Original Research Article

A Study on Adoption of TNAU Released Small Onion Variety CO (On) 5 among Farmers of Perambalur District, Tamil Nadu

ABSTRACT

Onion (*Allium cepa* L.) is an inevitable vegetable used in Indian food. In India, Tamil Nadu is one of the major producers of small onion. The study on adoption of small onion CO (On) 5 was conducted in Perambalur district which was the topmost producer of small onion in Tamilnadu. Of the 4 blocks of Perambalur, Alathur block was purposively selected for this study. The data were collected from 120 respondents using well-structured interview schedule. The collected data were analysed using descriptive statistics, simple correlation and multiple regression analysis. The results of the study revealed that 65.83 per cent of the respondents belonged to medium level of adoption category, followed by 23.33 per cent and 10.33 per cent of the respondents in low and high level of adoption categories.

Keywords: Small onion; CO (On) 5; Adoption; ex post facto research design.

1. INTRODUCTION

Agriculture in India is projected to register a CAGR of 4.9% during the forecast period 2022-2027. Horticultural crops include different variety of vegetables, fruits, etc. Horticultural crop production goes on an increasing trend in the last few years. Total Horticulture production in 2020-21 is estimated to a record 334.60 Million Tonne, which is an increase of about 14.13 Million Tonne (4.4%) over that achieved in 2019-20 [1]. Onion is one of the major horticultural crops which is enumerable in the Indian diet and also has many medicinal characters. India is one of the largest producers of onion next to China. Onion production in India was around 26.64 million metric tonnes during 2021-22 [1]. During 2004-05 and 2009-10, the rural consumption of onions increased to 32 per cent and urban consumption of onions increased to 18 per cent in India (Kalaiselvi, 2020) [2]. There were different varieties of small onion cultivated in different regions of India. The quality, production and price of Kharif grown onion are lesser then those grown in Rabi season [3]. In Tamilnadu, the majority of the farmers prefer CO (On) 5 small onion variety which was released by Agricultural College and Research Institute, Tami Nadu Agricultural University, Coimbatore. Because of its bigger size and attractive colour, the Co (On) 5 bulbs fetches higher price always in the market. Moreover, for export during the period of March to September the bulbs of bigger size such as CO (On) 5 is preferred [4]. This small onion CO (On) 5 variety was the best suited variety for cultivation in Perambalur district. This study was conducted to analyse the adoption level of CO (On) 5 variety. Based on the results we could find the adoption level and the variables which contributed for adoption of CO (On) 5.

2. MATERIAL AND METHODS

This study had been conducted using *ex post facto* research design. Perambalur district was purposively selected for this study, as it was the largest producer of small onion in Tamilnadu. It had 4 blocks. They were Perambalur, Kunnam, Veppanthattai, Alathur. Among the four blocks, Alathur block produces more quantity of small onion compared to others. In Alathur block four villages were selected using the simple random sampling method. In those four villages, 120 respondents were selected using the proportionate random sampling method. 40 respondents from Irur, 34 respondents from Chettikulam, 24 respondents from Padalur and 22 respondents from Nattarmangalam were selected for this study. The interview schedule was framed with the scale followed by Muthulakshmi (2021) [5] and each farmer was interviewed individually to obtain data. The collected data were

analysed using frequency, percentage, mean, standard deviation, simple correlation analysis and multiple regression analysis.

3. RESULTS AND DISCUSSION

Table 1. Distribution of respondents based on the adoption level of Small onion CO (On) 5 cultivation technologies (n=120)

S.No	Statements	Adoption	Non-adoption
1.	Season for planting small onion CO (On) 5 variety in Perambalur (October-November)	120 (100.00)	0
2.	Main field preparation- The field is ploughed to a fine tilth	120 (100.00)	0
3.	Method of planting		
	a) Nursery – seed rate 8 kg /ha	0	120 (100.00)
	b) Directly planting bulbs - 1000 kg/ha	67 (55.83)	53 (44.16)
4.	Gap filling – 6 to 8 days after planting	120 (100.00)	0
5.	Irrigation – Drip irrigation (once in 15 days)	30 (25.00)	90 (75.00)
6.	Farm Yard Manure/ Compost (25 t/ha)	68 (56.67)	52 (43.33)
7.	Basal application – 30:60:30 NPK kg/ha	116 (96.66)	4 (3.33)
8.	Top dressing – 30 kg N /ha at 30 days after sowing	114 (95.00)	6 (5.00)
9.	Azospirillum – 2 kg/ha	40 (33.33)	80 (66.66)
10.	Phosphobacteria – 2 kg/ha	32 (26.66)	88 (73.33)
11.	Weeding - Pre plant incorporation of Basalin 2kg a.i./ha + 1 Hand Weeding	115 (95.83)	5 (4.16)
12.	Thrips - 0.1 % Malathion + 0.1 % sandovit 4spray @ 15 days interval	77 (64.16)	43 (35.83)
13.	Onion fly - Dimethoate 30 EC 7ml/10 lit	17 (14.16)	103 (85.83)

