

Mal de Río Cuarto virus in maize: QTL mapping analysis

--Kreff, ED; Pacheco, MG; Díaz, DG; Robredo, CG; Puécher, D; Céliz, AE; Salerno, JC

Mal de Río Cuarto (MRCV) is the major viral disease of maize (*Zea mays* L.) in Argentina. The causal agent, Mal de Río Cuarto virus, is vectored by *Delphacodes kuscheli* Fennah (Homoptera: Delphacidae). Identification of Quantitative Trait Loci (QTL) conferring resistance to MRCV could aid in selecting for this trait.

The characterization of the disease response of maize genotypes under natural infestations in order to localize QTLs for resistance to MRCV was made in local lines of maize, genotyping with simple-sequence. The symptoms analyzed were tassel symptoms (TS), presence and size of enations (PE), internode shortening (IS), leaf shortening (LS) and leaf narrowing (LN), plant height (PH), ears healthy (ES).

In each line the symptoms were expressed by their incidence, severity, and intensity, calculated as follows: (1) Symptom incidence: Σ (number of plants with symptoms)/number of plants. (2) Symptom severity: Σ (rating of each plant with symptoms)/number of plants with symptoms. (3) Symptom intensity: Σ (rating of each plant with symptoms)/number of plants. Severity and intensity of symptoms were calculated for tassel and ear symptoms, and presence of enations. Plant height average of each line was calculated.

The most important QTLs mapped for marker-assisted selection or for QTL cloning and expression profile studies were on chromosomes 1 and 4.