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Extent of Adoption of Improved Cultivation Practices of Watermelon

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ABSTRACT

Watermelon is an important vegetable crop grown in Solapur district as such present study was conducted in Solapur district of Maharashtra state. A total of 120 respondents from ten villages formed sample for the study. The data were obtained by interview schedule. It was observed that, 56.66 per cent of respondents had completely adopted harrowing, 52.50 per cent respondents had completely adopted rotavator for watermelon cultivation, 60.00 per cent of the watermelon growers had adopted normal recommended planting distance, 78.33 per cent of watermelon growers had completely adopted the recommended seed rate for sowing of watermelon, 74.17 per cent of the respondents had complete adoption of *sugar baby* variety of watermelon, 55.83 per cent of the respondents had complete adoption of recommended basal dose of fertilizers as per MPKV, Rahuri, 93.33 per cent of the respondents had completely adopted the cultural methods for weed the recommendation of management, 31.67 per cent respondents had adopted the flood method of irrigation. In overall, nearly two third 65.00 per cent of watermelon growers had medium level of adoption.

Keywords*:* Adoption, Improved cultivation practices, Watermelon and respondents

INTRODUCTION

Watermelon (*Citrullus lanatus* L.) is grown in tropical and subtropical regions of the world. The total area under cultivation of watermelon in India is 92 thousand ha and production of 2292.00 thousand MT. (Ministry of Agriculture, Govt. of India, 2015-16). Number of Indian states grow watermelon. Interestingly, these regions vary considerably in their climate, but the adaptability and versatility of watermelon allows the fruit to thrive in different types of soils. Watermelon is important vegetable crop having good prospects in Maharashtra state as well as country. It is an important vegetable crop grown in Solapur district due to its hardy nature and prolific bearing even in marginal lands. Its cultivation require little care and inputs. Also it has nutritional value, as well as, good selling price in market and can be kept for long time.

METHODOLOGY

The study was conducted in Solapur district located in the western part of Maharashtra. In Solapur district, Malshiras tehsil was purposively selected for the study on the basis of highest area under watermelon. The list of watermelon growing villages of Malshiras tehsil was obtained from Taluka Agriculture Officer. Ten villages from this tehsil were purposively selected for the study on the basis of area under watermelon crop. Twelve watermelon growers were selected from each village by simple random sampling method. Thus, in all 120 watermelon growers were selected. The pretesting of the interview schedules of 10 watermelon cultivators helped the researcher to make modifications and alternations in order to get spontaneous responses from the respondents. After making the required changes in the interview schedule, it was finalized and used for data collection.

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RESULT AND DISCUSSION

The data on adoption of recommended practices of watermelon cultivation is presented in Table 1. The adoption of the respondents regarding the recommended improved cultivation practices of watermelon presented in table no.1 is discussed. It was observed that cent per cent of the watermelon growers had complete adoption of land preparation tillage practices like ploughing, while, 56.66 per cent of respondents had completely adopted harrowing and 52.50 per cent respondents had completely adopted rotavator for watermelon cultivation. It was found that cent per cent respondents were adopting sowing of watermelon during summer season in the month of Dec-Feb and 55.83 per cent during kharif season in the month of June-July. It was observed that that majority (60.00%) of the watermelon growers had adopted normal recommended planting distance of 2 x 0.5 m. The majority (78.33%) of watermelon growers had completely adopted the recommended seed rate for sowing of watermelon.

