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Growth, Yield and Yield Components of Lentil as Influenced by Irrigation and Weeding Regime

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Abstract

The experiment was carried out to study the effect of irrigation and weeding regime on growth, yield and yield contributing characters of lentil. The experiment was laid out in a split-split plot design with three replications. Four levels of irrigation *viz.* control or no irrigation (I_0), one irrigation (I_1), two irrigation (I_2) and three irrigations (I_3) and three weeding regime *viz*. control weeding (W_0), one weeding (W_1) and two weedings (W_2) were used. Irrigation had significant effect on all the growth, yield and yield contributing characters. The highest TDM , CGR and all the yield contributing characters like plant height, number of branches plant^{-1}, number of pods plant^{-1}, number of effective pods plant^{-1}, number of seeds plant^{-1}, number of filled seeds plant^{-1}, 1000-seed weight and stover yield were obtained from three irrigations (I_3) and consequently it produced the highest seed yield. Effect of weeding regime was significant in respect of on the growth, yield and yield contributing characters. All the yield contributing characters except non-effective pods plant^{-1} were found the best when two weedings were done and as a result it produced the highest seed yield. With some exception two weedings showed highest values of TDM, CGR and other growth character. Finally the results suggest that three irrigations with two weedings are better practices to get higher growth and yield of lentil.

Key words: Growth, Lentil, Yield

Introduction

Lentil (*Lens culivaris*) is believed to be one of the very important pulse crops in Bangladesh. Lentil is grown mainly as monocrops in Bangladesh, but mixed cropping and intercropping with wheat, mustard linseed, sugarcane and other crop is practiced in some areas (Miah and Rahman, 1993). In Bangladesh lentil is grown during robi season and the duration extends from the month of October-November. It grows well all over the country except the district of Rangamati. The total production of lentil in our country during 2005-2006 was 1.25 lakh mt from an area of 1.29 Lac heactares (DAE, 2006). Bangladesh is standing at the top of the importing countries list having share around 11% in the total imports (FAO, 2006). Lentil is a staple pulse crops in many developing countries, including Bangladesh. It is the number one pulse crops with respect to consumption, among a dozen of pulse grown in the country lentil is the main source of dietary protein and other essential micronutrients for the majority people of Bangladesh. It contents relatively higher amount of protein, carbohydrate and calories compared to other legumes and it is the most desired pulse because of its high average protein content and fast cooking characteristic in many lentil producing region and also rich in Fe, Zn, Ca, fibres, pretein, hiacin and micronutrients that are essential for health. It contains about 11% water, 25% protein and 60% carbohydrates (Singh, 2001). Its straw is a valued animal feed and it was also planted in rotation with rice and adds nitrogen to the soil and help to break pest and diseases cycle. It is also delicious than other pulses. Lentil is grown in our country during rabi season and duration is October-November month. In Bangladesh the rabi rainfall is very low, which is frequently insufficient for successful the production of lentil, because water deficit in lentil fail to develop properly on account of retardation in photosynthetic and metabolic activities resulting in decreased number of pod plant^{-1}, seed pod^{-1} and 1000-seed weight. The response of lentil to irrigation depends on the variety, soil and climatic conditions, *viz* winter rainfall, humidity, direction and velocity of wind etc. The critical stages of water requirement are branching, flowering and pod development stages when the plants start their reproductive growth and proceed towards maturity, complementary irrigation increases their yield. Water deficit chiefly affect lentil yield component. Weed is a serious threat to crop production all over the world. They compete with crop plants for every growth factor and ultimately reduce the crop yield. Karim (1987) estimated that weeds caused a yield loss of 28% of total food crops, 33% in cereals, 14% in pulses, 27% in oil seeds and 33% in rice crops in Bangladesh. In Bangladesh there is a general

believer that lentil does not require any weeding. So the farmers usually do not give much attention in weed control measure in this crop. Probably this is one of the causes for lower yield of lentil in this country. Therefore the present study was undertaken to study the effect of irrigation and weeding regime on growth, yield and yield contributing characters of lentil.

