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Evaluation of OFT on different spacing in watermelon

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Abstract
The On Farm Testing (OFT) on "Evaluation of different spacing in watermelon" during the *Summer* season was conducted by Krishi Vigyan Kendra, Navsari Agricultural University, Waghai on farmers field in three villages namely Ambapada, Davdahad and Borigavtha of Waghai taluka during the years 2013-14 to 2015-16 comprising of three different spacings tratments viz., T_1 = 1.0 x 0.5 m (Farmers practices), T_2 = 2.0 x 1.0 m (Normal spacing) and T_3 = 1.0 x 0.6 x 3.4 m (Paired row spacing). The results revealed that the watermelon crop sown at paired row spacing resulted in higher yield of 19300 kg/ha as well as net returns of Rs. 1, 50,500/ha as compared to 18108 kg/ha yield & Rs. 1, 40,580/ha net income under normal spacing and the farmer's practices recorded the least values for both the parameters (15174 kg/ha and Rs. 109240/ha, respectively). So, on the basis of OFT results, it is recommended to grow watermelon crop at a spacing of 1.0 x 0.6 x 3.4 m for obtaining higher yield & net returns.

Keywords: Okra, spacing, yield and OFT

1. Introduction

Watermelon (*Citrullus lanatus*) also known as *Tarbuj* is an important cucurbitaceous vegetable as it is relished by both rich as well as poor peoples. The fruits contain 92% water, 0.2% protein, 0.3% minerals 7.0% carbohydrates in a 100 g edible flesh which serve the need of water and energy on a hot day particularly in summer season. In Dangs, farmers are practicing very narrow spacing which results in difficulty in management practices of the crop and also increase the incidence of pest and diseases that ultimately affects the quality of fruit along with decrease in the yield and also increase cost of production due to requirement of more seed. In this regards, the OFT was conducted by KVK, NAU, Waghai with main objectives to increase production and decrease cost of cultivation and bring awareness among the tribal farmers of the district about spacing management in watermelon cultivation through transfer of technology.

2. Material and Methods

The present investigation was conducted in summer season for three years during 2013-14, 2014-15 and 2015-16 by KVK, NAU, Waghai, District Dangs of Gujarat state. The treatment comprising of three different spacings viz., T_1 = 1.0 x 0.5 m (Farmers practices), T_2 = 2.0 x 1.0 m (Normal spacing) and T_3 = 1.0 x 0.6 x 3.4 m (Paired row spacing). Two farmers from each village and total six farmers were selected from the three villages namely Ambapada, Davdahad and Borigavtha of Waghai taluka and the total area of the OFT was 1.8 ha with 0.1 ha under each treatment/farmer. The team of KVK scientists had made survey of the village to identify the adoption gap and technological needs of farmers as well as their socio economic status. Farmers were trained to follow the practices for watermelon cultivation as recommended by the State Agricultural Universities and need based input materials were also provided to the farmers. The farmers followed the full package of practices like soil testing, seed treatment, raised bed method of sowing, timely manures and fertilizer application, use of bio-fertilizers, weed and water management, IPM practices, etc. The yield data were collected from all the treatments during the three years and the average was worked out.

3. Results and Discussion

The data presented in Table-1 revealed that the paired row spacing of 1.0 x 0.6 x 3.4 m in watermelon resulted in maximum average yield of 19300 kg/ha and was followed by normal spacing of 2.0 x 1.0 m which recorded 18108 kg/ha yield, whereas the least production of

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15174 kg/ha was obtained under farmers practices (1.0 x 0.5 m spacing). Moreover, there was 27 % increase in yield under T_3 as compared to farmer's practices. It was observed that potential yield can be achieved by imparting scientific knowledge to the farmers by providing the need based techniques & quality inputs. This results clearly indicated that the higher average yield in T_3 over the years as compare to farmers practice may be due to knowledge and adoption of full package of practices i.e. use of recommended dose of fertilizers through INM, bio fertilizer, Vermi compost, and timely application of plant protection chemicals. Similar results were also reported by Dhemre and Desale (2010) [3]. And Aklade *et al*. (2018) [1] in okra, Kalalbandi *et al.* (2006) [4] in chilli, Balai *et al.* (2013) [2] and Singh *et al.* (2011) [6] in vegetable crops.

Table 1: Effect of different spacing's on yield (kg/ha) of watermelon

Year	1st Year (*Summer*, 2013-14)			2nd Year (*Summer*, 2014-15)		
	T 1	T 2	T 3	T 1	T 2	T 3
Highest	16100	19500	21200	15600	19900	20110
Lowest	13900	17500	18000	13000	16800	18200
Average	15272	18475	19367	14550	17500	18935

Year	3rd Year (*Summer*, 2015-16)			Average of Three Years		
	T 1	T 2	T 3	T 1	T 2	T 3
Highest	16700	19400	20800	16133	19600	20703
Lowest	14300	17500	17900	13733	17267	18033
Average	15700	18350	19600	15174	18108	19300

Further for calculating cost of cultivation, gross return, net return and benefit: cost ratio, the input and output prices of commodities prevailed during the study were taken into consideration and the data as presented in Table-2 indicated that the cultivation of watermelon at paired row spacing gave maximum net returns of Rs.1, 50,500/ha along with higher BCR of 1: 4.77 as compared to T_2 and T_1. This may be due to higher yield obtained under improved technologies as compared to local check (farmers practice). These findings are also in accordance to those obtained by Singh *et al.* (2011) [6] in solanaceous vegetables and Shalini *et al.* (2016) [5] in tomato.

Table 2: Effect of different spacing's on net returns & BCR in watermelon

Treatment	No. of trials	Yield (t/ha) (Ave.)	Gross Return (Rs./ha)	Cost of cultivation (Rs./ha)	Net Returns (Rs./ha)	BC Ratio
T_1: 1.0 x 0.5 m (Farmers practices)		15.174	151740	42500	109240	3.57
T_2: 2.0 x 1.0 m (Normal spacing)	6	18.108	181080	40500	140580	4.47
T_3: 1.0 x 0.6 x 3.4 m (Paired row spacing)		19.300	193000	40500	150500	4.77

(Note: Selling price of watermelon @ Rs. 10.00 per kg)

4. Conclusion
On the basis of OFT results, it is recommended to grow watermelon crop at a spacing of 1.0 x 0.6 x 3.4 m (paired row) for obtaining higher yield & net returns. In terms of impact of this OFT, at least 100 farmers had adopted this technology in there field around Ambapada, Davdahad and Borigavtha villages.

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