



Research Note

Effect of dates of transplanting on growth and yield of onion in mid-Rabi under north Gujarat condition

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ABSTRACT : The field experiment was conducted at Horticulture Instructional Farm, Chimanbhai Patel College of Agriculture, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar during the year 2010-2011 to study the effect of dates of transplanting on growth and yield of onion. The experiment revealed that transplanting at 30th September was ideal for obtaining good growth and increased bulb yield of onion. Different dates of transplanting did not exert significant effect on plant stand per plot. The plant height (29.57, 57.77 and 60.63 cm) at 45, 75 and 90 DATP and number of leaves per plant (4.97, 8.73 and 10.89) at 45, 75 and 90 DATP, respectively were significantly higher with transplanting of seedling on 15th September *i.e.* D₂. The neck thickness (1.30 cm) at harvesting time, bolting per cent (24.43%), diameter of bulb (4.82 cm), number of doubled bulb (25.08) per plot, weight of doubled bulb (2.97 kg) per plot, total yield (25.14 kg) per plot, unmarketable yield (7.83 kg) per plot and total soluble solids (14.29%) were significantly higher with transplanting of seedling on 1st September *i.e.* D₁. The minimum days required for maturity (147.33) was recorded with transplanting of seedling on 30th September *i.e.* D₃. The maximum marketable yield (20.39 kg) was significantly higher with transplanting of seedling on 30th September *i.e.* D₃.

KEY WORDS : Onion, Dates of transplanting, Growth, Yield

How to cite this Article : Kumbhkar, B.R., Patel, N.M., Bhadauria, H.S. and Wankhade, V.R. (2012). Effect of dates of transplanting on growth and yield of onion in mid-Rabi under north Gujarat condition, *Internat. J. Forestry & Crop Improv.*, 3 (2) : 165-166.

Article Chronical : Received : 21.09.2012; Accepted : 01.11.2012

Onion (*Allium cepa* L.) is one of the most important vegetable bulb crop grown in India from ancient time. The edible portion is a modified stem which is known as 'bulb' and develops under-ground. Onion is popularly used green as well as mature bulb. It is popular a salad crop and mature onion bulbs are widely used as a cooked vegetable in soups, stews and casseroles in addition to a flavouring agent in many other dishes. Because of its importance in cookery, onion is called queen of

the kitchen by Germans. It is one of the few versatile vegetable crops that can be kept for a fairly long period and can safely withstand the hazards of rough handling including long distance transportation.

A field experiment was conducted on sandy loam soil of Horticulture Instructional Farm, C. P. College of Agriculture, S.D. Agricultural University, Sardarkrushinagar during the year 2010-2011. Nine treatments comprised of three dates of transplanting *viz.*, 1st September, 15th September and 30th September were tested in Factorial Randomized Block Design with four replications. The results revealed that growth and yield attributes *viz.*, plant stand (%) per plot, plant height (cm), number of leaves per plant, neck thickness (cm) at harvesting time, bolting per cent, days taken for maturity, diameter of bulb (cm), number of doubled bulb/plot, weight of doubled bulb (kg/plot), total yield (kg/plot), marketable yield (kg/plot), unmarketable yield (kg/plot) and total soluble solids (%).

It is clear from the data (Table 1) that the maximum plant

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Table 1 : Effect of dates of transplanting on growth of onion (mean for one year of 2010-11)

Treatments	Plant stand % per plot	Plant height (cm)			Number of leaves per plant			Neck thickness (cm)	Bolting (%)	Days to maturity
		45 DATP	75 DATP	90 DATP	45 DATP	75 DATP	90 DATP			
Dates of transplanting										
D ₁ - 1 st September	75.32	23.43	50.80	53.66	4.50	7.37	9.43	1.30	24.43	153.92
D ₂ - 15 th September	75.48	29.57	57.77	60.63	4.97	8.73	10.89	1.22	22.56	152.33
D ₃ - 30 th September	77.23	25.47	55.90	60.13	4.57	7.77	10.02	1.03	9.88	147.33
S.E. ±	0.88	0.55	0.96	1.02	0.08	0.14	0.18	0.023	0.69	1.84
C.D. (P=0.05)	NS	1.60	2.82	2.96	0.25	0.41	0.55	0.067	2.00	5.35

Table 2 : Effect of dates of transplanting on yield and quality of onion (mean for year of 2010-11)

Treatments	Bulb diameter (cm)	Number of doubled bulb	Weight of doubled bulb (kg)	Marketable yield	Unmarketable yield	TSS (%)	Total yield per plot (kg)
Dates of transplanting							
D ₁ - 1 st September	4.82	25.08	2.97	17.31	7.83	14.29	25.14
D ₂ - 15 th September	4.65	19.17	2.06	17.93	6.41	14.05	24.34
D ₃ - 30 th September	4.38	9.25	0.89	20.39	2.82	13.63	23.21
S.E. ±	0.08	0.78	0.08	0.39	0.22	0.17	0.52
C.D. (P=0.05)	0.23	2.29	0.23	1.15	0.65	0.50	1.53

height (29.57, 57.77 and 60.63cm) at 45 DATP, 75 DATP and 90 DATP, respectively was observed with the seedlings transplanted on 15th September *i.e.* D₂. Different date of transplanting did not exert significant effect on plant stand per plot. Number of leaves per plant (4.97, 8.73 and 10.89) at 45, 75 and 90 DATP, respectively was significantly higher with transplanting of seedling on 15th September *i.e.* D₂. The neck thickness (1.30 cm) at harvesting time and bolting per cent (24.43%) were significantly higher with transplanting of seedling on 1st September *i.e.* D₁. The minimum days required for maturity (147.33) was recorded with transplanting of seedling on 30th September *i.e.* D₃.

A perusal of data in Table 2 revealed that the effect of dates of transplanting on bulb diameter was found significant. Significantly the maximum bulb diameter (4.82 cm) was recorded with the crop planted on 1st September *i.e.* D₁, which remained at same bar with the crop planted on 15th September *i.e.* D₂. Maximum number of doubled bulb (25.08) was recorded with 1st September transplanting *i.e.* D₁. Maximum weight of doubled bulb (2.97 kg) was recorded with 1st September transplanting *i.e.* D₁. The minimum weight of doubled bulb (0.89 kg) was recorded with 30th September transplanting *i.e.* D₃. A perusal of data on effect of dates of transplanting on total soluble solids

(%) revealed that it was found significant. Significantly higher TSS (14.29%) was recorded in transplanting on 1st September *i.e.* D₁, but it was at par with treatment D₂ (15th September). The maximum bulb yield (25.14kg) per plot was recorded with the crop planted on 1st September *i.e.* D₁, which was statistically at par with 15th September *i.e.* D₂. While the lowest bulb yield (23.21 kg) per plot was recorded with the crop planted on 30th September *i.e.* D₃.

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