RESEARCH ARTICLE

EFFECT OF FOLIAR APPLICATION OF NUTRIENTS ON SOYBEAN

Pratima Kumari*, A.K. Singh, P.K. Dewangan, S.C. Pankaj and A.K. Lakra

Department of Agronomy, Birsa Agricultural University, Ranchi-834006 Jharkhand
Email: pratimakumari08812@gmail.com

Received-16.02.2017, Revised-08.03.2017

Abstract: An experiment was conducted at BAU experimental farm (Kanke), Ranchi, Jharkhand during (Soybean) *Kharif* season 2015 on sandy loam soil with low organic carbon (4.10 gkg^{-1}) and available nitrogen (192.5 $kgha^{-1}$), moderately acidic (pH 5.1) in nature, medium potassium (128 $kgha^{-1}$), phosphorus (13.65 $kgha^{-1}$), boron (0.58 $mgkg^{-1}$), molybdenum (0.25 $mgkg^{-1}$) and zinc (0.60 $mgkg^{-1}$), with 9 treatments replicated thrice. Results revealed that the productivity of soybean was influenced by foliar application of nutrients. Among application of nutrients, RDF along with molybdenum 0.5% spray produced higher grain (1524 $kgha^{-1}$) and straw (2062 $kgha^{-1}$) yield, which was significantly higher than all other treatment but it was at par with RDF + zinc chealted 0.5% spray and RDF + 19:19:19 ($N:P_2O_5:K_2O$) 2% spray. However, foliar application of zinc chelated 0.5% spray along with RDF gave highest net return (22630 $Rs.ha^{-1}$) and benefit: cost ratio (1.19).

Keywords: Economics, Soybean, Foliar, Nutrient

REFERENCES

Abou El-nour, E.A.A. (2002). Can supplemented potassium foliar feeding reduce the recommended soil potassium? *Pakistan journal of Biological Science* 5: 259–62.

Ashour, N.I. and Thalooth, A.T. (2003). Effect of soil and foliar application of nitrogen during pod development on the yield of soybean (*Glycine max* (L.)Merry) Plants.*Field Crops Research*, 6: 261-66.

Babaeian, M., Tavassoli, A., Essmaeilian, Y. and Javaheri, M. (2012). Effects of Fe, Zn, Mg and manure on seed germination characters of barley.*African Journal of Microbiological Research.* **6(46):** 7302-05.

Elankavi, S., Kupuswamy, G., Vijaypuri, V. and Raman, R. (2009). Effect of phytohormones on growth and yield of rice.*Rice Science* 46: 310-13.

Hugar, A.B. and Kurdikeri, M.B. (2000). Effect of application methods and levels of Zn and Mo on field performance and seed yield in soybean.*Karnataka Journal of Agricultural Science* **13(2):** 439-41.

Jairo A. Palta., Ajit S., KumariSunita., Neil, C. and Turner (2005). Foliar nitrogen applications increase the seed yield and protein content in chickpea (*Cicerarietinum*L.) subject to terminal drought, *Aus. J. Agric. Res.* **56(2):** 105–12.

Kaiser B. N., Gridley, K. L., Nbrady, J., Phillips, T. and Tyerman, S. D. (2005). The role of Mo in agricultural plant production.*Annals of Botany* 96: 745-54.

Kannan, S. (1986). Foliar absorption and transport inorganic nutrients CRC *Crit.Rev. Plant Sci. J*. 341-75.

Kelly, A., Nelson, P., Motavalli, P. and Manjula Nathan (2005). Response of no-till soybean (*Glycine max* L.) to timing of preplant and fliar potassium applications in a clay pan soil. *Agron. J*.97: 832-38.

Kuttimani, R. and Velayutham, A. (2011). Foliar application of nutrients and growth regulators on yield and economics of green gram.*Madras Agricultural Journal* **98(4-6):** 141-43.

Rahman, Inayat.,Afzal, Aftab., Iqbal, Zafar., Ijaz, Farhana., Manan, Shafiul., Sohali., Ali, Asghar., Khan, Khalid., Karim, Sumaira. And Qadir, Ghulam. (2014). Growth and yield of common bean as influenced by different nutrients treatment in Mansehra. *International Journal of Agronomy and Agricultural Research* **4(3):** 20-26.

Sary, G. A., El- Deepah, H. R.A., El- Gizway, N.K.H.B., Gobarh, E. Mirvat., Tawfik, M. M. and Khedr, Howida, H. (2014). Impact of organic manures and foliar spraying with micronutrients on growth, yield and yield components of barley grown in newly reclaimed sandy soil.*American- Eurasian Journal of Agricultural and Environmental Science* **14(11):** 1130-40.

Silberbush, M., Waisel, Y., Eshel, A. and Kafkafi (2002). Simulation of ion uptake from the soil in Plant Roots. *The Hidden Half, 3rd edition New York*.651-61.

Singh, M.V. (2007). Efficiency of seed treatment for ameliorating zinc deficiency in crops.Proceeding of Zinc Crop Conference, Istanbul, Turkey.

Tiwari, D. K., Pandey, P., Giri, S.P. and Dwivedi, J. L. (2011). Effect of foliar application of GA_3 and other plant growth regulators on hybrid rice seed production.*Asian Journal of Plant Sciences* 10: 133-39.

Zakaria M.S., Mahmoud H. Mahmoud. andAmal H. El-Guibali (2008). Influence of potassium fertilization and foliar application of zinc and phosphorus on growth, yield components, yield and fiber properties of Egyptian cotton (*Gossypiumbarbadense*L.). *Journal of Plant Ecology* **1(4):** 259-70.

*Corresponding Author