

## Studies on Evaluation, Conservation and Utilization of *Rabionion* Genotypes for Growth and Yield

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### Abstract

*In onion, local genotypes play important role in development of new cultivars. The present investigation was carried out at National Horticultural Research and Development Foundation at Nashik, Maharashtra, during Rabi 2016-18. The data revealed that highest gross yield (432.89 q/ha) and marketable yield (398.26 q/ha) were recorded in line-853 and 782, respectively and found at par with lines-748, 780, 782, 851, 862, 880 and 908 in respect of gross yield and lines-743, 748, 750, 780, 821, 822, 837, 853, 862, 880, 881, 908 and 910 in respect of marketable yield. The highest total soluble solid (13.99 %) was recorded in line-871 and it was found at par with lines-625, 753, 821, 822, 850, 870, 878, 903 and 910. Hence it is concluded that these above genotypes can be utilized by breeder for develop new onion variety for higher yield as well as good quality parameters.*

**Key words :** Lines, yield, total soluble solids, onion.

### Introduction

India is second largest producer of onion in the world after China. About 73.23 million tons of onions are produced in the world from 3.65 million ha area. India, being major onion-producing country, produces 20.13 million tons from 1.19 million ha, with a very low productivity of 16.24 t/ha in comparison to Republic of Korea (64.58 t/ha), USA (54.47 t/ha), Spain (53.69 t/ha), Netherland (45.80 t/ha), Japan (42.46 t/ha), Germany (41.86 t/ha) and United Kingdom (41.15 t/ha). About 55-60% of onion comes from *Rabi* season and 40-45% from *Kharif* and late *Kharif* season, however, it is to be recognized that India is the largest producer of short day onions globally, which are genetically less yielding compared to the long day types that are

grown in China. Because of its high export potential, it comes under cash crop apart from vegetable. It is predominantly a *Rabi* season crop and most onion cultivars are sensitive to photo period and thus their range of adoption is limited. The main onion growing states in India are Maharashtra, Gujarat, Karnataka, Tamil Nadu, Odisha, Madhya Pradesh, Uttar Pradesh, Andhra Pradesh, Bihar and Punjab. It is used as a salad or cooked in various ways in all curries, fried or baked and also used in processed form e.g. flakes powder, paste, crush and pickle, etc. Lack of recommended or released variety of high yielding as well as good keeping quality in the country, it creates price fluctuation during off season arrival period. To meet out the domestic

requirement and also to fulfill the export demand, selection of high yielding genotype under different agro climatic condition is necessary. In onion, local genotypes play important role in development of new cultivars. NHRDF, Nashik, collected good number of germplasm and evaluated their performance regarding different attributes. Major emphasis in current onion breeding programs is being placed on mass selection among segregating populations. Newer methods of onion improvement have been concerned primarily with more efficient means of selection of desirable yield

### Materials and Methods

The present investigation was carried out at National Horticultural Research and Development Foundation at Nashik, Maharashtra, during *Rabi* 2016-17 and 2017-18. The experiment was laid out in augment with one replications. The Nashik ( $20^{\circ}$  N latitude and  $73^{\circ}$  E longitudes) is located at altitude of 492.0 meter above mean sea levels. The minimum and maximum temperature and humidity is ranging between  $10^{\circ}$ C to  $40^{\circ}$  C and 48 % to 80 %, respectively, with an annual rain fall around 881 mm. The soil of the trial was clay loam, medium in organic carbon (0.58%), available nitrogen (385.2 kg/ha), phosphorus (45.13kg/ha) and high in available potash (291.2kg/ha). The study comprises 59 diverse onion genotypes along with three checks Agrifound Light Red, NHRDF-Red-3 and NHRDF-Red-4 selected among more than 600 genotypes evaluated at this centre. 50-55 days old seedlings of each onion

### Results and Discussion

The pooled data of both the year, exhibited that significant variation for all traits presented in Table1. Data revealed that the highest plant establishment

genotypes in segregating populations and selection within their selfed progenies. To meet out the domestic requirement and also to fulfill the export demand, selection of suitable high yielding varieties for growing under different agro climatic condition is required. Hence under present study a total of 59 genotypes along with three checks Agrifound Light Red, NHRDF Red-3 and NHRDF Red-4 were evaluated in two consecutive years *Rabi* 2016-18 to assess their performance for selection of high yielding varieties for different agroclimatic zones.

