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Evaluation of parents and hybrids for growth and yield traits in muskmelon (*Cucumis melo* L.)

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Abstract
An experiment was conducted at College of Horticulture, Anantharajupeta during Kharif 2021 to evaluate 18 F1 hybrids developed from 6 lines and 3 testers through line x tester mating design along with two checks (Kundan and Arka Siri). Among all the crosses, SEL-4 x SEL-9 recorded highest mean values for vine length, yield per vine, less days for days to 50% perfect flower appearance, sex ratio, days to first fruit harvest and lower node number at which first female/perfect flower appears, days to last fruit harvest; SEL-3 x SEL-8 for node number at which first male flower appearance, number of fruits/vine SEL-2 x SEL-8 for days to first appearance of male flower, SEL-2 x SEL-7 for fruit length, fruit weight, SEL-6 x SEL-8 for fruit diameter.

Keywords: Vine length, fruit length, fruit diameter

Introduction
Muskmelon (*Cucumis melo* L.) is an important cucurbitaceous crop originated in India (Sebastian *et al*., 2010) [5] with diploid chromosome number 2n=24. It I s a highly cross-pollinated crop and is mostly cultivated in tropical and sub-tropical regions. In India Uttar Pradesh is the leading state for muskmelon cultivation. In Andhra Pradesh, it is mostly cultivated in areas of Ananthapuramu, Annamayya, Kadapa and Chittoor districts. Owing to the existence of considerable polymorphism for fruit traits such as fruit size, shape, TSS, β-carotene and flesh color were observed in muskmelon. As a consequence this experiment was carried out in muskmelon.

Material and Methods
The investigation was carried out at College of Horticulture, Anantharajupeta, Dr. YSR Horticultural University, Andhra Pradesh at Kharif 2020-2021 with a total of 9 parents, 18 F_1 hybrids and 2 checks in randomized block design with 3 replications. The management practices for this crop was followed according to the recommendations of Dr. YSR Horticultural University. The observations were recorded and statistical analysis was done using Window stat software. The results obtained were demonstrated below under the following sub heads.

1. Vine length (m)
For vine length, the higher mean value is desirable. The mean values of vine length ranged from 3.00 m (SEL-3) to 4.10 m (SEL-2) in lines with an average of 3.33 m. The highest mean was observed in SEL-2 (4.10 m) followed by SEL-6 (3.40) while the lowest was noted in (3.00 m) SEL-3 followed by SEL-4 (3.10 m) among lines. In testers, vine length ranged from 2.83 m in SEL-9 followed by 3.37 m (SEL-8) to 5.30 m in SEL-7 with an average of 3.84 m. Among hybrids, it ranged from 2.16 m in SEL-2 x SEL-9 to 5.40 m in SEL-4 x SEL-9 with an average of 4.26 m. The maximum mean was recorded in SEL-4 x SEL-9 (5.40 m) followed by SEL-1 x SEL-8 (5.20 m) and the minimum mean was observed in SEL-2 x SEL-9 (2.16 m) followed by 3.00 m in SEL-5 x SEL-8. Among the two checks, Arka Siri (3.61 m) showed the highest vine length compared to Kundan (2.48 m).

2. Node number at which first male flower appears
For the node number at which the first male flower appears, the lower mean value is desirable. The mean values of node number at which the first male flower appears ranged from 3.47

(SEL-4) to 6.07 (SEL-3) in lines with an average of 4.54. Among the lines, the highest mean for node number at which the first male flower appears was recorded in SEL-3 (6.07) and the second-highest mean (5.00) was recorded in SEL-1 whereas, the lowest means were noted in SEL-7 (3.14) followed by 3.80 in SEL-6. In testers, the node number at which the first male flower appears ranged from 3.80 m in SEL-9 to 5.87 in SEL-7 with an average of 4.64. Among hybrids, it ranged from 3.33 m in SEL-3 x SEL-8 to 5.00 in SEL-2 x SEL-7 with an average of 4.19 m. Significant highest means were observed in SEL-2 x SEL-7 (5.00) followed by SEL-3 x SEL-7 (4.43) and the least means were recorded in SEL-3 x SEL-8 (3.33) followed by 3.67 in SEL-1 x SEL-8. Among the two checks, Kundan (4.33) recorded the lowest node number at which the first male flower appears compared to Arka Siri (5.00).