Materials and Methods

The experiment was conducted at the agronomy field laboratory, Department of Agronomy and Agricultural Extension, University of Rajshahi, Rajshahi, during the period from November 2011 to March 2012 to study the growth and yield of lentil as affected by different levels of irrigation and weeding regime. The top soil of experimental plot is sandy loam and slightly alkaline in reaction. The soil P^H is 8.3. Lentil variety BARI masur-6 was used as experimental material. The variety was developed by the scientist of Bangladesh Agricultural Research Institute (BARI), Joydebpur Gazipur. The experiment consists of two factors. Factor A: Four Irrigation levels viz. Control or no irrigation(1_0), one irrigation at 20 DAS(1_1), two irrigations at 20 and 40 DAS(1_2) and three irrigation at 20,40 and 60 DAS(1_3). Factor B: Three weeding regime viz. Control or no weeding (W_0), one weeding at 20 DAS (W_1) and two weedings at 20 and 40 DAS (W_2). The experiment was laid out in a split-split plot design with 3 replications. The irrigations were assigned in the main plot and weeding regime in the sub plot. The experimental plot was opened on 17th November 2011, with a power tiller and it was made ready for sowing on 24 November 2011 subsequently 3 to 4 ploughing and cross ploughing with a country plough followed by laddering to achieve a good tilth. Weeds, stubbles and crop residues were removed from the land. Urea, Tripple super phosphate (TSP) and Muriate of Potash (MOP) fertilizers were applied to the plots at the rate of 45, 90 and 40 kg ha^{-1} during the final land preparation. All the applied fertilizers were mixed thoroughly to the soil of experimental plots. Before sowing, collected seeds were treated with vitavx-200 @ 0.25% seed weight basis to prevent seeds from the attack of soil born diseases and pathogens. Seeds were sown on 24 November, 2011. After sowing the seeds are covered with soil and slightly pressed by hands. Proper care was taken to protect the seedlings from birds.

Weeding was done as per experimental specifications. Thinning was done along with weeding to get optimum plant population. Irrigation was done as per experimental specifications. The experiment plots were frequently observed to notice any change in plant character and attack of pests and diseases on the crop at the time of crop growing stage. Foot and root rot disease and Aphid insect was observed in some experimental plots at the seedling stage of crops. To keep the field free from foot and root rot disease cupravit was sprayed @ 2.3 kg ha^{-1} and to control aphid insect Malathion 57 EC was sprayed @ 2ml/L of water. From each plot one square meter crop were used for collecting on growth parameters. Growth study was started from 25 days after sowing (DAS) and continued up to 75 DAS at 10 days interval. Data on yield and yield components at harvest were recorded. The crop was harvested at the 80% of the pod maturity on 13 March 2012 at 110-DAS. Harvesting was done after proper maturity. The harvested crop was bundled separately, tagged properly and taken to the clean threshing floor. After harvesting, crop of each plot was dried separately for four days. After that, threshing, cleaning and drying of grains were done plot-wise. Then the yields of grain and stover of each plot were recorded and the yields were then converted to hectare basis. The recorded data were complied and tabulated for statistical analysis. Analysis of variance was done with the help of computer package program MSTAT-C and the mean differences among the treatments were adjusted by Duncan's New Multiple Range Test (Gomez and Gomez, 1984).

Results and Discussion

Effect of irrigation on growth parameters

Total dry matter (gm^{-2})

Total dry matter (TDM) was significantly varied due to irrigation at all sampling dates. Result revealed that TDM gradually increased with the advancement of time. The TDM production of a crop depends on the crop growing period. Initially it increases slowly but it accelerated latter growth stages and reached in the peak at 75 DAS (Figure 1). Irrigation showed the different identical value at different sampling dates. TDM increased with the increase of irrigation frequency. This might be due to steady availability of moisture during growing period. On the other hand water stress decreased cell division, elongation and enlargement that might have ultimately led to reduction in total dry matter. Significantly the highest TDM was found in I_3

treatment and the lowest was found in control irrigation at all sampling dates.(Table 1). The result is in agreement with Balyan and Mahak (2005).