genotypes were transplanted in flat beds during the second week of December in the spacing of 15 cm x 10 cm in a plot of 3.6 m x 1.8 m size. The recommended package of practices was uniformly followed during whole experiment period to raise a successful crop. Randomly selected ten plants from each plot were taken to record the observations on plant establishment (%), plant height (cm), leaves per plant, neck thickness (cm), equatorial bulb diameter (cm), polar bulb diameter, weight of 20 bulbs (kg), doubles (%), bolters (%), rotten %, USB %, total soluble solid (%), gross yield (q/ha) and marketable yield (q/ha). days to maturity, days to harvesting, % "A" grade bulbs, % "B" grade bulbs and % "C" grade bulbs. The pooled data of both the years were analyzed to find out the superior genotypes for development of good quality onion varieties suitable for different agro climatic conditions.

(95.47%) was recorded in line-850 and it was found at par with lines-743, 753, 772, 804, 821, 822, 837, 848, 909, 910, 913 and 914. Highest plant height (70.63 cm) was

observed in line-753 and found at par with all lines except lines-432, 501, 628, 804, 837, 853, 902, 903 and 909. The lines-850, 884, 894 and 913 recorded highest number of leaves per plant (9.75) and at par with all lines except lines-432, 501, 555, 625, 628, 683, 702, 705, 745, 748, 782, 848, 853, 866, 870, 871, 875, 876, 877, 878, 881, 882, 902, 908, check varieties Agrifound Light Red, NHRDF Red-2 and NHRDF Red-4. Thinnest neck (1.08 cm) was recorded in line-432 and was found at par with lines-702, 862, 864, 875 and 877. Highest equatorial bulb diameter (6.00 cm) and polar bulb diameter (4.30 cm) were recorded in line-780 and 848, respectively, and found at par with lines-702, 753, 772, 822, 846, 848, 862, 864, 875, 876, 880, 894, 910, 914, check varieties Agrifound Light Red, NHRDF Red-2 and NHRDF Red-4 in respect of equatorial bulb diameter and lines-702, 750, 753, 772, 780, 821, 846, 880 and 882 regarding polar bulb diameter. The highest weight of 20 bulbs (1.32 kg) and average bulb weight (65.79 g) were recorded in line-753 and found at par with lines-424, 555, 653, 682, 705, 743, 745, 748, 750, 772, 780, 782, 804, 821, 822, 846, 848, 850, 853, 893, 894, 913, check varieties Agrifound Light Red, NHRDF Red-2 and NHRDF Red-4 in respect of 20 bulb weigh and lines-424, 555, 653, 682, 705, 743, 745, 750, 772, 780, 782, 804, 846, 848, 850, 853, 893, 894, 913, check varieties Agrifound Light Red, NHRDF Red-2 and NHRDF Red-4 in respect of average bulb weight. It is observed that, the plant height, bulb diameter, weight of bulb positively correlated to increase for yield<sup>[1,2,3]</sup>. Lines-407, 424, 432, 501, 555, 625, 628, 653, 682, 683, 700, 702, 705, 711, 884, 891, 892, 901, 902, 903, 907, 909, 910, 913 and 914 recorded no doubles

on number basis and it was found at par with all lines except line-780 and 868, however, lines- 851, 853, 864, 866, 868, 870, 875, 877, 878, 880, 884, 891, 892, 894, 901, 903, 908, 909, 910, 913 and 914 recorded no bolters on number basis and it was found at par with all lines. Similarly, dark Red Kharif onion cultivars were observed to be more susceptible for premature bolting than the Light Red *Rabi* onion cultivar during late *Kharif* season<sup>[5]</sup>. Lines-884, 891, 892, 893, 901, 907, 908, 910 and 913 recorded no rotten on number basis and found at par with all lines.