3. Node number at which first female/perfect flower appears

For the node number at which the first female/perfect flower appears, the lower mean value is desirable. The mean values of node number at which the first female/perfect flower appears ranged from 5.00 (SEL-2) to 8.20 (SEL-5) in lines with an average of 6.66 and the high values of means were noted in SEL-5 (8.20) followed by SEL-3 (7.80) and the low mean values were observed in SEL-2 (5.00) followed by SEL-4 (5.67). In testers, the node number at which the first female/perfect flower appears ranged from 7.20 m in SEL-8 to 8.00 in SEL-9 with an average of 7.51. Among hybrids, it ranged from 5.53 in SEL-4 x SEL-9 to 8.87 in SEL-1 x SEL-9 with an average of 6.85. The maximum mean values were recorded in SEL-1 x SEL-9 (8.87) followed by SEL-5 x SEL-7 (7.73) and minimum mean values were observed in SEL-4 x SEL-9 (5.53) followed by 5.80 in SEL-3 x SEL-8 for node number at which first female/perfect flower appearance. Among the two checks, Kundan (6.73) showed the lowest node number at which the first female/perfect flower appears compared to Arka Siri (9.33).

4. Days to first appearance of male flower

For days to the first appearance of the male flower, the lower mean value is desirable. The mean values of days to the first appearance of the male flower ranged from 21.20 days (SEL-6) to 24.20 days (SEL-3) in lines with an average of 22.81. The highest mean was recorded in SEL-3 (24.20) followed by SEL-2 (23.67) while, the lowest mean values were observed in SEL-6 (21.20) followed by 21.53 in SEL-4. In testers, days to the first appearance of the male flower ranged from 22.27 days in SEL-9 to 25.53 days in SEL-8 with an average of 23.98. Among hybrids, it ranged from 20.87 days in SEL-2 x SEL-8 to 24.60 days in SEL-5 x SEL-9 with an average of 22.76 days. The maximum mean was reported in SEL-5 x SEL-9 (24.60) followed by 24.27 in SEL-2 x SEL-7 whereas, the minimum mean was noted in SEL-2 x SEL-8 (20.87) followed by 21.20 days in SEL-4 x SEL-9. Among the two checks, Kundan (24.93 days) recorded the lowest days to the first appearance of a male flower compared to Arka Siri (25.47 days).

5. Days to first appearance of female flower

For days to the first appearance of a female flower, the lower mean value is desirable. The mean values of days to the first appearance of a female flower ranged from 25.87 days (SEL-6) to 30.53 days (SEL-3) in lines with an average of 27.89 while, the highest mean values were noted in SEL-3 (30.53) followed by 28.73 in SEL-l and the lowest means were recorded in SEL-6 (25.87) followed by SEL-4 (26.33). In testers, days to the first appearance of a female flower ranged from 28.73 days in SEL-9 to 30.00 days in SEL-7 with an average of 29.31. Among hybrids, it ranged from 25.07 days in SEL-4 x SEL-9 to 29.87 days in SEL-5 x SEL-7 with an average of 27.77 days. The maximum mean values were reported in SEL-5 x SEL-7 (29.87) followed by 29.24 days in SEL-3 x SEL-9 whereas, the minimum mean values were noted in SEL-4 x SEL-9 (25.07) followed by 25.73 days in SEL-3 x SEL-8. Among the two checks, Kundan (28.93 days) recorded the lowest days to the first appearance of a female flower compared to Arka Siri (29.67 days).