Crop growth rate (gm^{-2} day^{-1})

Result shows that crop growth rate (CGR) was significantly influenced by the irrigation at all sampling dates, such as 25-35, 35-45, 45-55, 55-65 and 65-75 DAS. From the figure 2 it is observed that CGR increased slowly at the early stages of plant growth and reached the peak at 55-65 DAS and thereafter it declined. This was possibly due to the maximum production of dry matter at the initial stages of growth. The highest CGR was produced by I_3 treatment at all sampling dates which was statistically identical with I_2 treatment at 55-65 DAS. The lowest CGR was produced by I_0 (Control irrigation) at all days after sowing (Table 1). This result was conformity by Biswajit and Pal (2005). CGR increased with the increasing irrigation frequencies. This might be due to the increase in the level of soil moisture

Table 1. Effect of irrigation on total dry matter (gm^{-2}) and CGR (gm^{-2} day^{-1}) production at different days after sowing (DAS)

Irrigation	TDM (gm^{-2})						CGR (gm^{-2} day^{-1})				
	25 DAS	35 DAS	45 DAS	55 DAS	65 DAS	75 DAS	25-35 DAS	35-45 DAS	45-55 DAS	55-65 DAS	65-75 DAS
I_0	3.36d	8.90d	22.99d	53.94d	89.83d	128.00c	0.52 d	1.37 d	3.07 c	3.48 c	2.40 d
I_1	4.65c	11.36c	26.07c	57.68c	105.55c	131.00c	0.69 c	1.50 c	3.21 c	4.76 b	3.04 c
I_2	5.77b	15.06b	32.09b	65.18 b	119.12b	152.50b	0.92 b	1.69 b	3.43 b	5.28 a	3.41 b
I_3	7.31a	18.16a	37.15a	77.44 a	133.29a	170.40a	1.09 a	1.92 a	4.26 a	5.54 a	3.66 a
LS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CV (%)	5.66	8.49	11.79	6.82	4.82	9.54	9.88	3.42	5.35	8.11	5.13

In a column, figures bearing similar letter (S) or without letter are identical and those having dissimilar letters differed significantly as per DMRT.

I_0 = Control irrigation, I_1 =One irrigation, I_2 = Two irrigations, I_3 = Three irrigations

CV= Coefficient of variation, DAS= Days after sowing.

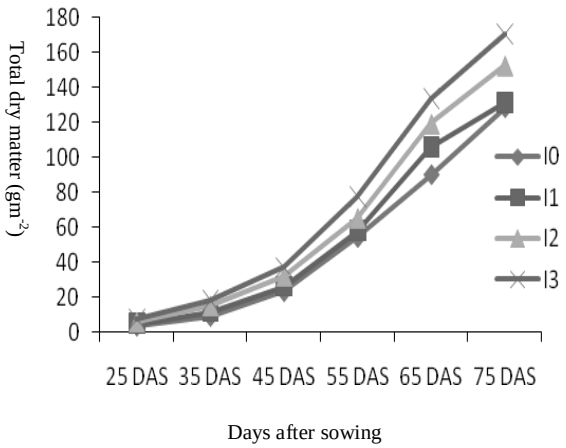

Fig. 1. Effect irrigation on total dry matter (TDM)

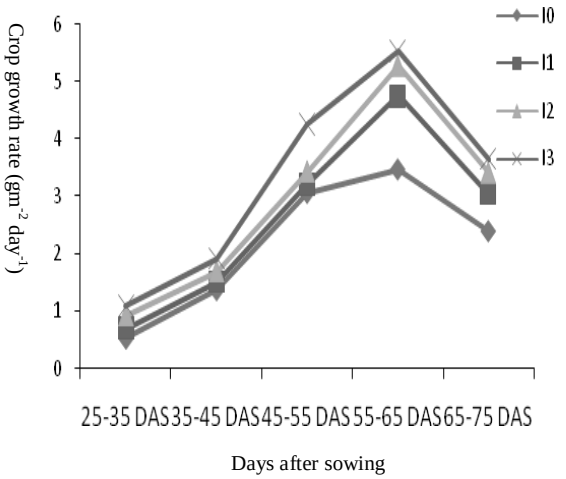

Fig. 2. Effect of irrigation on crop growth rate (CGR)

