International Journal of Chemical Studies

P-ISSN: 2349–8528
E-ISSN: 2321–4902
IJCS 2019; 7(1): 782-786

Received: 14-11-2018
Accepted: 18-12-2018

Snehal G. Kanade
Research Associate,
CAAST-CSAWM,
MPKV, Rahuri, Maharashtra, India

DW Thawal
Former Associate Dean and Principle College of Agriculture, Pune, Maharashtra, India

AA Shaikh
Associate Professor, Agronomy College of Agriculture, Pune, Maharashtra, India

Correspondence
Snehal G. Kanade
Research Associate,
CAAST-CSAWM,
MPKV, Rahuri, Maharashtra, India

Effect of weather parameters on yield and yield attributes of soybean under different sowing windows

Snehal G Kanade, DW Thawal and AA Shaikh

Abstract
The application of (Lambda cyhalothrin 5EC @1.0 ml l^{-1}) recorded Significant higher values for number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$,100 seed weight, grain yield, straw yield, biological yield, harvest index, Gross monetary returns, net monetary returns and B:C ratio as compared to unprotected condition. Variety KDS-344 (Phule Agrani) recorded Significant higher values for all yield attributes and yield parameters as compared to variety JS-335 (Jawahar Soybean) under early sowing window S_1-(24^{th} MW) as compared to delayed sowing windows i. e. S_2-(26^{th} MW), S_3- (28^{th} MW), S_4- (30^{th} MW) during both years of experimentation and in pooled data.

Keywords: weather parameters, soybean, yield attributes, sowing windows

Introduction
Soybean is native of Asia and the first known records however, indicate that soybean emerged as a domesticated crop around eleventh century BC in China, (Nagata, 1960) [6] and was introduced in India in 1870-80. It is cultivated on large scale in many parts of the world particularly, USA, Brazil. Argentina and China etc. The role of soybean in overcoming malnutrition and deficiency has been amply recognized, with high yield potential. Soybean is easy for cultivation, requiring less N fertilizer, labour and having more benefit: cost ratio. Soybean builds up soil fertility by fixing large amount of atmospheric nitrogen through root nodules and also through leaf fall on the ground, at senescence.

During recent few years, area under soybean in M.P, and Maharashtra is increasing to a considerable extent due to reduction in area of other crops. Number of varieties according to sowing windows are under cultivation, suiting to the need of farmers under various crop sequences and cropping systems. There is variation in crop duration as well as production. It is true that weather parameters strongly influence the crop performance affecting the yield of crop significantly. Since, soybean is giving consistent yield and good monetary returns, the area under this crop in Maharashtra is increasing. The luxuriant crop growth, soft and succulent foliage of soybean attracts many insects and provides unlimited source of food, space and shelter.

Material and Methods
The present investigation was conducted at Agricultural Meteorology farm, College of Agriculture, Pune during *kharif* 2013 and *kharif* 2014. The experiment was laid out in split split plot design with three replications. There were sixteen treatment combinations formed due to two ptotection treatments, two varieties and four different sowing windows. The topography of the experimental field was leveled and uniform in depth up to 60 cm. The soil comes under order vertisol (medium black), clayey in texture. The gross and net plot sizes were 4.50 x 4.05m^2 and 3.90 x 3.15m^2, respectively. The average rainfall of about 734 mm, The annual mean maximum temperature during growing period (2012-13) and (2013-2014) was 32°C with a range from 27 to 40.2°C. The annual mean minimum temperature during growing period was 18.6ºC with a range from 9.9 to 24.7°C. The annual mean relative humidity at 7.30 hrs (RH-I) was75% and ranged from 54 to 95 per cent and at 14.30 hrs (RH-II) 46%, ranged from 17 to 84. The annual average solar radiation was 20.50 M J m^{-2} d^{-1}. The average annual wind speed was 5.3 km/h. The weekly photoperiod i.e. maximum possible sunshine hours was fixed for the particular day in a year and ranged from 10.38 to 13.87.