6. Days to 50% perfect flower appearance

For days to 50% perfect flower appearance, the lower mean value is desirable. The mean values of days to 50% perfect flower appearance ranged from 27 days (SEL-4) to 32 days (SEL-3) in lines, with an average of 29.61 days. Among the lines, higher mean values were noted in SEL-3 (30.00) followed by 31.00 days in SEL-2 whereas, the lower mean values were 27.00 days in SEL-4 followed by 28.33 days in SEL-2. In testers, days to 50% perfect flower appearance ranged from 31 days in SEL-7, SEL-8 and SEL-9 with an average of 31 days. Among hybrids, it ranged from 28.67 days in SEL-4 x SEL-9 to 32.12 days in SEL-5 x SEL-7 with an average of 30.17 days. In hybrids, the highest mean was recorded in SEL-5 x SEL-7 (32.12) followed by SEL-4 x SEL-8 (32.00), whereas the lowest was recorded in SEL-4 x SEL-9 (28.67) followed by 28.88 days in SEL-1 x SEL-7 for days to 50% perfect flower appearance. Among the two checks, Kundan (30 days) showed the lowest days to 50% perfect flower appearance compared to Arka Siri (32 days).

7. Sex ratio

For the sex ratio, the lower mean value is desirable. The mean values of sex ratio ranged from 7.85 (SEL-2) to 12.05 days (SEL-4) in lines with an average of 10.43 and the maximum mean values were recorded in SEL-4 (12.05) followed by 11.45 in SEL-3 while, the minimum mean values were recorded in SEL-2 (7.85) followed by SEL-1 (9.69). In testers, the sex ratio ranged from 9.51 in SEL-7 to 11.36 in SEL-9 with an average of 10.50. Among hybrids, it ranged from 10.08 in SEL-4 x SEL-9 to 13.62 in SEL-5 x SEL-7 with an average of 11.64. The highest means were noted in SEL-5 x SEL-7 (13.62) followed by SEL-1 x SEL-7 (12.59) whereas, the lowest means were reported in SEL-4 x SEL-9 (10.08) followed by SEL-3 x SEL-8 (10.64) for sex ratio. Among the two checks, Kundan (9.43) recorded the lowest sex ratio compared to Arka Siri (10.20).

8. Days to first fruit harvest

For days to the first fruit harvest, the lowest mean value is desirable. The mean values of days to first fruit harvest ranged from 57.33 days (SEL-4) to 65.67 days (SEL-3) in lines with an average of 62.00 days. The maximum means were highest in SEL-3 (65.67) followed by SEL-1 (65.33) whereas, minimum means were observed in SEL-4 (57.33) followed by SEL-6 (58.00). In testers, days to first fruit harvest ranged from 62.00 days in SEL-7 to 63.00 days in SEL-8 with an average of 62.44 days. Among hybrids, it

ranged from 57.00 days in SEL-4 x SEL-9 to 66.33 days in SEL-5 x SEL-8 with an average of 62.09 days. The highest means were recorded in SEL-5 x SEL-8 (66.33) followed by SEL-4 x SEL-8 and SEL-5 x SEL-9 (60.00). Among the two checks, Arka Siri (61.00 days) showed the lowest days to first fruit harvest compared to Kundan (63.00 days).

9. Days to last fruit harvest

For days to last fruit harvest, the lowest mean value is desirable. The mean values of days to last fruit harvest ranged from 70.00 days (SEL-4) to 79.00 days (SEL-3) in lines with an average of 74.17 days. Among the lines, maximum means were noted in SEL-3 (79.00) followed by SEL-1 (76.00) and minimum means were noted in SEL-4 (70.00) followed by SEL-6 (72.00). In testers, days to last fruit harvest ranged from 72.33 days in SEL-9 to 77.33 days in SEL-8 with an average of 74.67 days. Among hybrids, it ranged from 71.00 days in SEL-4 x SEL-9 to 82.00 days in SEL-3 x SEL-8 with an average of 75.79 days. The highest values were recorded for SEL-3 x SEL-8 (82.00) followed by SEL-4 x SEL-8 (81.00) whereas, the lowest values were reported for SEL-4 x SEL-9 (71.00 days) followed by SEL-3 x SEL-9 (72.00). Among the two checks, Arka Siri (73.33 days) showed the lowest days to last fruit harvest compared to Kundan (76.33 days).