Highest gross yield (432.89 q/ha) and marketable yield (398.26 q/ha) were recorded in line-853 and 782, respectively and found at par with lines-748, 780, 782, 851, 862, 880 and 908 in respect of gross yield and lines-743, 748, 750, 780, 821, 822, 837, 853, 862, 880, 881, 908 and 910 in respect of marketable yield<sup>[4]</sup>. Highest total soluble solid (13.99 %) was recorded in line-871 and it was found at par with lines-625, 753, 821, 822, 850, 870, 878, 903 and 910. The highest % of 'A' grade bulbs (66.62) were recorded in line-894 and it was found at par with lines-501, 618, 653, 683, 700, 748, 780, 782, 846, 850, 851, 853, 862, 871, 876, 878, 882, 893, 901, 902, 903, 908, 914, check varieties Agrifound Light Red, NHRDF Red-2 and NHRDF Red-4, however, highest % of 'B' grade bulb (39.53) were recorded in line-866 and it was found at par with all lines. The lowest % of 'C' grade bulbs (4.69) was recorded in line-846 and it was found at par with all line except lines-424, 702, 705 and 711. The minimum duration for bulb maturity (88 days) as well as harvest (98 days) was taken by line-884. The duration was ranging from 88 to 111 days for maturity and 98 to 117 days for harvest.

**Table 1 Evaluation and utilization of onion genotypes at Nashik during Rabi, 2017-18**

Coll.	(%) Plant Establish ment	Plant Height (cm)	No. of leaves/ plant	Neck thickness (cm)	Equatorial bulb daimeter (cm)	Polar bulb daimeter (cm)	20 bulb weight (kg)	(%) Doubles
407	61.11	63.30	9.48	1.36	5.50	3.91	0.91	0.35 (1.50)
424	82.99	66.30	9.28	1.36	5.45	4.05	1.13	0.15 (1.06)
432	79.29	60.90	8.48	1.08	5.47	3.65	1.08	0.35 (1.50)
501	84.03	59.50	8.68	1.40	5.35	3.83	0.93	0.35 (1.50)
555	78.69	66.90	8.48	1.42	5.52	3.75	1.14	0.35 (1.50)
618	81.25	64.70	9.68	1.51	5.41	3.81	1.06	2.50 (8.22)
625	77.92	64.50	8.68	1.41	5.35	3.94	1.03	0.35 (1.50)
628	75.70	63.50	8.68	1.40	5.26	3.78	0.98	0.35 (1.50)
653	83.04	67.50	9.48	1.32	5.31	3.85	1.23	0.35 (1.50)
682	81.89	68.10	9.28	1.41	5.16	3.73	1.14	0.35 (1.50)
683	83.24	68.90	8.48	1.36	5.33	3.71	1.03	0.35 (1.50)
700	83.34	64.50	8.88	1.52	5.58	3.96	0.93	0.35 (1.50)
702	88.34	66.50	8.08	1.27	5.61	4.20	1.11	0.35 (1.50)
705	86.25	67.30	8.68	1.46	5.38	4.05	1.16	0.35 (1.50)
711	86.86	67.70	9.28	1.31	5.45	3.89	1.06	0.35 (1.50)
743	90.01	67.23	8.95	1.42	5.22	3.88	1.22	0.51 (2.05)