Basal dose of half N and full dose of P was applied at sowing. The remaining quantity of nitrogen was given 15 days after sowing. Main plot treatment includes two protection treatments i.e. P_1: Protected (Lambda cyhalothrin 5EC@ 1.0 ml l^{-1}) and P_2: Unprotected (Without chemical). Sub plot treatment includes two varieties i.e. V_1: JS-335 (Jawahar Soybean) and V_2: KDS-344 (Phule Agrani) and sub sub plot treatment includes four different sowing windows i.e. S_1-MW-24 (11 Jun.-17 June), S_2-MW-26 (25 Jun.-1 July), S_3-MW-28 (9 July-15 July) and S_4 -MW-30 (23 July -29 July). The recommended dose of fertilizer for soybean is 50: 75: 00 NPK kg ha^{-1}.

Results and Discussion

Yield attributes

The mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$,100 seed weight influenced due to treatments were significant during both the years of 2013, 2014 and pooled mean. Statistically the highest mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$,100 seed weight registered under protected condition (Lambda cyhalothrin 5EC @ 1.0 ml l^{-1}) as compared to unprotected condition.

The mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$, 100 seed weight influenced due to varieties were significant during both the years of 2013, 2014 and pooled mean. It could be observed that variety KDS-344 (V_2) recorded significantly higher mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$, 100 seed weight as compared to variety JS-335 (V_1) at harvest during both the years. These results are in conformity with the findings of Billore *et al*. (2000) [3] and Kathmale *et al*. (2013) [4].

The mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$,100 seed weight significantly influenced by different sowing windows. The significantly higher number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$,100 seed weight recorded with sowing of soybean during 24thMW (S_1) at harvest than rest of the sowing windows. The mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$, 100 seed weight showed decreasing trend with later sowings (S_1 to S_4). Statistically the highest mean number of pods $plant^{-1}$, pod weight $plant^{-1}$, number of grains $plant^{-1}$, weight of grain $plant^{-1}$,100 seed weight was recorded with 24thMW (S_1) sowing and it was at par with 26thMW i.e. (S_2) date of sowing for 2013. This was closely followed by treatment S_2 i.e. sowing during 26th MW) at harvest which registered statistically higher mean number of pods $plant^{-1}$ than S_3 (28th MW). Thereafter S_4, (30th MW) produced significantly lower values for mean number of pods $plant^{-1}$ during both the years of 2013 and 2014. These results are in conformity with the findings of Ahmed *et al.* (2010) [1], Bhatia *et al.* (1999) [2] and Singh (2013) [7]. Interaction effects between protection treatments with varieties had significant influence on yield attributes during both the years and pooled mean. Combination of P_1V_2 found significantly superior over rest of the treatments.

Yield and Economics

The mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio influenced due to treatments were significant during both the years of 2013, 2014 and pooled mean. Statistically the highest mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio registered under protected condition (Lambda cyhalothrin 5EC @1.0 ml l^{-1}) as compared to unprotected condition at harvest during both the years of 2013 and 2014. These results are in conformity with the findings of Kumawat and Kumar (2007) [5].

The mean grain yield, straw yield, biological yield, harvest index gross monetary returns, net monetary returns and B:C ratio influenced due to varieties were significant during both the years of 2013, 2014 and pooled mean. It could be observed that variety KDS-344 (V_2) recorded significantly higher mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio as compared to variety JS-335 (V_1) at harvest during both the years. These results are in conformity with the findings of Billore *et al*. (2000) [3] and Kathmale *et al.* (2013) [4]. The mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio were significantly influenced by different sowing windows. The significantly higher mean grain yield, straw yield, biological yield, harvest index was recorded with sowing of soybean during 24th MW (S_1) at harvest than rest of the sowing windows. The mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B: C ratio showed decreasing trend with later sowings (S_1 to S_4).Statistically the highest mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio was recorded with 24th MW (S_1) sowing and it was at par with 26th MW i.e. (S_2) date of sowing for 2013 and 2014. This was closely followed by treatment S_2 that is sowing during 26thMW at harvest registered statistically higher mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio than S_3 (28th MW).Thereafter, S_4 (30thMW) produced significantly lower values for mean grain yield, straw yield, biological yield, harvest index, gross monetary returns, net monetary returns and B:C ratio during both the years of 2013 and 2014, respectively. These results are in conformity with the findings of Ahmed *et al*. (2010) [1] and Singh (2013) [7] Interaction effects between protection treatments with varieties had significant influence on yield and economics during both the years and pooled mean. Combination of P_1V_2 found significantly superior over rest of the treatments.