10. Number of fruits per vine

For the number of fruits per vine, the higher mean value is desirable. The mean values of the number of fruits per vine ranged from 2.10 (SEL-1) to 3.52 (SEL-3) in lines with an average of 2.89. In lines, the highest means were observed in SEL-3 (3.52) followed by SEL-5 (3.25) and the lowest means were reported in SEL-1 (2.10) followed by SEL-4 (2.65). In testers, the number of fruits per vine ranged from 3.08 in SEL-7 to 3.93 in SEL-8 with an average of 3.45. Among hybrids, it ranged from 2.34 in SEL-2 x SEL-7 to 4.50 in SEL-3 x SEL-8 with an average of 3.66. The maximum means were recorded for SEL-3 x SEL-8 (4.50) followed by SEL-4 x SEL-9 (4.23) whereas, minimum values were reported for SEL-2 x SEL-7 (2.34) followed by SEL-1 x SEL-7 (3.16). Among the two checks, Kundan (3.50) recorded the highest number of fruits per vine compared to Arka Siri (3.12).

11. Fruit length (cm)

For fruit length, the higher mean value is desirable. The mean values of fruit length ranged from 10.23 cm (SEL-5) to 20.00 cm (SEL-2) in lines with an average of 13.32 cm. Among the lines, maximum mean values were noted in SEL-2 (20.00) followed by SEL-1 (13.93) and minimum mean values were noted in SEL-4 (70.00) followed by SEL-6 (72.00). In testers, fruit length ranged from 10.12 cm in SEL-9 to 12.03 cm in SEL-8 with an average of 11.32 cm. Among hybrids, it ranged from 7.60 cm in SEL-2 x SEL-8 to 27.15 cm in SEL-2 x SEL-7 with an average of 15.98 cm. The highest mean values were recorded for SEL-2 x SEL-8 (27.15) followed by SEL-4 x SEL-7 (24.46) while, the lowest mean values were reported for SEL-2 x SEL-8 (7.60) followed by SEL-5 x SEL-9 (10.00). Among the two checks, Arka Siri (13.25 cm) showed the highest fruit length compared to Kundan (11.22 cm).

12. Fruit diameter (cm)

For fruit diameter, the higher mean value is desirable. The mean values of fruit diameter ranged from 10.89 cm (SEL-4) to 14.03 cm (SEL-3) in lines with an average of 12.13 cm. Among the lines, the highest means were noted in SEL-3 (14.03) followed by SEL-6 (13.02) and lowest means were reported in SEL-4 (10.89) followed by SEL-5 (11.35). In testers, fruit diameter ranged from 12.00 cm in SEL-7 to 13.26 cm in SEL-9 with an average of 12.55 cm. Among hybrids, it ranged from 11.89 cm in SEL-6 x SEL-7 to 16.81 cm in SEL-6 x SEL-8 with an average of 13.50 cm. In hybrids, the highest values were recorded for SEL-6 x SEL-8 (16.81) followed by SEL-4 x SEL-8 (15.24) whereas, the lowest values were reported for SEL-6 x SEL-7 (11.89) followed by SEL-5 x SEL-7 (12.04). Among the two checks, Kundan (15.20 cm) showed the highest fruit diameter compared to Arka Siri (13.41 cm).

13. Fruit weight (Kg)

For fruit weight, a higher mean value is desirable. The mean values of fruit weight ranged from 1.01 kg (SEL-4) to 1.86 kg (SEL-2) in lines with an average of 1.35 kg. In lines, maximum mean values were noted in SEL-2 (1.86) followed by SEL-1 (1.46) and minimum mean values were noted in SEL-4 (1.01) followed by SEL-6 (1.13). In testers, fruit weight ranged from 1.07 kg in SEL-9 to 1.56 kg in SEL-8 with an average of 1.25 kg. Among hybrids, it ranged from 0.93 kg in SEL-5 x SEL-9 to 2.62 kg in SEL-2 x SEL-7 with an average of 1.66 kg. The highest mean values were recorded for SEL-2 x SEL-7 (2.62) followed by SEL-6 x SEL-7 (2.55) whereas, the lowest mean values were reported for SEL-5 x SEL-9 (0.93) followed by SEL-5 x SEL-8 (1.16). Among the two checks, Arka Siri (1.45 kg) showed the highest fruit weight compared to Kundan (1.44 kg).

