Paradox (U.S.A.)	972	38	374	10	4/247	4/127	1/8
Lara/ <i>J. regia</i> (France)	62	0	62	0	-	1/62	0/1
Total	2,454	167	1,016	58	32/614	24/402	7/56

DAS-ELISA test confirmed the presence of CLRV only in this commercial orchard. An infection percentage of 8.10 % and 2.13 % was recorded on cv. Chandler and cv. Tulare respectively, whereas for cv. Lara only one symptomless plant out of 62 tested resulted positive for CLRV (see table).

CONCLUSIONS

To our knowledge this is the first report of blackline disease in a commercial walnut orchard in Italy and in north-eastern area of Italy. Molecular analysis are in progress in order to characterize the collected CLRV isolates.

The results suggest a possible relationship between infection and the origin of the propagative plant material.

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