Table 1: Mean number of pods $plant^{-1}$, weight of pod $plant^{-1}$, Number of grains ($Plant^{-1}$) and Weight of grains $plant^{-1}$ (g) as influenced by different treatments, varieties and sowing windows.

Treatments	Number of pods ($plant^{-1}$)			Pod weight (g $plant^{-1}$)			Number of grains ($plant^{-1}$)			Weight of grains $plant^{-1}$ (g)		
	2013	2014	Pooled	2013	2014	Pooled	2013	2014	Pooled	2013	2014	Pooled
A) Protection (P)												
P_1 :Protected	45.13	49.83	47.48	12.77	14.90	13.83	119.37	129.57	124.47	10.71	11.81	11.26
P_2 :Unprotected	35.51	37.74	36.62	10.52	12.17	11.35	98.10	101.00	99.55	8.65	8.98	8.82
S. E.m ±	0.07	0.24	0.21	0.09	0.11	0.12	0.45	0.55	0.62	0.08	0.06	0.09
C. D. at 5%	0.42	1.43	0.83	0.57	0.64	0.48	2.76	3.37	2.44	0.54	0.38	0.37

B) Varieties (V)												
V_1 :JS-335	37.65	40.19	38.92	11.18	12.83	12.01	103.46	106.88	105.17	9.19	9.61	9.40
V_2 :KDS-344	42.98	47.38	45.18	12.11	14.23	13.17	114.01	123.69	118.85	10.18	11.18	10.68
S. E.m ±	0.36	0.36	0.44	0.18	0.25	0.27	1.76	1.58	2.05	0.19	0.22	0.25
C. D. at 5%	1.43	1.40	1.44	0.70	0.99	0.88	6.92	6.21	6.69	0.74	0.88	0.83
C) Sowing windows (S)												
S_1 :24 MW	42.98	47.15	45.07	12.29	14.39	13.34	114.00	123.34	118.67	10.25	11.24	10.75
S_2 :26 MW	41.68	45.49	43.59	11.98	13.97	12.97	111.95	119.90	115.92	9.84	10.79	10.32
S_3 :28 MW	39.23	43.04	41.14	11.34	13.12	12.23	104.90	113.15	109.02	9.35	10.10	9.73
S_4 :30 MW	37.38	39.46	38.42	10.98	12.66	11.82	103.00	104.75	104.42	9.28	9.45	9.37
S. E.m ±	0.55	0.40	0.59	0.19	0.18	0.23	1.83	1.39	1.99	0.17	0.16	0.21
C. D. at 5%	1.61	1.18	1.68	0.55	0.53	0.64	5.34	4.06	5.66	0.52	0.49	0.61
Interactions												
P×V												
S. E. m 1 ±	0.51	0.50	0.62	0.25	0.35	0.32	2.49	2.23	2.89	0.26	0.31	0.35
C. D. at 5%	2.01	2.00	2.31	0.85	1.14	1.19	9.47	9.67	10.67	1.08	1.12	1.25
S. E.m 2 ±	0.37	0.43	0.49	0.20	0.27	0.29	1.81	1.67	2.14	0.20	0.23	0.27
C. D. at 5%	2.60	2.94	3.48	1.30	2.01	2.07	7.42	7.00	13.41	1.39	1.68	1.81
P×S												
S. E. m 1 ±	0.78	0.57	0.86	0.27	0.26	0.32	2.58	1.97	2.81	0.25	0.23	0.30
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 2 ±	0.76	0.60	0.84	0.29	0.34	0.39	2.85	2.32	3.18	0.28	0.30	0.36
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
V×S												
S. E. m 1 ±	0.78	0.57	0.83	0.27	0.26	0.32	2.58	1.97	2.81	0.25	0.23	0.30
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 2 ±	0.76	0.60	0.84	0.29	0.34	0.39	2.85	2.32	3.18	0.28	0.30	0.36
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
P×V×S												
S. E. m 1 ±	1.10	0.80	1.18	0.37	0.36	0.45	3.66	0.78	3.98	0.35	0.33	0.42
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 2 ±	1.08	0.86	1.20	0.41	0.47	0.54	4.03	3.29	4.50	0.40	0.43	0.51
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 3 ±	1.54	1.30	1.75	0.61	0.70	0.80	5.77	4.78	6.49	0.60	0.62	0.75
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
General mean	40.32	43.78	42.05	11.65	13.53	12.59	108.73	115.28	112.01	9.68	10.39	10.04