14. Yield per vine (Kg)

For yield per vine, the higher mean value is desirable. The mean values of yield per vine ranged from 3.23 kg (SEL-1) to 5.52 kg (SEL-2) in lines with an average of 3.94 kg. Among the lines, maximum means were noted in SEL-2 (5.52) followed by SEL-6 (4.17) and minimum means were noted in SEL-1 (3.23) followed by SEL-5 (3.26). In testers, yield per vine ranged from 2.96 kg in SEL-8 to 3.36 kg in SEL-9 with an average of 3.15 kg. Among hybrids, it ranged from 3.64 kg in SEL-1 x SEL-7 to 8.42 kg in SEL-4 x SEL-9 with an average of 5.37 kg. The highest values were recorded for SEL-4 x SEL-9 (8.42) followed by SEL-3 x SEL-8 (7.27) whereas, the lowest values were reported for SEL-1 x SEL-7 (3.64) followed by SEL-2 x SEL-8 (4.03). Among the two checks, Kundan (4.45 kg) showed the highest yield per vine compared to Arka Siri (4.26 kg).

For growth and yield parameters the same results were obtained by Rad *et al*. (2010) [4], Pandey *et al*. (2010) [3], Venkatesan *et al*. (2016) [6], Indraja *et al*. (2020) [1] and Omprasad *et al*. (2021) [2] in muskmelon.

Table 1: Analysis of variance for growth, yield and yield contributing characters in muskmelon

Source of variation	Df	Vine length (m)	Node number at which first male flower appears	Node number at which first female/perfect flower appears	Days to first appearance of male flower	Days to first appearance of female flower	Days to 50% perfect flower appearance	Sex ratio
Replications	2	0.63 **	0.29	0.10	5.43 **	5.78 **	0.69	1.22
Treatments	26	2.40 **	1.25 **	2.73 **	4.45 **	5.39 **	4.69 **	3.75 **
Parents	8	1.76 **	2.48 **	3.91 **	5.70 **	7.19 **	7.57 **	4.87 **
Crosses	17	2.23 **	0.59 **	2.33 **	3.92 **	4.49 **	3.61 **	1.91
Parents vs. Crosses	1	10.49 **	2.65 **	0.16	3.52*	6.35*	0.18	25.17 **
Line effect	5	1.82	0.62	1.08	4.73	4.91	1.37	1.49
Tester effect	2	2.98	0.53	4.55	7.71	6.35	3.24	1.91
L x T effect	10	2.28 **	0.58 **	2.54 **	2.75 **	3.92 **	4.80 **	2.12
Error	52	0.01	0.13	0.52	0.64	1.02	1.03	1.23

Source of variation	df	Days to first fruit harvest	Days to last fruit harvest	Number of fruits per vine	Fruit length (cm)	Fruit diameter (cm)	Fruit weight (kg)	Yield per plant (kg)
Replications	2	21.97 **	14.82 **	0.03	5.57	0.04	0.05	0.31 **
Treatments	26	23.93 **	28.01 **	1.06 **	63.03 **	4.94 **	0.56 **	5.94 **
Parents	8	26.76 **	23.25 **	0.87 **	26.56 **	3.04 **	0.23 **	1.93 **
Crosses	17	24.01 **	29.64 **	0.84 **	72.17 **	4.50 **	0.63 **	5.15 **
Parents vs. Crosses	1	0.06	38.41 **	6.19 **	199.46 **	27.46 **	2.07 **	51.53 **
Line effect	5	32.68	6.08	0.65	40.27	4.49	0.82	12.87 **
Tester effect	2	27.87	62.71	3.23*	253.08*	7.91	1.42	1.94
L x T effect	10	18.91 **	34.80 **	0.46 **	51.94 **	3.82 **	0.38 **	1.93 **
Error	52	0.98	0.21	0.09	6.17	0.02	0.03	0.01

