Agrotechnol 2014, 2:4
http://dx.doi.org/10.4172/2168-9881.S1.009

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Agricultural & Horticultural Sciences
Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

Effect of phosphorus on tolerance of mungbean [*Vigna radiata* (l.) wilczek] to chloride and sulphate salinity of loamy sand soil

Atik Ahamad[1], B L Yadav[1], Arbind Kumar Gupta [2], Laxmi Kant Tripathi[3], J Sai Prasad[2], Manish Jha[2] and Y Sudha Rani[3]
[1]S K N College of Agriculture, India
[2]Acharya N G Ranga Agricultural University, India
[3]Deemed University Allahabad, India

A pot experiment was conducted during kharif 2012 at S K N College of Agriculture, Jobner (Rajasthan) to study the effect of phosphorus on tolerance of mungbean [*Vigna radiata* (L.) Wilczek] to chloride and sulphate salinity of loamy sand soil. Mungbean occupies 3.4 million hectare area and contributes 1.4 million tonnes in pulse production in the country. The important mungbean growing states are Rajasthan, Maharashtra, Karnataka, Andhra Pradesh, Orissa, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, and Bihar. The experiment was laid out in completely randomized design with three replications by taking five levels of saline water [0, 4 dSm^{-1} keeping Cl^- : SO_4^{2-} in 1:3 and 3:1 ratio and 6 dSm^{-1} keeping Cl- : SO_4^{2-} in 1:3 and 3:1 ratio], three levels of phosphorus (0,10, 20 and 30 mg kg^{-1} phosphorus) as variables. Results revealed that total and effective number of nodules per plant, plant height, test weight, pods per plant, seeds per pod, seed and straw yield of mung bean, N, P and S content and uptake in seed and straw at harvest, and Na+ K/Ca and Na/Ca ratios in seed and straw decreased significantly with all level of salinity of irrigation water over control and magnitude of increase was more pronounced in Cl^- dominated salinity as than that of SO_4^{2-} dominated salinity but S content in seed and straw increased significantly at all levels of salinity more with SO_4^{2-} dominated salinity except highest level of salinity (6dSm^{-1}) whereas S content increased with Cl^- dominated salinity. Available S of soil increased and available P and pH of soil decreased significantly with all level of salinity. The magnitude of increase and decrease was more pronounced in SO_4^{2-} dominated salinity. Application of phosphorus significantly increased the total number of nodules per plant, nodule index, plant height, test weight, pods per plant, seed per pod, seed and straw yield of mungbean. However, Ca, Mg, Na and K content in seed and straw at harvest, and Na/K and Ca/Mg ratios in seed and straw decreased significantly with increasing level of application. The effect of application of P on EC, pH and SAR content of soil was found to be non significant.

atikcsa@gmail.com

Impact of zinc application on the performance of wheat (*Triticum aestivum L.*) irrigated with different saline waters

Prerna Dogra[1,3], F M Quershi[3], Atik Ahamad[1], U S Rawat[3] and Arbind Kumar Gupta[2]
[1]S. K. N. College of Agriculture, India
[2]College of Agriculture, India
[3]Maharana Pratap University of Agriculture and Technology, India

A pot experiment was conducted during *Rabi* season of 2010-2011 at Rajasthan College of Agriculture, (Udaipur) Rajasthan to study the efficiency of zinc application on the performance of wheat (*Triticum aestivum L.*) irrigated with different saline waters. Influence of zinc in saline water irrigation was judged on physico-chemical and chemical properties of soil, number of tillers, grain and straw yield and nutrient uptake by wheat (var. Raj 3077). The experiment was laid out in CRD with four (W_0, W_1, W_2, W_3) qualities of irrigation water and four levels of zinc (0, 5, 10 and 15 mg Zn (kg^{-1} soil). The results indicated that the increased levels of EC_{iw} significantly increased the EC, ESP and SAR of soil while decreased available pH and P. High ECiw significantly reduced the grain and straw yield, phosphorus, potassium and zinc contents in grain and straw while sodium content increased. Zn application to soil had favorable effect on grain and straw yield of wheat. Zn increased the contents of N, K, Zn significantly in both grain and straw whereas, phosphorus content was decreased significantly. The comparative reduction in grain and straw yield of wheat as well as contents of P and Zn of grain and straw was less at higher doses of zinc sulphate when the level of EC_{iw} increased in irrigation water. Hazardous effects of saline water on wheat can be mitigated to some extent by applying zinc sulphate at the rate of 15 mg Zn kg^{-1} soil.

dograprerna@yahoo.com