

Effect on alfalfa (*Medicago sativa*) clones

Interaction between nutrient stress and insects at plant interface

The table shows the interaction between deficiency and excess of different nutrients and insect infestation on the alfalfa clones

Crop: Alfalfa (*Medicago sativa*) clone 4956 and 4959
Insect: Spotted alfalfa aphid (*Therioaphis maculata*)
Stress 1: Nutrient treatment- Solutions with excess, medium, and deficient concentrations of Ca, Mg, N, P, K and S.
Stress 2: Plants treated with Ca, K, Mg, N, P or S were infested with aphids at 10, 14, 12, 11, 10, and 9 weeks, respectively, after the beginning of the tests.
Stage of the plant: Seedling

Clones	Stress treatments	Plant response under combined stress
		Type B parameter*
		Mean number of live aphids
Clone 4956	Calcium deficient	88.2
	Calcium medium	13
	Calcium excess	13.2
	Magnesium deficient	8.2
	Magnesium medium	6.7
	Magnesium excess	32.5
	Nitrogen deficient	37.7
	Nitrogen medium	245
	Nitrogen excess	97.2
	Phosphorus deficient	9
	Phosphorus medium	30
	Potassium deficient	49.2
	Potassium medium	6.2
	Potassium excess	1.7
	Sulfur deficient	2.5
Sulfur medium	8.8	
Sulfur excess	12.8	
Clone 4959	Calcium deficient	151.5
	Calcium medium	140.7
	Calcium excess	149.5
	Magnesium deficient	127
	Magnesium medium	123.2
	Magnesium excess	123
	Nitrogen deficient	141.2
	Nitrogen medium	126
	Nitrogen excess	133.5
	Phosphorus deficient	125.3
	Phosphorus medium	123.5
	Potassium deficient	147.7
	Potassium medium	152.5
	Potassium excess	146.7
	Sulfur deficient	169.8
Sulfur medium	173.5	
Sulfur excess	180.8	

Reference-

Kindler SD and Staples R (1970). Nutrients and the reaction of two alfalfa clones to the spotted alfalfa aphid. *Journal of Economic Entomology* 63: 938-940.

Note:

Values are presented as it is from the source article without subjecting to the calculation.

‘’ - For more information on parameter classification, please refer to the ‘methodology’ tab.*

The inference from the study: Kindler and Staples 1970 studied the effect of deficiency and excess of different nutrients on spotted alfalfa aphid infestation in aphid resistant and susceptible clones of alfalfa. The authors found that deficiency of Ca, K and excess levels Mg and N compromises the resistance of alfalfa to the aphids. However, nutrients stress did not have any effect on the aphid infestation in the susceptible variety. **The study thus indicates that different nutrient deficiency has a variable effect on aphid infestation in alfalfa.**