Table 1: Distribution of the respondents according to their of adoption of improved cultivation practices of watermelon

S.No.	Recommended practices	Adoption		
		Complete	Partial	No
1.	**Preparatory tillage**			
	A) Land preparation			
	1. Ploughing	100.00	00.00	00.00
	2. Harrowing 2-3 times and leveling	56.66	34.17	09.17
	3. Rotavator	52.50	31.67	15.83
	B) Time of Sowing			
	1. Summer-15 Dec-15 Feb (Temp-17^{o}C to 18^{o}C)	100.00	00.00	00.00
	2. *Kharif* (June-July)	55.83	32.50	11.67
	C) Planting distance: 2 x 0.5 m	60.00	13.33	26.67
2.	**Seed and Sowing**			
	2.0-3 kg/ha	78.33	16.67	5.00
3.	**Selection of variety**			
	a] Sugar Queen	100.00	00.00	00.00
	b] Madhubala	81.67	12.50	05.83
	c] Sugarbaby	74.17	18.33	07.50
	d] Madhu	68.33	21.67	10.00
	e] Arka manik	65.00	19.17	15.83
	f] Arka jyoti	60.00	17.50	22.50
	g] Milan	55.00	38.33	06.67
	h] Badshah	54.17	25.83	20.00
	i] Super king	50.00	35.83	14.17
	j] Other varieties	46.67	35.83	17.50
4.	**Mulching**			
	a] Spread 25-30 micron thick mulching paper (polythene) with 4 feet width on broad bed cover edges with soil. Be aware that paper should be spread parallel to bed and should not loose easily. Generally required 8-10 kg paper/ha	84.17	10.83	05.00
	b] Day before transplanting make holes at distance 15 cm to both sides of laterals. Distance between two holes should be 2 m in line. After making holes wet broad bed with drip irrigation.	86.67	10.00	03.33
	c] Then transplanting should be done with 12 day old plants. (Requires 10000-12000 seedlings / ha)	90.00	6.67	3.33

Table 1 contd....

S.No.	Recommended practices	Adoption		
		Complete	**Partial**	**No**
5.	**Recommended dose of fertilizers**			
	Application of fertilizers			
	A] Major Nutrients			
	1] Basal dose (full dose of P, K and 50 % N per ha)			
	N P K			
	50 kg 50 kg 50 kg	55.83	34.17	10.00
	2] Top dressing (Remaining 50% N per ha)			
	50 kg - -	57.50	36.67	05.83
	Application of manure			
	15-20 tonnes / ha	65.00	22.50	12.50
6.	**Method used for application of fertilizers**			
	A] Broadcasting by hand	74.17	20.00	05.83
	B] Fertigation (through drip irrigation) –according to recommended dose	77.50	13.33	09.17
7.	Micronutrients deficiency in watermelon	10.83	20.83	68.34
8.	**Methods of integrated weed management**			
	a] Cultural method-Hand weeding, Ploughing, Harrowing	93.33	02.50	4.17
	b] Chemical method	64.17	25.00	10.83
	c] Biological method	00.00	12.50	87.50
9.	**Irrigation management**			
	Method of irrigation			
	a] Flood method	31.67	26.67	41.66
	b] Drip method	68.33	21.67	10.00
10.	**Proper stage of harvesting**			
	1] Mature Stage-Heavy Dull Sound	100.0	00.00	00.00
	2] Drying of Tendril	100.0	00.00	00.00
11.	**Major pest of watermelon**			
	Methods of controlling pest			
	1] Chemical method	67.50	27.50	05.00
	{a) Leaf minor & b) Red pumpkin beetle:-Dimethoate 0.05% in 10 lit of water c) Fruit fly:- 20 ml Malathion /10 litre water + 100 g Jaggery d] Aphid & e) Jasid:-0.1% Malathion or Dimethoate @ 1.5 ml / litre water}			
	2] Mechanical method	59.17	25.83	15.00
	{ a) Leaf minor:- Yellow sticky trap, Pheromone trap, Light trap b) Fruit fly:- Rakshak trap (Dr. BSKKV, Dapoli)}			
	3] Biological method	3.34	5.00	91.66
	{ a) Leaf minor & b) Jassid :- NSKE 4% or Trizophos 20 ml/ 10 litre }			
12.	**Major diseases of watermelon**			
	Method of controlling diseases			
	Chemical method{ a) Blast:-Spraying Mancozeb or Copper oxychoride 25g/10 litre waterb) Powdery mildew:-Spraying Carbendazim @ 10 g / 10 litre waterc) Wilt:-Seed treatment with Thirum 3g.}	59.17	18.33	22.50
13.	**Marketing channels available in your locality**			
	a) Self marketing	92.50	4.17	3.33
	b) By auction	35.00	21.67	43.33
	c) Agril. Produce Market Committee	78.33	16.67	5.00
	d) Other	16.67	18.33	65.00

