

EFFECT OF DIFFERENT TILLAGE PRACTICES AND IRRIGATION SCHEDULE ON THE GROWTH AND YIELD OF LINSEED IN ALFISOLS OF CHHATTISGARH PLAINS

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Abstract: The field experiments was carried out at the Research-Cum-Instructional Farm of Indira Gandhi Krishi Vishwavidyalaya, Raipur (Chhattisgarh) to evaluate the effect of different tillage practices and irrigation schedule on the growth and yield of linseed in *Alfisols* of Chhattisgarh plains during two consecutive *rabi* seasons of 2009-10 and 2010-11. The experiment was laid out in strip-plot design with three replication. The horizontal strip treatments consisted of four tillage practices *viz.*, zero tillage (T₀), harrowing once (T₁), rotavator once (T₂) and conventional tillage (T₃) and vertical strip treatments consisted of four irrigation schedules *viz.*, one at after seeding (I₀), one at 35 DAS (I₁), two at 35 and 75 DAS (I₂) and three at 0, 35 and 75 DAS (I₃). Result indicated that plant population, plant height, dry mater accumulation plant⁻¹, number of branches plant⁻¹, leaf area index and yield were found significantly higher under conventional tillage (T₃) as compared to others. Among the irrigation schedules, treatment I₃ (three irrigations at 0, 35 and 75 DAS) recorded significantly maximum plant population, plant height, dry matter accumulation, number of branches plant⁻¹, leaf area index and yield.

Keyword: Tillage practices, Irrigation schedule, Growth and development, Linseed

REFERENCES

- Bandopadhyay, P.K. and Mallick, S.** (2000). Effect of irrigation on water extraction pattern of winter under shallow water table condition. *Indian Journal of Soil Conservation*, 28(2): 138-142.
- Chhattisgarh Sandarbhb** (2007). Statistical data sheet of Chhattisgarh Sandarbhb pp: 32 & 111.
- Chitale, S., Pandey, N. and Urkurkar, J.S.** (2007). Effect of planting method, tillage and weed management on productivity and physico-chemical properties of rice (*Oryza sativa*)-wheat (*Triticum aestivum*) cropping system. *Indian Journal of Agronomy*, 52(4): 283-288.
- Fisher, S., Honigmann, G. and Hora, C.** (1984). Result of linseed oil and olive therapy in hyperlipoproteinemia patients. *Dissch Z Verdau Stoffwechselkr* 44: pp. 245-251.
- Flax Council of Canada** (2004). Flax and the low carbohydrate diet. *Flax Focus* 17: 2, 1-8.
- Gautam, R.C., Pachauri, P., Singh, V. and Gaur, N.S.** (2000). Response of winter maize (*Zea mays*) to irrigation schedule and fassel removal. *Indian Journal of Agricultural Sciences*, 70(2): 859-860.
- Gopalan, C., Ramashastri, B.V. and Balasubramanium, S.C.** (1987). Nutritive value of Indian food. *National Institute of Nutrition*, Hyderabad pp : 83.
- Gurumurthy, P., Rao, S., Bhaskar, M., Reddy, B. and Reddy, B.N.** (2008). Optimizing tillage and irrigation for sunflower cultivation in rice fallow Alfisols of semiarid tropics. *HELJA* 31 Nr. 49 pp 91-102.
- Hammel, J.E.** (1989). Long term tillage and crop rotation effects on bulk density and soil impedance in Northern Idaho. *Soil Sci. Amer. J.*, 53: 1515-1519.
- Hegde, D.M.** (1999). Technology for yield. *Hindu Survey of Indian Agriculture* pp. 67-69.
- Iqbal, M., Hassan, A.U., Ali, A. and Rizevanullah, M.** (2005). Residual effect of tillage and farm manure on some soil physical properties and growth of wheat (*Triticum aestivum* L.). *Int. J. Agri. Biol.*, 1: 54-57.
- Khan, A.R.** (1984). Studies on tillage induced physical edaphic properties in relation to groundnut crop. *Soil and Tillage Research*, 4: 225-236.
- Khurshid, K., Iqbal, M., Arif, M.S. and Nawaz, A.** (2006). Effect of tillage and mulch on soil physical properties and growth of maize. *International J. Agri. And Bio.*, 8(5): 593-596.
- Kramer, P.J.** (1963). Water stress and plant growth. *Agronomy Journal*, 55: 31-35.
- Morris, D.H.** (2003). Flax. A health and nutrition primer (F.C.O.Canada, ed.) vol. 2005. Flax council of Canada. <http://www.flaxcouncil.ca/primer.htm>.
- Mukherjee, D.** (2008). Effect of tillage practices and fertility levels on the performance of wheat (*Triticum aestivum*) under mid hill condition of West Bengal. *Indian Journal of Agricultural Sciences*, 78(12): 1038-41.
- Nayak, M., Pradhan, A.C., Satpathy, M.R. and Mohapatra, B.K.** (2006). Soil properties, growth behavior and yield of wheat (*Triticum aestivum* L.) in relation to weed management practices under different tillage systems. *Annals of Agriculture New Series*, 27(4): 315-321.
- Nestel, P.J., Pomeroy, S.E. and Sesahara, T.** (1997). Arterial compliance in obese subject is

