Int.J.Curr.Microbiol.App.Sci (2020) *9*(4): 877-883

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 9 Number 4 (2020)**
Journal homepage: http://www.ijcmas.com

Original Research Article https://doi.org/10.20546/ijcmas.2020.904.105

Studies on Evaluation, Conservation and Utilization of *Kharif* Onion Genotypes for Growth and Yield

R. K. Singh[1*], S. K. Singh[2] and A. K. Tailor[3]

[1]*Department of Vegetable Science, College of Horticulture, Banda University of Agriculture and Technology, Banda UP*
[2]*NHRDF, New Delhi*
[3]*NHRDF, Nashik, Maharashtra, India*
**Corresponding author*

Keywords

Onion, *Allium cepa*, Genotypes, Evaluation, Utilization of onion

Article Info

Accepted:
10 March 2020
Available Online:
10 April 2020

A B S T R A C T

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 curies, 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 fulfil the export demand, selection of high yielding genotype under different agro climatic condition is necessary. The study conducted during *Kharif*, 2017 at Nashik revealed that highest gross yield (259.45 q/ha) and marketable yield (243.52 q/ha) were recorded in the line L-883. The highest 'A' grade bulbs (41.84 %) was also recorded in the same line. It is concluded from the study the L-883 can be utilized for as a *Kharif* onion variety for higher yield and other traits.

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 Pandey, (1989). It is predominantly a *Rabi* season crop and most onion cultivars are sensitive to photo period and thus their range of adoption is limited (Gupta and Singh 2010).

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 curies, 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 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 37germplasm along with four checks Agrifound Dark Red, L-883, L-863 and Bheema Dark Red were evaluated to assess their performance for selection of high yielding varieties for *Kharif* season.

Materials and Methods

The present investigation was carried out at National Horticultural Research and Development Foundation at Nashik, Maharashtra, during *Kharif* 2017and 2018. The experiment was laid out in augment with one replications.

The Nashik (20^0 N latitude and 73^0 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 ^{0}C to 40 ^{0} 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 37 diverse onion genotypes along with four checks Agrifound Dark Red, L-863, L-883 and Bheema Dark Red, selected among more than 400 genotypes evaluated at this centre. 45 to 50 days old seedlings of each onion genotypes were transplanted in flat beds during the second week of August 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), days for harvesting, doubles (%), bolters (%), rotten %, total soluble solid (%), dry matter content(%), moisture (%), gross yield (q/ha), marketable yield (q/ha), % "A" grade bulbs, % "B" grade bulbs, % "C" grade bulbs, % under sized bulbs, thrips/plant, stemphylium blight intensity.

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.

Results and Discussion

The data of Nashik presented in Table-1 revealed that maximum plant establishment (90.42%) was recorded in the line L-555 and found at par with all the lines except lines L-683, L-704, L780, L-782, L-807, L-810 and L-845.

Highest plant height (49.73 cm) was recorded in the line L-883 and found at par with the lines L-750, L-753, L-881, L-882, check Agrifound Dark Red, Bheema Dark Red and L-863.

The highest number of leaves per plant (7.60) was recorded in the lines L-883 and L-748 and was at par with the lines L-845, L-862, L-866, L-881and L-882. Thinnest neck (0.94 cm) was recorded in the check L-863 and found at par with the lines L-515, L-555, L-562, L-618, L-628, L-682, L-683, L-704, L-705, L-770, L-780, L-807, L-810, L-821, L-822, L-826, L-844, l-854, L-862, L-865, L-866, L-869, L-880, L-881, L-882, Check Agrifound Dark Red, L-883 and Bheema Dark Red.

The highest equatorial bulb diameter (5.51 cm) and polar bulb diameter (4.11 cm) were recorded in the line L-883 and found at par with the lines L-888 and check ADR in respect of equatorial bulb diameter and with the lines L-555, L-581, L-748, L-770, L-782, L-810, L822, L-880, L-881, L-882 and check L-863 in respect of polar bulb diameter.