Table 2: Mean100 seed weight (g), grain yield (q ha^{-1}), straw yield (q ha^{-1}), biological yield (q ha^{-1}) and harvest index as influenced by different treatments, varieties and sowing windows

Treatments	**Number of leaves plant^{-1} 70 DAS**			**Leaf area plant^{-1} 70 DAS**			**Leaf area index 70 DAS**		**Total dry matter accumulation 70 DAS**			
	2013	**2014**	**Pooled**	**2013**	**2014**	**Pooled**	**2013**	**2014**	**Pooled**	**2013**	**2014**	**Pooled**
A) Protection (P)												
P_1 :Protected	18.46	20.50	19.48	14.21	15.39	14.80	6.31	6.84	6.58	16.82	19.26	18.04
P_2 :Unprotected	15.13	17.13	16.13	11.12	12.09	11.61	4.94	5.37	5.16	12.75	15.54	14.15
S. E.m ±	0.33	0.21	0.34	0.34	0.20	0.34	0.15	0.09	0.15	0.07	0.00	0.06
C. D. at 5%	2.01	1.25	1.32	2.05	1.23	1.34	0.91	0.55	0.60	0.45	0.01	0.25
B) Varieties (V)												
V_1 :JS-335	15.43	17.82	16.62	11.51	12.75	12.13	5.12	5.66	5.39	13.31	15.83	14.57
V_2 :KDS-344	18.16	19.81	18.98	13.82	14.74	14.28	6.14	6.55	6.35	16.26	18.98	17.62
S. E.m ±	0.36	0.42	0.48	0.35	0.49	0.52	0.15	0.22	0.23	0.31	0.20	0.32
C. D. at 5%	1.40	1.65	1.55	1.37	1.91	1.69	0.61	0.85	0.75	1.23	0.78	1.05
C) Sowing windows (S)												
S_1 :24 MW	18.48	20.57	19.53	14.03	14.95	14.49	6.24	6.65	6.44	15.81	18.65	17.23
S_2 :26 MW	17.44	19.45	18.45	13.25	14.33	13.79	5.89	6.37	6.13	15.25	17.67	16.46
S_3 :28 MW	16.14	18.54	17.34	12.19	13.40	12.80	5.42	5.96	5.69	14.36	16.81	15.59
S_4 :30 MW	15.10	16.69	15.90	11.19	12.28	11.73	4.97	5.46	5.21	13.72	16.47	15.10
S. E.m ±	0.40	0.50	0.56	0.36	0.32	0.42	0.16	0.14	0.18	0.31	0.36	0.41
C. D. at 5%	1.17	1.47	1.59	1.05	0.93	1.18	0.47	0.41	0.53	0.90	1.04	1.16
Interactions												
P×V												
S. E. m 1 ±	0.50	0.59	0.67	0.49	0.69	0.73	0.22	0.31	0.33	0.44	0.28	0.45
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.61	0.96	1.61
S. E.m 2 ±	0.49	0.47	0.58	0.49	0.53	0.62	0.22	0.23	0.28	0.32	0.20	0.33
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.94	1.41	2.02
P×S												
S. E. m 1 ±	0.57	0.71	0.79	0.51	0.45	0.59	0.23	0.20	0.26	0.44	0.50	0.58
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