In respect of recommended watermelon varieties, it was observed that cent percent of respondents had completely adopted Sugar Queen variety, while, 81.67 per cent of the respondents had complete adoption of Madhubala variety. It was observed that nearly three-fourth (74.17%) of the respondents had complete adoption of Sugar baby variety of watermelon growers. It was observed that a large majority of the respondents had complete adoption of mulching practices of watermelon.

Regarding fertilizer management, it was revealed that 55.83 per cent of the respondents had complete adoption of recommended basal dose of fertilizers as per MPKV, Rahuri, while, 57.50 per cent of the respondents had complete adoption of recommended top dressing dose of N fertilizer of watermelon and 65.00 per cent had completely adopted the manure application in watermelon. It was observed that majority (74.17%) of the respondents had completely adopted the application of fertilizer for broadcasting by hand and 77.50 per cent of the respondents about fertigation (through drip irrigation) according to recommended dose. A substantial proportion (68.34%) of the respondents had not adopted the application of micronutrients.

It was observed that majority (93.33%) of the respondents had completely adopted the cultural methods for weed management, while, 64.17 per cent of the respondents about chemical methods for weed management. The biological method was not adopted by large majority (87.50%) respondents. The data in revealed that more than one third (68.33%) of the respondents had completely adopted the drip method of irrigation for watermelon, while, only 31.67 per cent respondents had adopted the flood method of irrigation. The recommended stage of harvesting of watermelon when drying of tendril with mature stage-heavy dull sound was completely adopted by all the respondents. It was observed that 67.50 per cent of the respondents had completely adopted chemical methods of pest control, while, 59.17 per cent respondents adopted the mechanical methods and a large majority (91.66%) were observed to non-adopt the biological methods. It was observed that more than half (59.17%) of the respondents had complete adoption of disease management in watermelon. It was found that a large majority (92.50%) watermelon growers preferred self-marketing channel for marketing of watermelon, whereas, 78.33 per cent of the respondents sold watermelon through Agriculture Produce Market Committee and 35.00 per cent of the respondents sold their produce by auction.

Adoption of an innovation is one of the means by which farmers can improve their economic conditions. Adoption is a process that involves behavioral changes on the part of individuals. The data pertaining to the distribution of the watermelon growers by their extent of adoption of watermelon recommendations is presented in Table 2.

Table 2: Distribution of the respondents according to their adoption level of improved cultivation practices of watermelon (N=120)

Adoption category	Frequency	Per cent
Low (Upto 63 Score)	19	15.83
Medium (64 to 75 Score)	78	65.00
High (76 Score and above)	23	19.17
	Mean=69.78	**S.D=5.85**

The data presented in Table 2 indicated that majority of the respondents (65.00%) had medium level of adoption followed by 19.17 per cent and 15.83 per cent with high and low levels of adoption of watermelon recommendations, respectively.

CONCLUSION

Adoption is a mental process. In the modern era new things are being invented by agricultural scientists but all the innovations are not being adopted by many of the members of social system. Adoption of an innovation depends on many factors viz., awareness and knowledge of adopters, innovativeness, characteristics of an innovations etc. In this research observed that two third (65.00%) of respondent watermelon growers had medium level adoption, while, 19.17 per cent had high level of adoption and 15.83 per cent of watermelon growers had low level of adoption. The researcher hopes that this research study would be highly useful in understanding the adopting the improved cultivation practices

technology. Moreover, the results of this study will help the extension workers and other associated with watermelon production in performing their functions more effectively.

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