745	87.84	69.23	8.55	1.43	5.34	3.95	1.21	0.51 (2.05)
748	88.19	67.23	8.55	1.33	5.45	4.03	1.12	0.51 (2.05)
750	87.57	68.23	8.75	1.48	5.48	4.20	1.22	0.51 (2.05)
753	94.86	70.63	9.55	1.50	5.92	4.16	1.32	0.51 (2.05)
772	90.00	70.03	9.55	1.40	5.61	4.18	1.25	0.51 (2.05)
780	76.80	66.23	9.15	1.49	6.00	4.21	1.25	2.39 (9.93)
782	87.91	64.43	8.55	1.48	5.50	4.03	1.27	0.51 (2.05)
804	92.25	63.83	8.95	1.42	5.57	3.95	1.22	0.51 (2.05)
821	94.58	68.63	8.75	1.41	5.58	4.18	1.12	0.51 (2.05)
822	94.30	65.03	9.35	1.49	5.62	3.95	1.12	0.51 (2.05)
837	92.63	63.03	8.95	1.48	5.42	3.98	1.08	0.51 (2.05)
846	87.16	66.43	9.15	1.36	5.66	4.21	1.17	0.51 (2.05)
848	93.67	67.63	8.55	1.42	5.65	4.30	1.22	0.51 (2.05)
850	95.47	61.83	9.75	1.50	5.45	4.08	1.17	0.51 (2.05)
851	77.08	64.57	9.22	1.67	5.35	3.91	0.99	0.59 (2.99)
853	83.54	60.97	8.22	1.41	5.58	4.06	1.24	0.59 (2.99)
862	84.53	66.57	8.82	1.29	5.69	3.98	0.98	0.88 (6.08)
864	85.29	68.37	9.02	1.26	5.76	4.07	1.05	0.59 (2.99)
866	87.35	65.97	8.42	1.37	5.57	3.80	0.94	1.00 (6.66)
868	81.24	66.57	9.22	1.35	5.40	3.82	0.89	1.84 (9.41)
870	78.12	67.37	8.22	1.36	5.56	3.82	0.99	0.59 (2.99)
871	85.73	68.97	8.62	1.36	5.57	4.03	0.98	0.59 (2.99)
875	87.63	64.77	8.02	1.28	5.59	3.80	0.98	1.20 (7.47)
876	86.90	67.57	8.42	1.34	5.70	4.02	0.97	0.59 (2.99)
877	72.91	65.17	7.82	1.29	5.30	4.01	0.94	1.09 (7.04)
878	85.85	68.37	8.02	1.46	5.33	3.79	0.94	0.83 (5.80)
880	86.40	67.77	9.62	1.37	5.86	4.16	1.02	0.59 (2.99)
881	89.16	69.57	8.62	1.36	5.36	3.93	1.04	0.59 (2.99)
882	88.14	68.37	8.62	1.33	5.46	4.21	1.09	0.59 (2.99)
884	88.69	67.50	9.75	1.46	5.45	3.94	1.10	0.74 (3.54)
891	83.47	68.30	9.35	1.44	5.45	3.92	1.07	0.74 (3.54)
892	84.30	70.50	8.75	1.51	5.50	3.89	0.96	0.74 (3.54)
893	84.72	70.30	9.35	1.40	5.53	3.87	1.27	0.75 (3.47)
894	87.08	69.70	9.75	1.47	5.62	3.95	1.19	0.87 (3.75)
901	84.86	66.10	8.75	1.33	5.20	3.53	1.06	0.41 (0.25)
902	80.97	63.70	8.55	1.51	5.17	3.69	0.97	0.74 (3.54)
903	86.39	63.90	9.55	1.54	4.88	3.43	1.07	0.40 (0.20)
907	76.80	67.70	8.75	1.39	5.14	3.66	0.97	0.74 (3.54)
908	83.85	70.50	8.55	1.49	5.10	3.43	1.00	0.07 (1.62)
909	90.38	62.30	8.95	1.48	5.19	3.56	0.98	0.74 (3.54)
910	89.94	65.90	8.75	1.38	5.64	3.88	1.07	0.74 (3.54)
913	90.80	67.90	9.75	1.32	5.09	4.00	1.12	0.00 (1.39)
914	93.57	65.50	8.75	1.37	5.86	3.91	1.08	0.07 (1.16)

