

INFLUENCE OF SULPHUR AND ZINC ON GROWTH, YIELD, QUALITY AND ECONOMICS OF INDIAN MUSTARD (*BRASSICA JUNCEA*) UNDER RAINFED CONDITIONS

Pradeep Kumar Rana, Pawan Sirotia, U.S. Mishra, Baijnath Yadav* and Abhilesh Pratap Singh

Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, Satna- 485 780 (M.P.)

Received-05.12.2019, Revised-27.12.2019

Abstract: A field experiment was conducted during the winter seasons of 2013-14 and 2014-15 in Chitrakoot – Satna, Madhya Pradesh, India, to study the effects of 5 sulphur levels (0, 15,30,45 and 60 kg S ha⁻¹) and 4 zinc levels (0, 2.5, 5.0 and 7.5 kg Zn ha⁻¹) on rainfed Indian mustard (cv. Pusa Tarak). Progressive increase in P and Zn levels increased the yield attributes and seed yield, but the increase in seed yield was significant only up to 45 kg S ha⁻¹ and 5.0 kg Zn ha⁻¹. Seed yield increased significantly up to 45 kg S ha⁻¹ and 5.0 kg Zn ha⁻¹ application. Significantly higher seed yield (1685.2 kg ha⁻¹) was recorded with 45 kg S x 7.5 kg Zn ha⁻¹ followed by 60 kg S x 7.5 kg Zn, 30 kg S x 5.0 kg Zn and 45 kg S x 5.0 kg Zn¹ and these treatments combination were comparable from each other. Oil and protein content also increased up to 30 kg S and 5 kg Zn ha⁻¹.

Keywords: Mustard, Quality, Seed yield, Sulphur, Zinc

REFERENCES

- A.O.A.C.** (1984). Official Method of Analysis of the Association of Official Agricultural Chemists. Edn, 14. Association of Official Agricultural Chemists, D. C., U.S.A.
- Ahamad, A., Khan, I. and Abidin, M.Z.** (2000). Effect of sulphur fertilization on oil accumulation, Acetyl - CoA concentration and Acetyl- CoA carbohydrate activity in the developing grain of rapeseed (*Brassica campestris* L.). *Australian J. of Agril. Res.* 51: 1023-1029.
- Aulakh, M. S., Pasricha, N. S. and Sahota, N. S.** (1980). Yield, nutrient concentration and quality of mustard crop as influenced by nitrogen and sulphur fertilizers. *Journal Agricultural Science Cambridge*, 94 : 545-549.
- Deo, Chandra and Khandewal, R. B.** (2009). Effect of Zinc and Phosphorus on yield, nutrient uptake and oil content of mustard grown on the gypsum treated sodic soil. *Journal of the Indian Society of Soil Science*, 57(1) : 66-70.
- Dongarkar, K.P., Pawar, W.S., Khawale, V.S., Khutate, N.G. and Gudadhe, N.N.** (2005). Effect of nitrogen and sulphur on growth and yield of mustard, *Journal of Soil and Crop*, 15, 165-167.
- Havlin, L. J., Beaton, D. J., Tisdale, L. S. and Nelson, L. W.** (1999). Soil fertility and fertilizers. Prentice Hall of Indian, 6th Ed. pp. 227-228, 277, 319-346.
- Jat, J. R. and Mehra, R. K.** (2007). Effect of sulphur and zinc on yield, macronutrient content in and uptake by mustard on Haplustepts. *Journal of the Indian Society of Soil Science*, 55: 190-195.
- Raman and Trivedi, S. K.** (2012). Effect of levels and sources of sulphur on yield, quality and nutrient uptake by mustard, *Progressive agriculture* 12 (1) : 69-73.
- Meena, M. C., Patel, K. P. and Rathod, D. D.** (2006). Effect of zinc, iron and sulphur on mustard in loamy sand soil. *Indian Journal of Fertilisers*; 2(5):55-58.
- Muralidharudu, Y. and Singh, M.** (1990). Effect of iron and zinc application on yield, oil content and their uptake by sesame. *J. of the Indian Society of Soil Science*. 38: 171-173.
- Pable, D., Patil, D. B. and Deshmukh, P. W.** (2010). Effect of sulphur and zinc on yield and quality of soybean. *Asian J. Soil Sci.*, 5: 315- 317.
- Singh, Anar and Meena, N.I.** (2004). Effect of nitrogen and sulphur on growth, yield attributes and seed yield of mustard (*Brassica juncea*). *Indian Journal of Agronomy*, 49(3): 186-188.
- Sonune, B.A., Naphade, P.S. and Kankal, D.S.** (2001). Effect of zinc and sulphur on protein and oil content of soybean. *Agric. Sci. Digest*, 21: 259- 260.
- Yadav, R. B., Singh, R. V., Singh, H. R. and Yadav, H. S.** (2007). Effect of different levels of zinc and sulphur on Indian mustard (*Brassica juncea* L.). *Crop Research (Hisar)*; 33(1/3):74-76.
- Zizala, V. J., Jadav, N. B. and Gorfad, P. S.** (2008). Effect of sulphur and zinc on yield, quality and its concentration on mustard. *Asian Journal of Soil Science*; 3(1):173-177.

*Corresponding Author