The highest twenty bulb weight (1.12 kg) was recorded in the check L-883 and found at par with the line L-888 and check Agrifound Dark Red. It is observed that, the plant height, bulb diameter, weight of bulb positively correlated to increase for yield (Singh 1991, Mohanty, 2001 and Singh *et. al.* 2010).

The lowest doubles (0.74 %) were noted in the lines L-845, L-854, L-862 and L-888 and found at par with the lines L-515, L-552, L-555, L-562, L-581, L0618, L-628, L-682, L-683, L-704, L-705, L711, L-780, L-800, L-807 and check L-883.

No bolters were noted in the check Agrifound Dark Red, L-883, Bheema Dark Red and L-863. Khar *et al* (1999) reported that incidence of premature bolting was significantly higher in *rangda* crop compared to *Kharif* and *Rabi* crop.

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 (Bhonde *et al* (1992) and Warade *et al* (1996). No rotted bulbs were recorded in the check Agrifound Dark Red and L-883.

The highest gross yield (259.45 q/ha) and marketable yield (243.52 q/ha) were recorded in the line L-883.The minimum days to harvest (84 days) was recorded in the line L-863.

No significant difference was recorded between the lines in respect of TSS, dry matter and moisture content, however, highest TSS (12.44 %), dry matter (13.82 %) and lowest moisture (86.18 %) were recorded in the line L-869.

Table.1 Evaluation and conservation of onion germplasm for *Kharif* season

Collection	% Plant establish-ment	Plant height (cm)	Number of leaves/ plant	Neck thickness (cm)	Equatorial bulb diameter (cm)	Polar bulb diameter (cm)	20 bulb weight (kg)	% Doubles	
515	87.42	40.72	6.05	1.05	4.94	3.88	0.78	0.83	(5.17)
552	87.42	39.32	5.25	1.10	5.05	3.83	0.82	0.17	(2.60)
555	90.42	41.32	5.05	1.02	5.05	3.99	0.90	0.20	(2.50)
562	83.42	39.32	4.65	1.06	4.97	3.92	0.88	0.46	(4.33)
581	86.42	40.72	5.25	1.11	5.08	4.01	0.72	0.97	(2.54)
618	86.42	38.32	5.05	0.98	4.95	3.89	0.78	0.97	(2.54)
628	83.42	36.92	5.05	1.05	5.04	3.74	0.82	0.97	(2.54)
682	86.42	40.12	5.65	0.98	4.99	3.81	0.87	0.64	(4.77)
