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Research Paper

Effect of different agronomic practices on growth parameters of lentil

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ABSTRACT

A pure and healthy seed of lentil genotype LH 90-54 was sown on November 17, 2005 as per planting technique treatments with three replications and total number of treatment combinations 18 were tested against the growth parameters of lentil [*Lens culinaris* (Medic) L.] at Pulse Research Area of CCS Haryana Agricultural University, Hisar during *Rabi* 2005-06. The observation on growth parameters *viz.,* plant population per meter row length recorded at 30 DAS and at harvest revealed that, initial plant population was higher than those recorded at harvest in planting technique, irrigation or weed control treatments. Plant height varied significantly with planting technique. Maximum values were associated with raised bed planting. The plant height was increased significantly at 60, 120 DAS and at harvest. When irrigation was given at flowering as compared to unirrigated. Plant height was significantly affected by weed control measures only at 90, 120 DAS and at harvest. When weeds were kept under check either chemically or manually, plant height was significantly increased. The planting technique resulted in significant increase in number of branches per plant at 120 DAS and at harvest. Irrigating the crop at flowering stage resulted in significant increase in number of branches at harvest over unirrigated condition. One hand weeding at 30 DAS and application of pendimethalin @ 1 kg a.i.ha^{-1} produced significantly higher number of branches as compared to weedy check. Dry matter accumulation in plants was maximum in raised bed planting and was minimum in zero tillage. Dry matter was significantly improved by applying one irrigation at flowering stage. Controlling the weeds resulted in a perceptible improvement in the dry matter yield of lentil at 120 DAS and at harvest.

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Lentil [*Lens culinaris* (Medic) L.] is one of the oldest and valuable human food crop. Mostly it is consumed as a dry grain (decorticated and split). Dehulled lentil grains contain 24-26 per cent protein, 1.3 per cent fat, 2.2 per cent ash, 3.2 per cent fibre and 57 per cent carbohydrate. It is a rich source of calcium (68 mg/100g grain), phosphorus (300 mg/100g grain) and iron (7 mg/100g grain). India represents 50 per cent of the world's acreage and 41 per cent of the world's production. The production of lentil in India is around 1.00 million tonnes from an area of 1.4million hectare with the productivity of 660 kg/hectare (Anonymous, 2005).

Inadequate soil moisture and heavy infestation of weeds are the important factors, which results in poor productivity of this crop. Timely sowing of lentil is very essential for getting higher yield. Lentil can be sown 7-10 days earlier by zero tillage machine directly without any field preparation after the harvest of rice crop by using residual soil moisture.

Another technology *i.e.* raised bed planting system that is a form of conventional tillage where in sowing is done on raised beds. The important factor including weed management favors the introduction of bed planting because herbicide resistance is already a serious issue. Thus, this system provides an elbow space for increasing the productivity of dry or limited irrigated areas in the later part of crop growth.

Lentil normally meets most of its water requirement from conserved soil moisture. In the absence of enough stored soil moisture and adequate winter rains, the crop responds very well to supplemental irrigation. Water being the scarce commodity in lentil growing areas of India, it warrants judicious use to achieve higher efficiency.

Weeds in lentil have been reported to offer serious