IJPS INTERNATIONAL JOURNAL OF PLANT SCIENCES
ISSN-0973-1547 Volume 18 | Issue 1 | January, 2023 | 34-39

DOI: 10.15740/HAS/IJPS/18.1/34-39
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RESEARCH ARTICLE

Effect of irrigation scheduling and foliar fertilization on productivity, profitability and water use efficiency of soybean [*Glycine max* (L.) Merrill] under climatic variability of South Eastern Rajasthan

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SUMMARY

An experiment conducted during three consecutive years of *Kharif* (2013 to 2015) at Agricultural Research Station-Ummedganj, Agriculture University, Kota (Rajasthan) on soybean [*Glycine max* (L.) Merrill].The experiment consisted of twenty treatment combinations *viz*., four irrigation schedules (one irrigation at flowering, one irrigation at pod development, two irrigations at flowering and pod development and rainfed) and five foliar fertilization spray of N:P: K (5 g/lit. water) spray at 45, 60 and 75 DAS(17:44:00,19:19:19 ,17:44:00 ,19:19:19 and RDF) were under taken in split plot design with four replications. Three years pooled data showed that the maximum seed yield (1286 kg ha^{-1}) obtained under irrigation at flowering and pod development stage over irrigation at flowering stage and rainfed, but it was found at par with irrigation at pod development stagein soybean. The water use efficiency did not significantly influence under various irrigation schedules. Significantly higher net returns (Rs.19452/- ha^{-1}) and B: C ratio (1.84) were observed under irrigation at flowering and pod development stage, but it was found at par with one irrigation at pod development stage. Significantly higher seed yield (1333kg ha^{-1}) was recorded under foliar fertilization 19:19:19 (5 gm/lit) at 30, 45, 60 and 75 DAS, but it was found at par with 17:44:00 (5 gm/lit) at 30, 45, 60 and 75 DAS over rest of foliar fertilization. The water use efficiency was found maximum (23.46 kg/ha-cm) with foliar spray of 19:19:19 (5 gm/lit) at 30, 45, 60 and 75 DAS.The foliar fertilization of 19:19:19 (5 gm/lit) at 30, 45, 60 and 75 DAS gave significantly higher net return (Rs. 21081/- ha^{-1}) and B: C ratio (1.92), but it was found at par with foliar spray of 17:44:00 (5 gm/lit) at 30, 45, 60 and 75 DAS over rest of the treatments.

Key Words : Economics, Foliar spray, Irrigation schedules, Soybean, Water use efficiency

How to cite this article : Meena, Harphool, Yadav, Rajendra K., Singh, Pratap, Manoj, Yadav, Shankar Lal, Bairwa, R.K., Dhakar, Uditi and Kumar, Rajesh (2023). Effect of irrigation scheduling and foliar fertilization on productivity, profitability and water use efficiency of soybean [*Glycine max* (L.) Merrill] under climatic variability of South Eastern Rajasthan. *Internat. J. Plant Sci.*, **18** (1): 34-39, **DOI: 10.15740/HAS/IJPS/18.1/34-39,** Copyright@ 2023:Hind Agri-Horticultural Society.

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