S. E.m 2 ±	0.61	0.75	0.83	0.56	0.62	0.73	0.25	0.28	0.32	0.49	0.48	0.59
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
V×S												
S. E. m 1 ±	0.57	0.71	0.79	0.51	0.49	0.61	0.23	0.20	0.26	0.44	0.50	0.58
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 2 ±	0.61	0.75	0.83	0.56	0.62	0.73	0.25	0.28	0.32	0.49	0.48	0.59
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
P×V×S												
S. E. m 1 ±	0.80	1.00	1.11	0.72	0.64	0.83	0.32	0.28	0.37	0.62	0.71	0.82
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 2 ±	0.85	1.05	1.17	0.79	0.88	1.03	0.32	0.28	0.37	0.62	0.71	0.82
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
S. E.m 3 ±	1.38	1.55	1.79	1.31	1.31	1.60	0.35	0.39	0.46	0.69	0.68	0.84
C. D. at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
General mean	16.79	18.81	17.80	12.66	13.74	13.20	0.58	0.58	0.71	0.99	0.96	1.19

Table 3: Mean Gross monetary returns, Cost of cultivation, Net monetary returns and B:C ratio as influenced by different treatments, varieties and sowing windows.

Treatments	Gross monetary returns			Cost of cultivation			Net monetary returns			B:C ratio		
	2013	2014	Pooled	2013	2013	2014	Pooled	2013	2013	2014	Pooled	2013
A) Protection (P)												
P_1 :Protected	68,640	71,280	69,960	39,300	39,400	39,350	29,340	31,880	30,610	1.75	1.81	1.78
P_2 :Unprotected	61,980	66,150	64,050	38,300	38,400	38,350	23,680	27,750	25,700	1.62	1.72	1.67
S. E.m ±	63.5	64.6	78.5	-	-	-	44.3	53.5	60.2	-	-	-
C. D. at 5%	382.3	387.9	470.9	-	-	-	264.8	321.4	361.1	-	-	-
B) Varieties (V)												
V_1 :JS-335	62,160	65,760	63,960	38,800	38,900	38,850	23,360	26,860	25110	1.60	1.69	1.65
V_2 :KDS-344	68,490	71,640	70,050	38,800	38,900	38,850	29,690	32,740	31,200	1.77	1.84	1.80
S. E.m ±	71.6	71.2	87.5	-	-	-	35.0	71.7	69.1	-	-	-
C. D. at 5%	286.2	285.6	349.8	-	-	-	141.8	268.9	278.6	-	-	-
C) Sowing windows (S)												
S_1 :24 MW	71,670	74,100	72,870	38,800	38,900	38,850	32,870	35,200	34,020	1.85	1.90	1.88
S_2 :26 MW	67,050	71,250	69,150	38,800	38,900	38,850	28,250	32,350	30,300	1.73	1.83	1.78
S_3 :28 MW	62,850	66,390	64,620	38,800	38,900	38,850	24,050	27,490	25,770	1.62	1.71	1.66
S_4 :30 MW	59,700	63,090	61,410	38,800	38,900	38,850	20,900	24,190	22,560	1.54	1.62	1.58
S. E.m ±	71.9	113.1	116.1	-	-	-	81.8	77.9	97.8	-	-	-
C. D. at 5%	215.6	339.2	348.5	-	-	-	245.4	233.9	293.8	-	-	-
Interactions												
P×V												
S. E. m 1 ±	101.3	100.7	123.7	-	-	-	49.6	101.4	97.7	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
S. E.m 2 ±	95.7	96.2	117.5	-	-	-	56.5	89.5	91.7	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
P×S												
S. E. m 1 ±	101.7	160.0	164.2	-	-	-	115.7	110.2	138.4	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
S. E.m 2 ±	113.5	155.8	166.9	-	-	-	106.1	119.3	138.3	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
V×S												
S. E. m 1 ±	101.7	160.0	164.2	-	-	-	115.7	110.2	138.4	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
S. E.m 2 ±	113.5	155.8	166.9	-	-	-	106.1	119.3	138.3	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
P×V×S												
S. E. m 1 ±	143.9	226.3	132.2	-	-	-	163.6	155.8	195.7	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
S. E.m 2 ±	160.6	220.3	236.1	-	-	-	150.1	168.8	195.6	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
S. E.m 3 ±	260.2	337.4	369.0	-	-	-	230.1	261.7	301.8	-	-	-
C. D. at 5%	N.S.	N.S.	N.S.	-	-	-	N.S.	N.S.	N.S.	-	-	-
General mean	65,318	68,708	67,009	38,800	38,900	38,850	26,518	29,808	28,159	1.68	1.77	1.72

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