ALR (C)	86.88	67.00	8.70	1.45	5.65	4.08	1.19	0.71	(3.39)	
NHRDF Red-2 (C)	82.92	67.55	8.35	1.35	5.60	3.95	1.17	0.50	(2.03)	
NHRDF Red-4 (C)	83.96	69.35	8.40	1.44	5.77	4.04	1.24	0.55	(3.54)	
<b>S.Ed</b>	<b>2.40</b>	<b>2.60</b>	<b>0.41</b>	<b>0.09</b>	<b>0.17</b>	<b>0.07</b>	<b>0.08</b>	-	<b>3.47</b>	
<b>CD at 5%</b>	<b>5.87</b>	<b>6.35</b>	<b>1.01</b>	<b>0.22</b>	<b>0.41</b>	<b>0.16</b>	<b>0.20</b>	-	<b>8.50</b>	
<b>CV %</b>	<b>1.99</b>	<b>2.75</b>	<b>3.31</b>	<b>4.54</b>	<b>2.17</b>	<b>1.18</b>	<b>5.22</b>	-	<b>149.98</b>	
<b>Coll.</b>	<b>(%) Bolters</b>		<b>(%) Rotten</b>		<b>(%) USB</b>	<b>Gross Yield (q/ha)</b>	<b>Marketable yield (q/ha)</b>	<b>DT M</b>	<b>DTH</b>	<b>(%) TSS</b>
407	1.52	(7.63)	0.94	(5.80)	7.24	256.44	222.14	95	109	11.88
424	0.66	(2.31)	0.08	(0.48)	7.65	306.13	277.50	91	106	10.82
432	0.66	(2.31)	0.08	(0.48)	7.34	345.82	316.01	98	111	11.88
501	0.66	(2.31)	0.08	(0.48)	4.82	308.36	269.96	91	106	10.75
555	0.66	(2.31)	0.08	(0.48)	8.65	340.10	311.89	101	114	10.28
618	0.66	(2.31)	0.08	(0.48)	7.86	257.60	230.54	104	116	11.48
625	2.74	(10.60)	0.08	(0.48)	6.97	314.40	244.61	100	113	13.35
628	0.66	(2.31)	0.08	(0.48)	9.29	308.58	281.85	98	111	12.15
653	0.66	(2.31)	0.08	(0.48)	7.71	301.10	263.61	99	113	11.95
682	0.66	(2.31)	0.08	(0.48)	8.35	354.15	313.29	99	113	11.75
683	0.66	(2.31)	0.08	(0.48)	4.44	310.17	298.28	99	113	10.82
700	0.66	(2.31)	0.08	(0.48)	8.03	318.65	282.04	101	113	11.48
702	1.35	(7.07)	0.08	(0.48)	7.86	334.92	303.04	105	116	11.95
705	0.66	(2.31)	0.08	(0.48)	8.26	331.17	299.61	105	116	12.15
711	0.66	(2.31)	0.08	(0.48)	8.37	303.26	271.00	98	110	12.15
743	1.00	(5.65)	0.08	(0.48)	8.58	326.95	332.00	93	109	12.29
745	1.17	(6.41)	0.08	(0.48)	9.44	314.01	306.63	94	110	12.56
748	0.66	(2.31)	0.08	(0.48)	10.18	372.16	337.61	94	110	12.02
750	1.89	(8.68)	0.08	(0.48)	6.96	333.53	329.78	94	109	12.16
753	0.66	(2.31)	0.08	(0.48)	9.13	303.96	296.69	99	114	13.16
772	2.26	(9.58)	0.08	(0.48)	6.38	322.03	296.09	97	112	11.16
780	0.66	(2.31)	0.08	(0.48)	6.04	386.38	372.54	100	114	12.36
782	0.66	(2.31)	0.08	(0.48)	4.47	409.88	398.26	102	116	11.96
804	0.66	(2.31)	0.08	(0.48)	7.39	310.40	315.73	93	109	12.29
821	1.11	(6.16)	0.08	(0.48)	9.19	311.58	318.58	93	119	13.62
822	1.11	(6.16)	0.08	(0.48)	7.54	310.55	325.86	98	111	13.82
837	1.28	(6.83)	0.08	(0.48)	4.10	326.69	325.21	100	114	11.49
846	0.66	(2.31)	0.08	(0.48)	3.43	362.70	302.28	102	116	12.09
848	0.66	(2.31)	0.08	(0.48)	4.98	283.66	266.65	104	114	12.42
850	0.66	(2.31)	0.08	(0.48)	5.06	291.82	270.09	94	109	12.69