Effect of weeding regime on growth parameters

Total dry matter (gm^{-2})

Weeding regime had significant effect on total dry matter accumulation (TDM) at almost all data collection period. The highest TDM was produced by W_2 (Two weedings) and the lowest was produced by W_0 (Control weeding) at all sampling dates (Table 2).Weeding treatment showed better TDM compared to control. This might be due to low crop-weed competition during growing period.

Crop growth rate (gm^{-2} day^{-1})

Result shows that crop growth rate (CGR) was significantly influenced by weeding regime at 25-35, 35-45, 45-55 and 65-75 DAS but 55-65 DAS had shown the non-significant effect. From the result it is observed that CGR increase with the increase of age of the plant and reached to the peak at 55-65 DAS and thereafter it declined. CGR was slow at early stages of plant growth. At 35-45 and 45-55 and 65-75 DAS, the highest CGR was obtained from two weedings (W_2) which was statistically identical with one weeding (W_1). The

lowest CGR was found in control weeding (W_0). At 25-35 DAS the highest CGR was obtained from two weedings (W_2) and lowest CGR was obtained from control weeding (W_0) (Table 2). Weed compete with crop for light, nutrient, water, space and other require growth requirements which ultimately reduced crop growth.

Table 2. Effect of weeding regime on total dry matter (gm^{-2}) and CGR (gm^{-2} day^{-1}) production at different days after sowing (DAS)

Weeding regime	TDM (gm^{-2})						CGR (gm^{-2} day^{-1})				
	25 DAS	35 DAS	45 DAS	55 DAS	65 DAS	75 DAS	25-35 DAS	35-45 DAS	45-55 DAS	55-65 DAS	65-75 DAS
W_0	5.03 b	12.75 c	28.81 c	62.74 b	109.76 c	135.13c	0.78 c	1.58 b	3.42 b	4.67	3.06 b
W_1	5.25 b	13.37 b	29.67 b	62.97 b	111.72 b	146.33b	0.80 b	1.62 ab	3.48 ab	4.70	3.15 a
W_2	5.54 a	13.98 a	30.24 a	64.97 a	114.36 a	149.33a	0.84 a	1.66 a	3.57 a	4.93	3.18 a
LS	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.05	NS	0.01
CV (%)	5.66	8.49	11.79	6.82	4.82	9.54	9.88	3.42	5.35	8.11	5.13

In a column, figures bearing similar letter (S) or without letter are identical and those having dissimilar letters differed significantly as per DMRT.
W_0 = Control weeding, W_1 = One weeding, W_2= Two weedings
NS= Non significant, CV= Coefficient of variation,
DAS= Days after sowing.

Interaction effect of irrigation and weeding regime

Total dry matter (gm^{-2})

TDM varied significantly due to interaction of irrigation and weeding regime at 25, 35, 45, 55 and 65 DAS (Table 17). The highest TDM was found in I_3W_2 treatment combination at all sampling dates. In every cases the lowest value was observed in I_0W_0 treatment combination. TDM production was significantly higher in the irrigated and weeded treatments than the control (Table 3). This might be due to the increase in the level of soil moisture and low weed competition.

Crop growth rate (gm^{-2} day^{-1})

Due to interaction of irrigation and weeding regime on crop growth rate had significant effect at 25-35 DAS (Table 18). At 25-35 DAS, the highest CGR was observed from I_3W_2 treatment combination which was statistically identical with I_2W_2 and I_1W_2 treatment combination and the lowest CGR was obtained from I_0W_0 treatment combination. At 35-45, 45-55, 55-65 and 65-75 DAS the highest CGR varied from 1.36 to 1.97, 3.04 to 4.49, 3.46 to 5.62 and 2.35 to 3.72 gm^{-2} day^{-1} respectively which was statistically non significant (Table 3).