683	77.42	35.92	5.65	1.03	4.89	3.61	0.79	0.97	(2.54)
704	80.42	37.92	4.85	0.99	5.35	3.63	0.77	0.97	(2.54)
705	86.42	38.72	4.45	0.97	4.98	3.90	0.75	0.97	(5.48)
711	81.42	35.92	5.45	1.08	5.08	3.63	0.78	0.97	(2.54)
748	88.42	42.22	7.60	1.09	5.37	4.11	1.02	3.08	(10.61)
750	83.42	45.22	5.60	1.11	5.12	3.72	0.93	2.71	(9.88)
753	86.42	46.62	5.20	1.15	4.82	3.68	0.89	2.33	(9.06)
770	83.42	43.62	4.80	1.04	5.11	3.98	0.97	2.71	(9.88)
780	74.42	37.22	5.20	1.06	5.04	3.84	0.83	0.73	(1.79)
782	71.42	42.02	6.00	1.09	5.10	4.06	0.92	4.58	(13.10)
800	82.42	36.42	5.40	1.12	5.10	3.93	0.84	0.73	(1.79)
807	74.42	39.62	5.20	1.04	5.01	3.86	0.87	0.73	(1.79)
810	74.42	38.42	5.60	1.01	5.11	4.05	0.92	3.51	(11.38)
821	86.42	37.62	5.00	1.06	5.03	3.92	0.77	3.13	(10.70)
822	82.42	39.02	6.20	1.05	5.23	4.08	0.80	4.73	(13.33)
825	88.42	37.82	5.80	1.15	5.10	3.97	0.87	1.97	(8.19)
826	86.17	40.07	5.75	0.98	5.11	3.93	0.91	2.65	(9.67)
844	83.17	43.07	5.75	0.98	5.12	3.93	0.83	2.74	(9.84)
845	71.17	40.57	6.35	1.08	5.08	3.91	0.80	0.24	(0.74)
854	83.17	39.07	5.95	1.01	5.12	3.88	0.86	0.24	(0.74)
862	83.17	41.47	6.55	1.04	5.13	3.97	0.81	0.24	(0.74)
864	90.17	41.27	5.35	1.08	5.08	3.93	0.82	2.23	(8.84)
865	84.17	37.87	5.35	1.02	5.04	3.91	0.91	2.53	(9.44)
866	84.17	39.67	6.35	0.99	5.10	3.70	0.86	2.22	(8.83)
869	83.17	38.47	5.35	1.00	5.07	3.87	0.91	3.24	(10.71)
880	84.17	40.07	5.55	1.05	5.25	4.02	0.86	2.22	(8.83)
881	90.17	45.67	6.55	1.03	5.32	4.06	0.81	4.36	(12.46)
882	83.17	43.87	6.35	1.02	5.12	3.98	0.79	3.24	(10.71)
888	81.17	41.87	6.15	1.19	5.40	3.90	1.01	0.24	(0.74)
ADR (C)	83.00	45.67	6.20	1.03	5.40	4.06	1.03	2.67	(9.37)
L-883 (C)	87.67	49.73	7.60	1.02	5.51	4.11	1.12	0.67	(2.71)
Bheema Dark Red (C)	84.67	44.33	6.20	1.07	5.24	3.96	0.92	2.29	(8.67)
L-863 (C)	84.33	46.53	6.00	0.94	5.32	4.04	0.92	2.29	(8.40)
S.Ed	**3.99**	**2.48**	**0.54**	**0.05**	**0.05**	**0.05**	**0.05**	**-**	**2.80**
CD at 5%	**9.77**	**6.08**	**1.31**	**0.13**	**0.12**	**0.13**	**0.12**	**-**	**6.84**
CV %	**3.38**	**4.22**	**6.50**	**3.51**	**0.69**	**0.98**	**3.95**	**-**	**33.37**