851	0.00	0.39	0.08	(0.48)	6.75	375.58	295.61	114	113	12.46
853	0.00	0.39	0.08	(0.48)	5.95	432.89	384.43	104	106	12.06
862	1.16	(5.79)	0.08	(0.48)	5.51	376.62	330.06	104	106	11.59
864	0.00	0.39	0.08	(0.48)	6.20	369.69	307.97	104	106	11.52
866	0.00	0.39	0.08	(0.48)	4.98	353.42	291.08	105	106	11.99
868	0.00	0.39	0.08	(0.48)	7.51	344.08	265.68	108	110	12.46
870	0.00	0.39	0.08	(0.48)	5.88	325.09	264.96	111	114	13.19
871	1.45	(6.53)	0.08	(0.48)	5.22	339.53	284.07	111	114	13.99
875	0.00	0.39	0.08	(0.48)	10.53	351.62	307.39	111	114	11.99
876	0.66	(4.27)	0.08	(0.48)	4.07	342.25	304.54	103	108	12.26
877	0.00	0.39	0.08	(0.48)	7.97	331.17	286.39	103	108	12.59
878	0.00	0.39	0.08	(0.48)	3.62	366.96	316.39	103	108	13.32
880	0.00	0.39	0.08	(0.48)	4.54	380.51	345.33	101	106	12.26
881	0.91	(5.08)	0.08	(0.48)	6.69	366.56	342.16	101	106	12.12
882	0.31	(2.80)	0.08	(0.48)	7.06	326.80	297.94	98	99	12.39
884	0.33	(1.51)	0.25	1.44	7.35	349.41	310.46	88	98	12.17
891	0.83	0.18	0.25	1.44	4.57	341.94	302.06	101	112	11.30
892	1.33	4.23	0.25	1.44	7.18	351.41	292.91	101	113	12.17
893	0.16	(2.78)	0.25	1.44	4.99	354.90	311.85	98	109	11.44
894	1.33	4.23	0.28	(2.74)	4.89	329.15	285.10	97	112	12.17
901	0.67	(0.43)	0.25	1.44	4.15	344.01	295.73	91	105	13.17
902	0.75	(4.06)	1.38	(5.91)	4.72	285.94	213.87	91	101	12.64
903	1.33	4.23	0.79	(4.42)	4.04	345.20	304.51	94	107	12.70
907	0.31	(3.13)	0.25	1.44	7.76	349.66	293.60	94	107	12.64
908	0.52	(0.93)	0.25	1.44	3.60	379.30	341.67	97	112	12.37
909	1.33	4.23	0.66	(4.04)	2.62	342.01	308.93	91	105	12.10
910	0.23	(1.79)	0.25	1.44	3.10	367.96	320.45	98	109	12.70
913	1.33	4.23	0.25	1.44	2.85	328.10	297.35	90	101	11.64
914	1.00	0.94	0.19	(2.37)	4.01	304.48	262.12	95	107	12.44
ALR (C)	1.00	(2.89)	0.25	(1.44)	4.77	344.59	300.72	104	114	12.03
NHRDF Red-2 (C)	0.50	(2.02)	0.00	-	5.28	339.50	288.17	106	117	12.27
NHRDF Red-4 (C)	0.50	(2.02)	0.00	-	5.46	345.10	302.02	106	117	11.95
<b>S.Ed</b>	-	<b>6.11</b>	-	<b>2.34</b>	<b>2.39</b>	<b>24.75</b>	<b>33.12</b>	<b>0.00</b>	<b>1.55</b>	<b>0.54</b>
<b>CD at 5%</b>	-	<b>14.95</b>	-	<b>5.73</b>	<b>5.86</b>	<b>60.55</b>	<b>81.05</b>	<b>0.00</b>	<b>3.78</b>	<b>1.32</b>
<b>CV %</b>	-	<b>194.75</b>	-	<b>312.14</b>	<b>27.61</b>	<b>5.19</b>	<b>7.80</b>	<b>0.00</b>	<b>0.99</b>	<b>3.13</b>