Table 3. Interaction effect of irrigation and weeding regime on total dry matter (gm^{-2}) and CGR (gm^{-2} day^{-1}) production at different days after sowing (DAS)

Interaction (I×W)	TDM (gm^{-2})						CGR (gm^{-2} day^{-1})				
	25 DAS	35 DAS	45 DAS	55 DAS	65 DAS	75 DAS	25-35 DAS	35-45 DAS	45-55 DAS	55-65 DAS	65-75 DAS
$I_0 \times W_0$	2.92 g	8.62 j	22.46 h	54.06 h	88.30 j	126.86	0.50 g	1.36	3.04	3.46	2.35
$I_1 \times W_0$	3.41 f	8.86 ij	23.05 gh	53.52 h	89.48 j	127.88	0.52 g	1.37	3.07	3.15	2.41
$I_2 \times W_0$	3.75 f	9.21 i	23.46 g	54.24 h	91.72 i	129.25	0.54 g	1.40	3.10	3.85	2.45
$I_3 \times W_0$	4.57 e	10.54 h	24.90 f	57.24 g	102.39 h	116.13	0.63 f	1.47	3.18	4.51	2.93
$I_0 \times W_1$	4.51 e	11.17 g	26.52 e	56.63 g	105.68 g	137.66	0.69 e	1.51	3.22	4.88	3.10
$I_1 \times W_1$	4.85 e	12.35 f	26.78 e	59.19 f	108.57	139.14	0.75 d	1.52	3.23	4.89	3.08
$I_2 \times W_1$	5.78 d	14. 44 e	31.00 d	63.95 e	117.37 e	149.94	0.90 c	1.63	3.39	5.24	3.37
$I_3 \times W_1$	5.72 d	15.17 d	32.26 c	64.50 e	118.81 e	152.12	0.92 bc	1.69	3.43	5.27	3.42
$I_0 \times W_2$	5.83 d	15.57 d	33.00 c	67.08 d	121.17 d	155.41	0.95 b	1.75	3.46	5.34	3.46
$I_1 \times W_2$	6.85 c	17.40 c	36.87 b	75.73 c	130.98 c	167.59	1.06 a	1.89	4.08	5.48	3.58
$I_2 \times W_2$	7.35 b	18.27 b	36. 86 b	77.22 b	132.93 b	170.00	1.08 a	1.91	4.22	5.51	3.68
$I_3 \times W_2$	7.73 a	18.80 a	37.73 a	79.38 a	135.98 a	173.51	1.11 a	1.97	4.49	5.62	3.72
LS	0.05	0.01	0.05	0.05	0.05	NS	0.01	NS	NS	NS	NS
CV (%)	5.66	8.49	11.79	6.82	4.82	9.54	9.88	3.42	5.35	8.11	5.13

In a column, figures bearing similar letter (S) or without letter are identical and those having dissimilar letters differed significantly as per DMRT.
I_0 = Control irrigation, I_1 =One irrigation, I_2 = Two irrigations, I_3 = Three irrigations
W_0 = Control weeding, W_1 = One weeding, W_2= Two weedings
NS= Non significant, CV= Coefficient of variation

