

Evaluation of Sowing in Hills on Ridges as a New Technique for Enhancement of Wheat (*Triticum aestivum* L.) Productivity under Weed Control Treatments

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TWO FIELD experiments were conducted to investigate the effect of sowing wheat in hills 20 cm apart on different spaced ridges method on the productivity of wheat crop under different mechanical and chemical weed control treatments. Twenty four treatments which were the combinations of 4 sowing methods (hills in two rows on ridges 60 cm, hills in two rows on ridges 70 cm, hills in three rows on ridges 80 cm and broadcast) and 6 weed control treatments (one hand hoeing at 3 or 4 weeks after wheat sowing (WAS), two hand hoeing at 3 and 6 WAS, isoproturon, metosulam and unweeded check) were tried. The obtained results indicated that the lowest dry weights of weeds were recorded under broadcast or ridges 80 cm width sowing methods. Sowthistle (*Conchrus oleraces* L.) weed and grasses were not significantly influenced by sowing methods. Excellent weed control was achieved by two hand hoeing at 3 and 6 WAS. Application of isoproturon or metosulam herbicide gave satisfactory weed control similar to application of one hand hoeing made at 3 or 4 WAS. The heaviest biological yield was obtained under broadcast sowing methods. No significant differences in biological yield per acre were noticed between broadcast and ridges 80 cm sowing methods as well as between 60 cm and 70 cm ridges sowing methods. The maximum grain yield per acre was produced from plants sown in hills on three rows of 80 cm ridges, which significantly exceeded that of broadcast, 70 cm and 60 cm ridges sowing methods by 10, 14 and 23%, respectively. All weed control treatments caused a significant increment in grain yield over unweeded check. Controlling weeds using two hand hoeing produced the greatest grain yield over unweeded treatment by 52% and surpassed the other weed control treatments. The interaction between sowing methods and weed control treatments had significant effect on number of grains per spike and harvest index. It could be concluded that planting wheat in hills on three rows of 80 cm ridges and controlling associated weeds by hand hoeing twice produced the highest grain yield. In ridge sowing methods fertilizing was easier, controlling weeds by hand hoeing was easier and more efficient and water requirement and can support several crops in complex relays or intercropping and rotation.

Keywords: Isoproturon, Metosulam, Hand hoeing, Herbicides, Interaction .