Collection	% Bolters		% Rotten		Gross yield (q/ha)	Market-able yield (q/ha)	Days to harvest	% TSS	% Dry matter	% Moisture
515	0.16	(0.94)	0.08	(0.47)	182.32	174.35	97	11.36	12.56	87.44
552	0.16	(0.94)	0.08	(0.47)	190.42	181.30	102	10.96	12.33	87.67
555	0.16	(0.94)	0.08	(0.47)	172.36	169.72	99	11.32	12.71	87.29
562	0.16	(0.94)	0.08	(0.47)	224.48	211.06	102	11.84	13.21	86.79
581	1.45	(6.36)	0.08	(0.47)	164.96	144.26	99	11.16	12.52	87.48
618	0.16	(0.94)	0.08	(0.47)	174.22	162.78	104	11.56	12.91	87.09
628	0.16	(0.94)	0.08	(0.47)	183.48	158.15	103	11.24	12.66	87.34
682	1.45	(6.36)	1.53	(6.83)	192.73	172.04	103	11.36	12.72	87.28
683	0.16	(0.94)	0.08	(0.47)	185.79	167.41	102	11.56	12.92	87.08
704	0.16	(0.94)	0.08	(0.47)	188.77	175.34	96	12.32	13.75	86.25
705	0.16	(0.94)	0.08	(0.47)	195.51	181.30	96	11.20	12.42	87.58
711	0.16	(0.94)	0.08	(0.47)	192.73	169.26	102	11.56	12.92	87.09
748	0.08	(0.47)	0.08	(0.47)	234.68	221.15	96	11.32	12.72	87.28
750	0.08	(0.47)	0.08	(0.47)	184.68	171.15	91	11.88	13.19	86.81
753	1.68	(7.74)	1.52	(6.80)	190.70	179.49	102	11.32	12.74	87.26
770	0.08	(0.47)	0.08	(0.47)	181.90	168.37	102	11.44	12.82	87.18
780	0.08	(0.47)	0.08	(0.47)	183.76	171.15	103	11.60	12.29	87.01
782	0.08	(0.47)	0.08	(0.47)	174.50	165.60	99	11.28	12.46	87.40
800	0.08	(0.47)	0.08	(0.47)	187.46	171.15	102	12.08	13.55	86.45
807	0.08	(0.47)	0.08	(0.47)	193.01	167.45	102	11.92	13.62	86.38
810	0.08	(0.47)	0.08	(0.47)	213.85	200.32	97	10.96	12.32	87.68
821	0.08	(0.47)	0.08	(0.47)	179.13	171.15	99	11.40	12.82	87.18
822	2.08	(8.60)	1.92	(7.66)	187.46	173.93	98	11.56	12.29	87.08
825	0.08	(0.47)	0.08	0.47	191.16	184.12	103	11.88	13.23	86.77
826	0.08	(0.47)	0.16	(0.94)	201.07	184.36	103	11.64	12.89	87.11
844	0.08	(0.47)	0.16	(0.94)	187.18	173.94	103	11.40	12.82	87.18
845	0.08	(0.47)	0.16	(0.94)	183.71	167.00	103	11.28	12.52	87.48
854	0.08	(0.47)	0.16	(0.94)	173.78	159.06	98	11.44	12.62	87.38
862	0.08	(0.47)	0.16	(0.94)	185.69	170.96	103	11.68	13.00	87.00
864	0.74	(5.14)	0.16	(0.94)	191.64	180.89	96	9.88	11.32	88.68
865	0.08	(0.47)	0.16	(0.94)	182.64	171.27	97	11.92	13.42	86.58
866	2.06	(8.56)	0.16	(0.94)	192.59	178.11	96	12.08	13.62	86.38
869	0.08	(0.47)	1.16	(6.68)	188.15	172.55	102	12.44	13.82	86.18
880	0.08	(0.47)	0.16	(0.94)	217.04	203.11	98	11.48	12.88	87.12
881	0.08	(0.47)	0.16	(0.94)	182.16	170.08	102	11.64	13.01	86.99
882	0.08	(0.47)	0.16	(0.94)	186.48	167.00	95	11.24	12.71	87.29
888	0.08	(0.47)	0.16	(0.94)	234.63	220.24	88	11.24	12.66	87.34
ADR (C)	0.00	-	0.00	-	238.33	224.07	96	11.88	13.41	86.59
L-883 (C)	0.00	-	0.00	-	259.45	243.52	87	11.28	12.78	87.22
Bheema Dark Red (C)	0.00	-	0.32	(1.88)	223.15	211.11	96	11.36	12.71	87.29
L-863 (C)	0.32	(1.88)	0.32	(1.88)	230.56	219.81	84	11.88	13.63	86.37
S.Ed	**-**	**2.31**	**-**	**3.52**	**3.42**	**3.09**	**0.82**	**0.00**	**0.00**	**0.00**
CD at 5%	**-**	**5.64**	**-**	**8.62**	**8.36**	**7.56**	**2.00**	**0.00**	**0.00**	**0.00**
CV %	**-**	**165.09**	**-**	**307.20**	**1.19**	**1.16**	**0.59**	**0.00**	**0.00**	**0.00**

