Short Communication

ISAH-INDIAN JOURNAL OF ARID HORTICULTURE
2020, Vol. 2 (1&2):73-74

Assessment of on-farm trial for improved nursery raising technique in chilli

S.K. Bairwa*, R.N. Sharma and L.N. Bairwa
SKN College of Agriculture, SKNAU, Jobner--Jaipur (Rajasthan) 303 329
*Corresponding author's email: skbairwa.kvkdausa@sknau.ac.in
(Received: 15.01.2021; Accepted: 19.03.2021)

Chilli is an important vegetable crop which is grown for green fruits and dry chilli powder as spice. The total production of chilli in India is about 3851 thousand MT in 364 thousand ha area (Anonymous, 2019). India is the largest producer of the chilli in the world followed by China and Pakistan. In India, it has huge demand of green and dry fruits of chilli for aroma, pungency and taste for cooking the vegetables. Biotic factors (sucking pest and soil born diseases) and abiotic factors (temperature, moisture, *etc*.) are the challenges to the farmers. Therefore, improve nursery raising technique is the only option for regular supply, higher yield and better productivity of chilli to raise healthy, vigorous and disease free especially virus free seedlings. Sharmila *et al*. (2014) and Chatterjee and Mal (2016) confirm that it also reduce the quantity of the seeds, cost, labour, money, time *etc*. Pro-tray technology is better for raising seedling, as each seedling grows in cavity allows proper nourishment of seedlings through proper utilization of nutrients; space and sun light (Singh *et al*., 2010). Soilless media is free from microorganism for raising disease free seedlings (Levnish, 2011). It provides adequate space for each seedling to grow, uniform germination, low quantity of seeds, vigorous and healthy seedling, easy in handling, friendly transportation, better root development and early transplant and establishment into the main field. Keeping these facts in view, present on-farm trail was carried out to compare the method being practiced by the local farmers and the improved method.

An on-farm trial was conducted at farmer's field of Dausa district in two consecutive years 2014-15 and 2015-16. The experiment were comprised of three treatments *i.e*. T_1-Farmer's Practices (Use broadcast method in nursery bed), T_2-Recommended Practices (Raised nursery bed + line sowing of seeds), T_3-Raising of seedling in protray using soilless media (Cocopeat : vermiculite: Perlite :: 3:1:1) and 2-3 spray of water soluble fertilizers N:P:K (19:19:19) during seedling stage. Total number of replications were 10 and each treatment has 1250 m^2 area. All the observations were recorded on seedling survival (%), fruit yield (qha^{-1}) and economics. The findings (Table 1) revealed that protray with soilless media (T_3) gives maximum survival (96%), green chilli yield (289 qha^{-1} and 210 qha^{-1}) during the year 2014-15 and 2015-16, respectively followed by recommended practices (T_2) and farmers practices (T_1). The maximum per cent increase in green chilli yield (31.66 and 58.49) was recorded in T_3 followed by recommended practices T_2 (9.56 and 14.83) over farmers practices during the year 2014-15 and 2015-16, respectively (Table 1). These findings are in agreement with the results as reported by Kushwah and Dwivedi (2013); Vivek and Duraisamy (2017). Farmer appreciated the result of on-farm trial in term of productivity and profitability and they adopted and disseminated the technology.

The data in Table 2 showed that economic analysis of the green chilli yield performance under OFT's treatment T_3 - Protray with soilless media gives higher gross returns (Rs. 375700/ha and Rs. 630000/ha) with the net returns (Rs.285124 /ha and Rs. 539695/ha) in the year 2014-15 and 2015-16, respectively followed by recommended practices and minimum in farmer's practices. The maximum B: C ratio (4.15 and 6.98 during 2014-15 and 2015-16) was observed in T_3 followed by recommended practices and minimum in farmer's practices. T_3 treatment showed better effect on production of higher number of healthy seedlings, higher survival per cent, higher yield, net return with higher B:C ratio in comparison to T_2 and T_1. Similar results have also been reported by Pandey *et al.* (2004).

The study demonstrated that chilli seedling raised in soil less media is effective and superior than recommended practices of nursery raising and the farmer's practices. Raising

Table 1. Survival and yield of on-farm trial in chilli

Treatment	Survival (%)			Green fruit yield (q/ha)			% increase in green chilli yield/ha		
	2014-15	2015-16	Pooled Mean	2014-15	2015-16	Pooled Mean	2014-15	2015-16	Pooled Mean
T_1	63	64	63.5	219.5	132.45	175.97	-	-	-
T_2	70	78	74	240.5	152.1	196.3	9.56	14.83	12.19
T_3	95	97	96	289	210	249.5	31.66	58.49	45.07

Table 2. Economics of on-farm trial in chilli

Treatments	Gross return* (Rs./ha)			Net Returns* (Rs./ha)			B:C ratio		
	2014-15	2015-16	Pooled Mean	2014-15	2015-16	Pooled Mean	2014-15	2015-16	Mean
T_1	285350	397350	341350	195200	311250	253225	3.17	4.61	3.89
T_2	312650	456300	384475	225475	371400	298437.50	3.59	5.37	4.48
T_3	375700	630000	502850	285124	539695	412409.50	4.15	6.98	5.56

*Green chilli market price 2014-15 and 2015-16 @ Rs. 1300 /q and Rs. 3000 /q

of seedling in protray using soilless media (Cocopeat: vermiculite: Perlite :: 3:1:1) and 2-3 spray of water soluble fertilizers N:P:K (19:19:19) during seedling stage have great potential for healthy and vigorous seedlings production in chilli. Besides it also resulted in improved vigour in seedlings as reflected through virus free seedlings.

References

Anonymous, 2019. India Horticulture Database, NHB, Gurgoan. www.nhb.gov.in.

Chatterjee, R. and Mal, D. 2016. Influence of nursery technique and growing media on seedling growth and field performance of cabbage (*Brassica oleracea* var. *capitata* L.). *Journal of Environmental & Agricultural Sciences*, 9:15-20.

Levinsh, G. 2011.Vermicompost treatment differentially affects seed germination, seedling growth and physiological status of vegetable crop species. *Plant Growth Regulators*, 65(1):169-181.

Kushwah, S.S. and Dwivedi, Y.C. 2013. Studies on seedling production methods in vegetable crops. *International Journal of Agricultural Sciences*, 9(1): 260-263.

Pandey, K.K., Pandey, P.K. and Mishra, K.K. 2004. Integrated disease management of vegetable nursery. *Vegetable Science*, 31(1): 45-50.

Sharmila, B.C., Mohan, B. and Alagudurai, S. 2014. Raising of hybrid vegetable seedlings under portrays. *Journal of Krishi Vigyan,* 2(2): 64-68.

Singh, B., Tomar, B.S and Hasan, M. 2010. Plug-tray nursery raising technology for off-season cucurbits. *Acta Horticulturae,* 871: 279-282.

Vivek, P. and Duraisamy, V. M. 2017. Study of growth parameters and germination on tomato seedlings with different growth media. *International Journal of Agricultural Sciences and Research*, 7(3): 461-470.