Table 2: Mean performance of lines, testers and crosses for growth, yield and yield contributing characters in muskmelon

Treatments	Vine length (m)	Node number at which first male flower appears	Node number at which first female/perfect flower appears	Days to first appearance of male flower	Days to first appearance of female flower	Days to 50% perfect flower appearance	Sex ratio
LINES							
SEL-1	3.20	5.00	7.40	23.13	28.73	30.00	9.69
SEL-2	4.10	4.47	5.00	23.67	27.73	31.00	7.85
SEL-3	3.00	6.07	7.80	24.20	30.53	32.00	11.45
SEL-4	3.12	3.47	5.67	21.53	26.33	27.00	12.05
SEL-5	3.15	4.47	8.20	23.13	28.13	29.33	10.53
SEL-6	3.40	3.80	5.87	21.20	25.87	28.33	11.02
Lines mean	3.33	4.54	6.66	22.81	27.89	29.61	10.43
Testers							
SEL-7	5.30	5.87	7.33	24.13	30.00	31.00	9.51
SEL-8	3.37	4.27	7.20	25.53	29.20	31.00	10.64
SEL-9	2.83	3.80	8.00	22.27	28.73	31.00	11.36
Testers mean	3.84	4.64	7.51	23.98	29.31	31.00	10.50
Parents mean	3.50	4.58	6.94	23.20	28.36	30.07	10.46
Crosses							
SEL-1 x SEL-7	4.27	3.87	5.93	22.47	26.67	28.88	12.59
SEL-1 x SEL-8	5.20	3.67	5.84	22.07	27.60	29.68	11.14
SEL-1 x SEL -9	4.15	4.67	8.87	24.13	28.53	31.20	11.48
SEL-2 x SEL-7	4.25	5.00	7.60	24.27	28.60	30.14	11.24
SEL-2 x SEL-8	4.13	4.60	6.67	20.87	26.97	29.53	12.15
SEL-2 x SEL -9	2.16	4.47	7.40	23.07	28.47	30.33	11.58
SEL-3 x SEL-7	5.10	4.93	7.00	22.27	27.20	29.00	10.83
SEL-3 x SEL-8	5.16	3.33	5.80	21.33	25.73	29.63	10.64
SEL-3 x SEL -9	3.60	3.94	7.67	24.07	29.24	31.67	11.74
SEL-4 x SEL-7	4.70	3.80	7.20	22.33	27.53	29.60	12.27
SEL-4 x SEL-8	3.90	4.28	6.33	21.93	27.40	32.00	12.39
SEL-4 x SEL -9	5.40	3.73	5.53	21.20	25.07	28.67	10.08
SEL-5 x SEL-7	4.97	4.33	7.73	23.40	29.87	32.12	13.62
SEL-5 x SEL-8	3.00	4.00	7.13	24.11	27.57	29.65	11.89
SEL-5 x SEL -9	3.97	4.40	6.80	24.60	29.13	31.11	11.45
SEL-6 x SEL-7	5.03	4.12	6.13	22.20	28.33	30.00	11.31
SEL-6 x SEL-8	3.30	4.16	6.07	22.13	27.27	28.92	11.47
SEL-6 x SEL -9	4.40	4.20	7.53	23.20	28.67	31.00	11.64
Crosses mean	4.26	4.19	6.85	22.76	27.77	30.17	11.64

Checks							
Kundan	2.48	4.33	6.73	24.93	28.93	30.00	9.43
Arka Siri	3.61	5.00	9.33	25.47	29.67	32.00	10.20
Grand Mean	3.94	4.35	6.96	23.06	28.06	30.20	11.15
C.V.	2.96	8.14	10.94	3.42	3.49	3.35	9.59
SE (m)	0.07	0.20	0.44	0.45	0.57	0.58	0.62
C.D. (0.05)	0.19	0.58	1.24	1.29	1.60	1.65	1.75
Range Lowest	2.16	3.33	5.00	20.87	25.07	27.00	7.85
Range Highest	5.40	6.07	9.33	25.53	30.53	32.12	13.62