Collection	% AGB	% BGB	% CGB	% USB	Thrips/plant		% thrips incidence		PDI of SB	
515	0.36	44.41	49.15	6.78	20.43	(4.59)	100.00	(10.02)	10.15	(18.45)
552	0.36	44.70	47.05	8.60	19.03	(4.43)	100.00	(10.02)	15.75	(23.35)
555	0.36	41.85	51.80	6.69	20.13	(4.55)	100.00	(10.02)	12.55	(20.67)
562	22.50	52.13	19.22	6.14	20.83	(4.63)	100.00	(10.02)	10.95	(19.21)
581	0.36	58.76	36.13	5.45	22.43	(4.81)	100.00	(10.02)	14.95	(22.70)
618	0.36	66.83	29.68	3.84	19.63	(4.50)	100.00	(10.02)	18.15	(25.20)
628	0.36	64.03	33.98	2.33	20.53	(4.60)	100.00	(10.02)	14.95	(22.70)
682	0.36	50.70	45.81	3.84	20.03	(4.54)	100.00	(10.02)	14.15	(22.04)
683	0.36	60.16	35.79	4.41	20.53	(4.60)	100.00	(10.02)	16.55	(23.98)
704	0.36	54.43	43.93	1.99	22.59	(4.82)	100.00	(10.02)	15.75	(23.35)
705	0.36	63.81	35.60	0.94	22.83	(4.85)	100.00	(10.02)	14.95	(22.70)
711	0.36	55.87	42.03	2.45	20.53	(4.60)	100.00	(10.02)	12.55	(20.67)
748	39.70	52.18	6.16	1.96	15.68	(4.03)	100.00	(10.02)	11.30	(19.71)
750	0.88	59.05	37.31	2.76	17.58	(4.25)	100.00	(10.02)	9.70	(18.34)
753	0.88	51.45	43.69	3.98	16.48	(4.12)	100.00	(10.02)	12.10	(20.37)
770	0.88	48.15	44.24	6.72	17.28	(4.21)	100.00	(10.02)	15.30	(22.87)
780	0.88	54.21	40.43	4.48	18.48	(4.35)	100.00	(10.02)	12.30	(20.53)
782	0.88	64.03	30.46	4.63	17.68	(4.26)	100.00	(10.02)	15.30	(22.87)
800	0.88	56.65	37.69	4.78	15.78	(4.04)	100.00	(10.02)	12.90	(21.02)
807	0.88	65.32	29.32	4.48	15.08	(3.96)	100.00	(10.02)	10.50	(19.03)
810	20.32	48.65	24.69	6.34	16.68	(4.14)	100.00	(10.02)	10.50	(19.03)
821	0.88	53.05	35.69	10.38	16.68	(4.14)	100.00	(10.02)	12.90	(21.02)
822	0.88	53.65	40.69	4.78	17.08	(4.19)	100.00	(10.02)	12.90	(21.02)
825	0.88	57.66	37.58	3.89	16.18	(4.09)	100.00	(10.02)	9.70	(18.34)
826	0.52	66.92	29.77	3.82	16.48	(4.12)	100.00	(10.02)	19.35	(26.33)
844	0.52	63.15	34.65	2.71	18.28	(4.33)	100.00	(10.02)	12.15	(20.34)
845	0.52	59.47	34.94	6.09	18.78	(4.39)	100.00	(10.02)	18.55	(25.73)
854	0.52	59.22	35.36	5.92	19.98	(4.53)	100.00	(10.02)	13.75	(21.80)
862	0.52	63.51	35.36	1.64	20.98	(4.64)	100.00	(10.02)	19.35	(26.33)
864	0.52	54.29	40.71	5.51	18.18	(4.32)	100.00	(10.02)	13.75	(21.80)
865	0.52	54.85	36.29	9.37	19.98	(4.53)	100.00	(10.02)	13.75	(21.80)
866	0.52	66.00	32.32	2.19	18.98	(4.41)	100.00	(10.02)	12.15	(20.34)
869	0.52	69.65	27.65	3.21	19.48	(4.47)	100.00	(10.02)	16.35	(23.99)
880	19.28	51.15	27.37	2.19	17.98	(4.30)	100.00	(10.02)	19.35	(26.33)
881	0.52	57.35	37.79	5.36	18.48	(4.36)	100.00	(10.02)	16.95	(24.48)
882	0.52	61.65	35.65	3.21	18.78	(4.39)	100.00	(10.02)	14.55	(22.49)
888	16.57	44.24	34.69	4.48	18.88	(4.40)	100.00	(10.02)	12.15	(20.34)
ADR (C)	34.43	49.80	13.45	2.32	17.07	(4.19)	100.00	(10.02)	14.40	(22.26)
L-883 (C)	41.84	43.78	11.86	2.51	16.33	(4.10)	100.00	(10.02)	13.60	(21.54)
Bheema Dark Red (C)	24.94	47.54	22.93	4.59	19.97	(4.52)	100.00	(10.02)	13.13	(21.19)
L-863 (C)	31.59	46.07	19.07	3.27	18.27	(4.32)	100.00	(10.02)	13.87	(21.67)
S.Ed	**4.24**	**7.96**	**7.93**	**2.02**	-	**0.33**	-	**0.00**	-	**3.58**
CD at 5%	**10.38**	**19.49**	**19.41**	**4.95**	-	**0.80**	-	**0.00**	-	**8.77**
CV %	**28.45**	**10.40**	**18.05**	**33.96**	-	**5.27**	-	**0.00**	-	**11.60**