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- improved with dietary plant n-3 fatty acid from flax seed oil despite increased LDL oxidizability. *Arterioscler Thromb Biol.*, 17: 1163-1170.
- Nowak, W. and Sowinski, J.** (2006). The effect of fore crops on biomass of oats in traditional and reduced tillage system (polish). *Biuletyn Instytutu Hodowlii Aklimatyzacji Roslin* 239: 61-71.
- Panchnathan, R.M., Shrinivasulu, D., Subramaniam, S. and Palaniappan, S.P.** (1992). Effect of irrigation schedule and time of sowing for maize based on economic indices. *Madras Agriculture Journal*, 79(9): 505-510.
- Prasad, K.** (1997). Dietary flax seed in prevention of hyper cholesterolemic altherosclerosis. *Atherosclerosis*, 132(1): 69-76.
- Prasad, K., Mantha, S.V., Muir, A.D. and Westcott, N.D.** (1998). Reduction of hyper cholesterolemic atherosclerosis by CDC-flax seed with very low alphalinolenic acid. *Atherosclerosis*, 136: 367-375.
- Rashidi, M. and Keshavarzpour, F.** (2007). Effect of different tillage methods on grain yield and yield components of maize (*Zea mays* L.). *Int. J. Agri. Biol.*, 2: 274-277.
- Richharia, R.H.** (1962). Linseed. *The Indian Central Oilseeds Committee*, Hyderabad, India : 155.
- Roanova, A., Pogozeva, A.V. and Kulakova, S.N.** (1997). Effect of antiatherosclerotic diet containing polyunsaturated fatty acid of the omega-3 family from flax oil on fatty acid composition of cell membranes of patients with ischemic heart diseases, hypertensive disease and hypelipoproteinemia. *Vopr-Pitam* 5: 15-17.
- Shalaby, Y.Y. and Mikhail, S.M.** (1997). Effect of planting dates, watering intervals and nitrogen rates on maize. 1. Growth and flowering characters 2. Yield component characters. *Annals of Agriculture Sciences*, 11: 3-12.
- Singh, A.K., Singh, G.R. and Dixit, R.S.** (1997). Influence of plant population and moisture regime on nutrient uptake and quality of winter maize (*Zea mays*). *Indian Journal of Agronomy*, 42(1): 107-111.
- Singh, V.P. and Singh, V.K.** (2008). Effect of tillage practices and seed rates on the performance of large seeded lentil. *Journal of food legumes* 21 (1): 49-50.
- Vavilov, N.I.** (1935). Studies on the origin of cultivated plants. *Bull. Bot. Pl. Breed.*, 16 : 39-145.
- Wasaya, A., Tahir, M., Tanveer, A. and Yaseen, M.** (2012). Response of maize to tillage and nitrogen management. *The Journal of animal and plant Sciences*, 22(2): 452-456.
- Yadav, A.K., Singh, P. and Sumeriya, H.K.** (2009). Effect of tillage and integrated nutrient management on growth, yield attributes and yield of sorghum (*Sorghum bicolor* L.). *Haryana Journal of Agronomy*, 25(1-2): 89-90.