Yield and yield contributing characters

Effect of irrigation

Irrigation had significant effects on all the yield and yield contributing characters of lentil. The yield contributing characters like plant height, number of branches plant^{-1}, number of pod plant^{-1}, number of effective pod plant^{-1}, number of seed plant^{-1}, number of filled seed plant^{-1} , 1000-seed weight and stover yield were highest when three irrigations (I_3 treatment) were applied. On the other hand lowest number of non effective pod plant^{-1} were obtained from I_3 treatment (Three irrigations) and consequently it produced the highest grain yield (2.18 t ha^{-1}).Whereas no irrigation treatment performed vice-versa in respect of these characters. Seed yield is the ultimate goal of lentil cultivation. Seed yield increased with the increase of irrigation frequencies. Significantly the highest seed yield was obtained from three irrigations. Seed yield is associated with the number braches plant^{-1}, Number of pods^{-1}, Number of effective pods plant^{-1}, Number of seed plant^{-1} and 1000-seed weight. Irrigation increases the number braches plant^{-1}, Number of pods^{-1}, Number of effective pods plant^{-1}, Number of seed plant^{-1}, 1000-seed weight and stover yield which ultimately led to increase seed yield (Table 4). This might be due to the available moisture present in the irrigated field. These results were conformity by Biswajit and Pal (2005), Hossain *et al.* (2007), Sila Bhattacharya *et al.* (2005), Saha *et al.* (2004), Abo-Elwafa (2004) and Singh *et al.* (1999) respectively.

Effect of weeding regime

Effect of the weeding regime was significant in respect of all the yield and yield contributing characters except number of branches plant^{1} and number of non effective pod plant^{-1}. All the yield contributing characters except non effective pod plant^{-1} were found best when two weeding (W_2) was done and as a result it produced the highest seed yield. The lowest grain yield was obtained from no weeding (W_0) (Table 5). Weed compete with crop for light, nutrient, water, space and other require requirements. As a result crop growth is hampered. Ultimately crop yield is reduced. Weeding increases the crop yield. This might be due to the low crop-weed competition in the field.

Interaction effect of irrigation and weeding regime

The interaction effect between irrigation and weeding regime was significant in all most all yield contributing characters such as plant height, number of pods plant^{-1}, number of effective pods plant^{-1}, number of seed plant^{-1}, number of filled seed plant^{-1} and seed yield. In all cases the highest result was obtained from I_3W_2 (Three irrigation with two weedings) combination and I_0W_0 (no irrigation with no weeding) produced the reverse result except non effective pod plant^{-1} (Table 6).

Table 4. Effect of irrigation on yield and yield contributing characters of lentil

Irrigation	Plant height (cm)	No. of branches plant^{-1}	No. of pods plant^{-1}	No. of effective pods plant^{-1}	No. of non effective pods plant^{-1}	No. of seeds plant^{-1}	No. of filled seeds plant^{-1}	1000 seed weight (g)	Seed yield (t ha^{-1})	Stover yield (t ha^{-1})
I_0	41.58 d	18.92 d	109.00 d	102.66 d	6.34 a	159.92 d	160.73 d	18.20 d	1.40 d	2.44 d
I_1	43.75 c	22.32 c	126.36 c	120.96 c	5.40 b	179.30 c	181.05 c	20.26 c	1.60 c	2.58 c
I_2	46.61 b	25.98 b	145.85 b	140.87 b	4.98 c	202.15 b	204.84 b	22.14 b	1.92 b	2.77 b
I_3	49.83 a	32.29 a	165.62 a	161.21 a	4.41 d	224.73 a	228.97 a	24.08 a	2.18 a	2.90 a
LS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CV(%)	5.66	5.25	7.74	9.80	6.91	8.44	5.44	4.41	10.59	5.36

In a column, figures bearing similar letter (S) or without letter are identical and those having dissimilar letters differed significantly as per DMRT.

I_0 = Control irrigation, I_1 =One irrigation, I_2 = Two irrigations, I_3 = Three irrigations

CV= Coefficient of variation, DAS= Days after sowing

Table 5. Effect of weeding regime on yield and yield contributing characters of lentil

Weeding regime	Plant height (cm)	No. of branches plant^{-1}	No. of pods plant^{-1}	No. of effective pods plant^{-1}	No. of non effective pods plant^{-1}	No. of seeds plant^{-1}	No. of filled seeds plant^{-1}	1000 seed weight (g)	Seed yield (t ha^{-1})	Stover yield (t ha^{-1})
W_0	44.88 c	24.38 c	133.55 c	128.18 c	5.37	187.94 c	190.25 c	20.86 c	1.74 b	2.64 c
W_1	46.16 b	24.93	136.67 b	131.39 b	5.29	191.72 b	194.09 b	21.18 b	1.77 b	2.67 b
W_2	46.29 a	25.33	139.90 a	134.71 a	5.20	194.91 a	197.35 a	21.47 a	1.81 a	2.70 a
LS	0.01	NS	0.01	0.01	NS	0.01	0.01	0.01	0.01	0.01
CV(%)	5.66	5.25	7.74	9.80	6.91	8.44	5.44	4.41	10.59	5.36

In a column, figures bearing similar letter (S) or without letter are identical and those having dissimilar letters differed significantly as per DMRT.