Note- Data in the parenthesis shows arcsin transformed values

The highest "A" grade bulb (41.84 %) were recorded in line L-883 and found at par with the lines L-748, Check Agrifound Dark Red, and L-863. The highest "B" grade bulb were recorded in the line L-869 (69.65 %) and found at par with all of the lines except L-515, L-552, L-555, L-770, L-810, L-888 and check Agrifound Dark Red, L-883, Bheema Dark Red and L-863.

The lowest "C" grade bulb (6.16 %) were recorded in the line L-748 and found at par with the lines L-562, L-810, Check Agrifound Dark Red, L-883, Bheema Dark Red and L-863. The highest average bulb weight (112.33 gm) was recorded in the check L-883 and found at par with the line L-748 and check ADR. The minimum under sized bulb (0.94 %) were recorded in the line L-705 and found at par with all of the line except L-515, L-552, L-555, L-562 L-770, L-810, L-821 and L-854. The lowest thrips per plant (3.96) were recorded in the line L-807 and found at par with all the lines except L-581, L-704 and L-711. The incidence of thrips was found 100 % in all the lines. The lowest disease intensity of stemphylium blight (9.70 %) was recorded in the line L-750 and L-825. The lowest incidence of stemphylium blight (60 %) was recorded in the check L-883 and found at par with all the line.

References

Bhonde, S. R., Srivastava, K. J. and Pandey, U. B. (1992). Evaluation of varieties growing 'rangda' crop of onion (Allium cepa L) in Nashik area of Maharashtra. *Maharashtra J. Hort.* 6(2): 39-42.

Khar, A. K., Devi, A. and Lawande, K. E. (1999). Performance studies in resealed onion varieties. *Ann. Rep.* NRC for Onion and Garlic 12-15pp

Mohanty, B.K.(2001). Genetic variability, inter relationship and path analysis in onion. *Journal of Tropical Aquaculture*39:17-20.

Pandey, U. B. (1989). Onion (*Allium cepa* L.)*Indian Horticulture*33-34:58-62

Singh, L, Singh, S. P. and Mishra, P. K. (1991). Evaluation of onion varieties at Karnal. *NHRDF News Letter* VI (3): 3-4

Singh, R. K., Dubey, B. K. Bhonde, S. R. and Gupta, R. P. (2010).Estimates of genetic variability, heritability and correlation in red onion (*Allium cepa* L.) advance lines. *Journal of Indian Agriculture Science*, 80 (2): 160-163

Warade, S. D., Desale, S. B. and Shinde, K. G. (1996). Evaluation of onion cultivars for yield and storability for ragada season. *J. Maharashtra Agric. Univ.* 21(1): 48-49.

How to cite this article:

Singh,· R. K., S. K. Singh and Tailor,· A. K. 2020. Studies on Evaluation, Conservation and Utilization of *Kharif* Onion Genotypes for Growth and Yield. *Int.J.Curr.Microbiol.App.Sci.* 9(04): 877-883. doi: https://doi.org/10.20546/ijcmas.2020.904.105