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<b>Coll.</b>	<b>(%) A grade bulb</b>		<b>(%) B grade bulb</b>		<b>(%) C grade bulb</b>	
407	48.82	(44.32)	29.97	(33.16)	14.04	(22.29)
424	42.02	(40.40)	31.04	(33.81)	19.36	(26.49)
432	49.19	(44.53)	30.50	(33.48)	13.04	(21.42)
501	59.65	(50.55)	23.76	(29.25)	11.85	(20.35)
555	52.58	(46.48)	27.52	(31.64)	11.31	(19.85)
618	58.14	(49.67)	22.54	(28.45)	11.00	(19.55)
625	47.87	(43.78)	33.82	(35.48)	11.41	(19.94)
628	51.00	(45.57)	37.37	(37.57)	13.85	(22.13)
653	53.44	(46.97)	26.04	(30.71)	12.88	(21.28)
682	50.61	(45.35)	29.43	(32.83)	11.68	(20.19)
683	56.81	(48.91)	29.92	(33.13)	8.90	(17.44)
700	55.87	(48.36)	21.76	(27.93)	14.41	(22.60)
702	42.47	(40.66)	29.62	(32.94)	20.12	(27.05)
705	44.12	(41.62)	29.71	(33.00)	17.98	(25.45)
711	41.88	(40.32)	29.73	(33.01)	20.08	(27.02)
743	43.42	(41.21)	31.62	(34.28)	16.10	(23.37)
745	43.83	(41.45)	33.22	(35.26)	13.59	(21.38)
748	58.61	(49.95)	25.08	(30.09)	6.21	(14.39)
750	51.23	(45.70)	33.50	(35.43)	8.40	(16.72)
753	46.92	(43.22)	30.88	(33.82)	13.15	(21.02)
772	51.79	(46.02)	32.58	(34.87)	9.35	(17.64)
780	56.39	(48.66)	28.88	(32.56)	8.78	(17.09)
782	65.36	(53.94)	25.27	(30.21)	5.08	(13.06)
804	46.57	(43.02)	35.66	(36.74)	10.46	(18.68)
821	40.82	(39.70)	34.01	(35.74)	16.06	(23.34)
822	41.71	(40.22)	34.87	(36.26)	15.96	(23.26)
837	52.58	(46.47)	28.53	(32.34)	14.87	(22.41)
846	60.85	(51.26)	31.11	(33.96)	4.69	(12.57)
848	52.42	(46.38)	26.89	(31.28)	15.79	(23.13)
850	54.97	(47.84)	30.68	(33.69)	9.38	(17.67)
851	55.57	(48.21)	28.59	(32.33)	8.81	(17.25)
853	56.96	(49.01)	24.75	(29.80)	9.07	(17.51)
862	54.01	(47.31)	28.63	(32.35)	11.58	(19.81)
864	48.29	(44.03)	34.20	(35.83)	11.05	(19.34)
866	45.13	(42.22)	39.53	(39.02)	10.10	(18.48)
868	46.66	(43.10)	35.60	(36.68)	9.96	(18.35)
870	52.38	(46.37)	33.69	(35.52)	7.78	(16.22)
871	65.84	(54.25)	21.30	(27.41)	7.36	(15.78)
875	41.58	(40.16)	32.18	(34.59)	15.43	(22.98)
876	59.99	(50.78)	26.64	(31.06)	9.03	(17.47)
877	51.30	(45.76)	29.00	(32.59)	11.46	(19.70)
878	55.89	(48.39)	32.65	(34.88)	7.56	(15.99)
880	51.13	(45.66)	36.20	(37.04)	7.86	(16.30)
881	47.73	(43.71)	31.67	(34.28)	13.03	(21.05)
882	59.02	(50.21)	24.37	(29.54)	9.31	(17.74)
884	46.25	(42.85)	35.48	(36.52)	10.97	(19.40)
891	49.42	(44.67)	35.66	(36.63)	10.41	(18.87)
892	51.42	(45.82)	27.48	(31.54)	13.97	(22.03)
893	59.12	(50.26)	29.67	(32.94)	6.28	(14.48)
894	66.62	(54.73)	21.78	(27.70)	6.76	(15.05)
901	61.00	(51.37)	25.98	(30.56)	9.01	(17.49)
902	63.48	(52.84)	22.69	(28.33)	9.16	(17.65)
903	56.56	(48.77)	31.83	(34.29)	7.62	(16.03)
907	45.02	(42.15)	35.98	(36.82)	11.29	(19.69)
908	60.28	(50.94)	25.00	(29.90)	11.17	(19.58)
909	51.45	(45.83)	37.71	(37.85)	8.27	(16.73)
910	50.38	(45.22)	34.70	(36.05)	11.88	(20.23)
913	41.72	(40.24)	27.16	(31.33)	9.77	(18.25)
914	54.42	(47.54)	31.19	(33.89)	10.43	(18.89)
ALR (C)	53.28	(46.89)	33.62	(35.41)	8.32	(16.58)

NHRDF Red-2 (C)	56.53	(48.76)	29.36	(32.80)	8.82	(17.18)
NHRDF Red-4 (C)	56.89	(48.97)	28.20	(31.94)	9.68	(17.88)
<b>S.Ed</b>	-	<b>3.37</b>	-	<b>5.19</b>	-	<b>5.04</b>
<b>CD at 5%</b>	-	<b>8.23</b>	-	<b>12.71</b>	-	<b>12.32</b>
<b>CV %</b>	-	<b>5.11</b>	-	<b>11.05</b>	-	<b>18.67</b>

Note- Data in the parenthesis Arcsin transformed values.

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