Table 2: Contd…

Treatments	Days to first fruit harvest	Days to last fruit harvest	Number of fruits per vine	Fruit length (cm)	Fruit diameter (cm)	Fruit weight (kg)	Yield per plant (kg)
Lines							
SEL-1	65.33	76.00	2.10	13.93	11.56	1.46	3.23
SEL-2	64.67	74.00	2.68	20.00	11.91	1.86	5.52
SEL-3	65.67	79.00	3.52	11.91	14.03	1.32	4.05
SEL-4	57.33	70.00	2.65	12.26	10.89	1.01	3.43
SEL-5	61.00	74.00	3.25	10.23	11.35	1.33	3.26
SEL-6	58.00	72.00	3.13	11.60	13.02	1.13	4.17
Lines mean	62.00	74.17	2.89	13.32	12.13	1.35	3.94
Testers							
SEL-7	62.00	74.33	3.08	11.80	12.00	1.11	3.12
SEL-8	63.00	77.33	3.93	12.03	12.39	1.56	2.96
SEL-9	62.33	72.33	3.34	10.12	13.26	1.07	3.36
Testers mean	62.44	74.67	3.45	11.32	12.55	1.25	3.15
Parents mean	62.15	74.33	3.08	12.65	12.27	1.32	3.68
Crosses							
SEL-1 x SEL-7	59.00	74.26	3.16	17.92	12.95	1.96	3.64
SEL-1 x SEL-8	61.00	76.00	4.12	12.52	14.97	2.20	4.03
SEL-1 x SEL -9	58.33	74.00	3.64	20.02	14.07	1.61	4.24
SEL-2 x SEL-7	60.33	75.48	2.34	27.15	14.06	2.62	6.33
SEL-2 x SEL-8	62.33	77.51	3.12	7.60	13.36	1.43	4.45
SEL-2 x SEL -9	65.00	77.81	4.18	14.01	13.05	1.42	4.93
SEL-3 x SEL-7	64.00	73.00	3.66	19.43	12.96	1.47	6.53
SEL-3 x SEL-8	63.00	82.00	4.50	16.35	12.57	1.23	7.27
SEL-3 x SEL -9	64.60	72.00	3.86	13.44	12.99	1.77	6.96
SEL-4 x SEL-7	62.67	74.65	3.23	24.46	13.78	1.92	5.26
SEL-4 x SEL-8	66.00	81.00	4.04	15.50	15.24	1.70	6.45
SEL-4 x SEL -9	57.00	71.00	4.23	13.72	12.93	1.50	8.42
SEL-5 x SEL-7	60.67	75.99	3.50	13.89	12.04	1.29	4.74
SEL-5 x SEL-8	66.33	73.15	4.14	11.59	12.46	1.16	4.67
SEL-5 x SEL -9	66.00	80.67	3.48	10.00	12.95	0.93	5.16
SEL-6 x SEL-7	59.33	74.18	3.20	18.99	11.89	2.55	4.26
SEL-6 x SEL-8	62.00	78.01	3.97	18.16	16.81	1.73	4.57
SEL-6 x SEL -9	60.00	73.60	3.54	12.93	14.00	1.30	4.76
Crosses mean	62.09	75.79	3.66	15.98	13.50	1.66	5.37
Checks							
Kundan	63.00	76.33	3.50	11.22	15.20	1.44	4.45
Arka Siri	61.00	73.33	3.12	13.25	13.41	1.45	4.26
Grand Mean	62.10	75.27	3.46	14.69	13.18	1.54	4.77
C.V.	1.66	0.64	2.67	16.31	0.36	3.43	0.52
SE (m)	0.60	0.28	0.05	1.38	0.03	0.03	0.01
C.D. (0.05)	1.68	0.79	0.15	3.92	0.08	0.09	0.04
Range Lowest	57.00	70.00	2.10	7.60	10.89	0.93	2.96
Range Highest	66.33	82.00	4.50	27.15	16.81	2.62	8.42

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