

EVALUATION OF ALFALFA ENATION VIRUS (AEV) DAMAGE IN ARGENTINA

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The presence of the alfalfa enation virus (AEV) was first reported in Argentina in 2011 (1). Utilizing molecular techniques, the causal agent has been related to the group of cytorhabdoviruses. Affected plants show shortened internodes, bushy appearance and leaflet deformations. The latter include puckering; vein enations; varying sized papillae or keel-like formations, both on the adaxial leaflet surface; and epinasty of leaflets blades. The disease is widely extended throughout Argentina and causes significant yield and stand life reductions. The virus is transmitted by the cowpea aphid (*Aphis craccivora* Koch), which first must feed on infected plants for two hours to acquire the virus, and then -after a 48-hour period- become a permanent vector (2). The objectives of this paper were: I- to develop a disease severity index (DSI) based on a categorical symptom classification; and II- to evaluate disease impact (incidence and severity) on a group of non-dormant cultivars under field conditions. Based on symptoms, stems were visually classified on a 0-3 scale in which: 0 = no apparent disease; and 3 = severe stem internodes reduction and leaflets with generalized puckering, severe size reduction, mosaic-like discoloration, very swollen veins with large enations and epinasty. Scale values were used to estimate a disease severity index (DSI) according to the following equation:

$$DSI = \frac{\sum[(f_0 \times 0) + (f_1 \times 1) + (f_2 \times 2) + (f_3 \times 3)]}{total\ stems}$$

Table 1. AEV incidence (IN) and severity index (DSI) among non-dormant alfalfa cultivars.

Cultivar	IN	DSI
WL903	0.62a	0.83a
Trafal PV INTA	0.63a	0.87a
WL1058	0.64a	0.87a
CW 1010	0.67a	0.88a
LPS 8500	0.68a	1.09 b
Monarca SP INTA	0.72a	1.14 b

Means in columns with a common letter are not significantly different (DGC test, $p < 0.05$)

DGC test (3). Results are summarized in Table 1. Disease incidence was very high ($> 60\%$) for all cultivars, with no differences among them. Regarding severity, Monarca SP INTA and LPS 8500 were more affected than the other evaluated cultivars.

Mean DSI values were used to classify plant damage: slight: < 0.49 ; low: 0.50 to 0.99 ; moderate: 1.00 to 1.59 ; and high: > 1.60 .

Incidence (IN) and severity (DSI) of AEV on non-dormant (FD 8-10) alfalfa cultivars CW1010, WL1058, Trafal PV INTA, WL 903, Monarca SP INTA and LPS 8500, were evaluated under field conditions using a RCB design with three replicates. The experiment was conducted at INTA Manfredi over 2010/11 (6 cuts) and 2011/12 (7 cuts) growing seasons. At every harvest, all stems were collected on a 20×40 cm sampling area from each plot. Stems were then separated as asymptomatic and symptomatic to estimate IN (%) and then symptomatic stems were classified according to the 0-3 scale previously described. Differences were determined by ANOVA and means were compared using the

References:

1. Plant Dis. 95:771-771
2. Ann. Phytopathol., 5:441-445
3. Journal of Agricultural, Biological and Environmental Statistics, 7 (2):129-142