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RESEARCH PAPER

Influence of wheat based intercropping system by irrigation scheduling under limited water conditions

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Abstract : An experiment was conducted during three consecutive years of *Rabi* (2011-12 to 2013-14) at Agricultural Research Station-Ummedganj, Agriculture University, Kota (Rajasthan) on wheat based intercropping system. The experiment consisted of ten treatment combinations *viz.,* two irrigation regimes (IW/CPE ratio 0.4 and 0.6) and five intercropping system (wheat + gram (6:4), wheat + mustard (6:4), wheat + fenugreek (6:4), wheat + field pea (6:4) and sole wheat) were under taken in split plot design with four replications.It is evident from pooled data the maximum wheat equivalent yield (53.68 q/ha) was observed with irrigation regime at IW/CPE ratio 0.6 over application of IW/CPE ratio 0.4 (45.04 q/ha). Among intercropping, wheat + gram (6:4) intercropping system gave significantly higher wheat equivalent yield (58.50 q/ha) overwheat + mustard (6:4)(50.91 q/ha), wheat + fenugreek (6:4)(46.28 q/ha) and wheat + field pea (6:4)(46.08 q/ha) intercropping system as well as sole wheat (45.04 q/ha), respectively. Significantly higher water use efficiency (23.49kg/ha-cm) was recorded under wheat + gram (6:4) intercropping system over wheat + mustard (6:4), wheat + fenugreek (6:4) and wheat + field pea (6:4) intercropping system as well as sole wheat.The maximum net return (Rs.55810/- ha^{-1}) and B:C ratio (3.6) was observed with irrigation regime at IW/CPE ratio 0.6 as compared to IW/CPE ratio 0.4. Among intercropping, wheat + gram (6:4) intercropping system gave significantly higher net return (Rs.62426/- ha^{-1}) and B:C ratio (4.0) over wheat + mustard (6:4), wheat + fenugreek (6:4) and wheat + field pea (6:4) intercropping system as well as sole wheat.

Key Words : Inter cropping, Irrigation regimes, Water use efficiency, Wheat equivalent yield

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INTRODUCTION

Wheat (*Triticum aestivum* L.) is one of the world's most important staple crops, with over 2.5 billion people eating it in 89 countries. Wheat is an important cereal crop of Indo-Gangetic plains of India in general and it is generally grown as an irrigated crop. Wheat is grown on a total of 31.45 million hectares in India, with a production of 107.60 million tonnes and productivity of 3420 kg/ha (USDA, 2020). In general, because the need for land for other sectors will continue to rise, there is

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