

Influence of Sulphur and Boron on Growth, Quality Parameters and Productivity of Soybean (Glycine Max (L.) Merrill)

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Abstract : The experimentation was carried out to study the influence of sulphur and boron on growth parameters and productivity of soybean in kharif season of 2009-2010 at Experimental Farm, Department of Agricultural Botany, Marathwada Agricultural University, Parbhani (M.S.). The object was to evaluate the impact of sulphur and boron on growth, development, grain yield and physiological aspects of soybean variety MAUS-81. Nine treatments consisted of three levels of sulphur i.e. 20, 30 and 40 Kg/ha as well as three levels boron i.e. 10, 15 and 20 kg boron/ha and the combinations of these two mineral elements i.e. Sulphur @30 kg/ha + Borax @15 kg/ha and Sulphur @40 kg/ha + Borax @ 20 kg/ha with one control treatment in Randomized Block Design (RBD) with three replications. The effect of sulphur and boron on various growth parameters of soybean like relative growth rate (RGR) and net assimilation rate (NAR) were remained statistically on par with each other. However, the application of higher dose of Sulphur @40 kg/ha + Borax @ 20 kg/ha enhanced significantly all the growth parameters. Application of the nutrients increased the dry matter accumulation of the crop plant and hence, other growth indices like RGR and NAR also increased significantly. RGR and NAR values were recorded highest at the initial crop growth stages and decline thereafter. The application of sulphur @40 kg/ha + Borax @ 20 kg/ha recorded significantly higher content of chlorophyll 'a' than rest of the treatments and chlorophyll 'b' observed higher in boron @15 kg/ha as well as boron@20 kg/ha, whereas total chlorophyll content was maximum in sulphur @40 kg/ha. Oil content was not influenced significantly due to above fertilization. The highest seed yield and total biological yield were obtained with combination of Sulphur @40 kg/ha + Borax @ 20 kg/ha, single sulphur and boron application also showed a significant effect on seed and biological yield.

Keywords : boron, growth, productivity, quality, soybean and sulphur

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020