Application of Sulfur in Calcareous and Saline-Sodic Soils of Khorasan Razavi Province to Enhance Plant Yield

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Abstract

Sulfur is an essential element for plant growth since its presence in betamine, biotein, aminoacid, and sulfulipid compoundsplaysa key role in activating many enzymes, synthesizingproteins, and counteractingthe toxicity of heavy metals in plants. In addition to its nutrirional value, sulfur is known as a soil amendment for improving thephysico-chemical propertiesofcalcareous, sodic, and saline-sodic soils. Agriculture inKhorassan Razavi Province,as one of the greatest and most important producers across the nation,plays animportant role in providing the essential needs,producing food, supplyingindustrial raw materials, and creating employmentfor the population in the province.Due to the inadequate physico-chemical conditions, however,the soils in thisprovinceare not able to provide (horticultural and farm crop) plants with all their nutritional requirements, especially phosphorous and micronutrients. Although nutrient requirements might be met in the short term through continueduse of chemical fertilizers,it will in the long term lead to soil and water pollution. Study has shown that proper use of sulfur in soil can not only improve soil chemical and physical properties but alsocontribute tobetter nutrient uptake by plants and preventthe associated environmental problems. Based on these results, application of sulfur, organic matter, and Thiobacillus by 2% the sulfur weight may be recommended for improving both plantyieldand soil physico-chemical properties.

Key words: Nutrition, Soil reclamation, Sodic.

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