W_0 = Control weeding, W_1 = One weeding, W_2= Two weedings

NS= Non significant

CV= Coefficient of variation, DAS= Days after sowing.

Table 6. Interaction effect of irrigation and weeding regime on yield and yield contributing characters of lentil

Interaction (I×W)	Plant height (cm)	No. of branches plant^{-1}	No. of pods plant^{-1}	No. of effective pods plant^{-1}	No. of non effective pods plant^{-1}	No. of seeds plant^{-1}	No. of filled seeds plant^{-1}	1000 seed weight (g)	Seed yield (t ha^{-1})	Stover yield (t ha^{-1})
$I_0 \times W_0$	40.81 h	19.03	105.53 k	99.11 k	6.43	157.27 l	157.30 L	17.88	1.36 g	2.41
$I_1 \times W_0$	41.05 h	19.40	107.80 j	101.39 j	6.40	159.74 k	160.59 l	18.24	1.39 g	2.44
$I_2 \times W_0$	42.88 g	18.34	113.69 i	107.49 i	6.20	162.74 j	164.30 j	18.47	1.44 f	2.47
$I_3 \times W_0$	43.47 f	21.94	123.82 h	118.28 h	5.54	175.25 i	178.47	19.97	1.57 e	2.54
$I_0 \times W_1$	43.51 f	22.29	127.00 g	121.60 g	5.40	179.69 h	180.66 h	20.26	1.61 de	2.58
$I_1 \times W_1$	44.27 e	22.74	128.26 g	123.00 g	5.26	182.97 g	184.01 g	20.55	1.63 d	2.62
$I_2 \times W_1$	46.13 d	24.91	141.92 f	136. 90 f	5.03	197.64 f	199.42 f	21.85	1.87 c	2.75
$I_3 \times W_1$	46.59 d	25.82	146.92 f	141.03 e	4.98	202.41 e	206.15 e	22.10	1.90 c	2.76
$I_0 \times W_2$	47.12 c	27.20	149.62 d	144.68 d	4.94	206.41 d	208.93 d	22.48	1.98 b	2.79
$I_1 \times W_2$	49.12 b	31.63	162.93 c	158.45 c	4.49	221.61 c	225.81 c	23.74	2.17 a	2.88
$I_2 \times W_2$	49.48 b	32.20	165.89 b	161.53 b	4.36	225.06 b	228.95 b	24.12	2.17 a	2.90
$I_3 \times W_2$	50.91 a	33.05	168.04 a	163.66 a	4.39	227.52 a	232.14 a	24.37	2.19 a	2.91
LS	0.01	NS	0.01	0.01	NS	0.01	0.01	NS	0.01	NS
CV(%)	5.66	5.25	7.74	9.80	6.91	8.44	5.44	4.41	10.59	5.36

In a column, figures bearing similar letter (S) or without letter are identical and those having dissimilar letters differed significantly as per DMRT.

I_0 = Control irrigation, I_1 =One irrigation, I_2 = Two irrigations, I_3 = Three irrigations

W_0 = Control weeding, W_1 = One weeding, W_2= Two weedings

NS= Non significant, CV= Coefficient of variation, DAS= Days after sowing

Conclusions

Among the irrigation, three irrigations performed the best for almost all the growth, yield and yield attributing characters and consequently it produced the highest seed yield and among the weeding regime, two weedings performed the best for almost all the growth, yield and yield attributing characters of lentil. Finally the results suggest that application of three irrigations with line sowing method is better practices for growth and yield of lentil.

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