14.	Cut worm - Chlorpyriphos @ 2 ml/lit	58 (48.33)	62 (51.66)
15.	Leaf spot - Mancozeb 2 gm/lit or Copper oxychloride 2.5 gm/lit and add Teepol 0.5 ml/lit to the spray fluid	37 (30.83)	83 (69.16)
16.	Basal rot - Bulb treatment with Trichoderma viride, @ 4g/kg	70 (58.33)	50 (41.66)
17.	Purple blotch - Dithane M 45 @ 0.25% with triton 0.1% on the first appearance of disease	12 (10.00)	108 (90.00)
18.	Harvesting time - 90 Days after sowing	60 (50.00)	60 (50.00)
19.	Harvesting method – Pulling out plants	120 (100.00)	0
20.	Curing - 3 to 5 days drying in field + Tops are cut leaving 2 to 2.5 cm height of bulb + again drying in field for 7 to 10 days	116 (96.66)	4 (3.33)
21.	Storage – Low cost onion storage structure (shed) / Cold storage @ 0 – 2.2^{0}C	88 (73.33)	32 (26.66)

**Figures in parentheses are percentage to total*

It could be observed from the Table 1, that all the respondents (100%) had adopted the correct season for planting CO (On) 5 variety of small onion. Cent per cent of the respondents (100%) adopted the main field preparation practice. The above results shown that none of the farmers had adopted nursery method of planting. Cent per cent of the farmers adopted the method of direct planting of bulbs. But only 55.83 per cent of farmers followed the recommended quantity of bulbs for planting. Cent per cent of the farmers adopted the recommended practice of gap filling within 6 to 8 days after sowing.

Only one fourth (25.00%) of the respondents adopted drip irrigation practice. Around 56.67 per cent of farmers had applied farm yard manure (or) compost before sowing. Majority of the farmers (96.66%) followed the recommended practice of basal application of fertilizers of 30:60:30 Nitrogen, Phosphorus and Potassium kilo grams per hectare. Majority of the farmers (95.00%) followed the recommended practice of top dressing 30 kg Nitrogen per ha at 30 days after sowing. Only one third (33.33%) of the farmers applied Azospirillum 2 kg/ha. Only 26.66 per cent of respondents applied Phosphobacteria 2 kg/ha. Due to high cost of labour for seed treatment, the adoption of Azospirillum and Phosphobacteria for bulb treatment were less. Since, the recommended small onion bulb rate was 1000 kg/ha, it required a greater number of labourers. Due to high cost of labourers, though they aware of these practices, they were unable to adopt. Majority of the farmers (95.83%) adopted the recommended practice of weeding.

Little less of two third (64.16%) of farmers had adopted recommended control measure for controlling thrips. Only 14.16 per cent of farmers adopted recommended practice for controlling onion fly. Nearly half of the farmers (48.33%) adopted recommended control measure for cut worm. Nearly one third of farmers (30.83%) adopted recommended control measure for leaf spot and 58.33 per cent of farmers adopted the recommended control measure for basal rot. The adoption of recommended control measure for purple blotch disease was 10.00 per cent.

Exactly half of the farmers (50.00%) followed recommended harvesting time which was 90 days after sowing. Cent per cent of the farmers harvested small onion by pulling out plants. The majority of the farmers (96.66%) followed the recommended curing procedure. Nearly three fourth (73.33%) of farmers adopted recommended storage procedure. Rest of the farmers stored onion simply in the fields by traditional storage practice which was not recommended.

3.1 Overall Adoption of CO (On) 5 Growers about Recommended Cultivation Practices

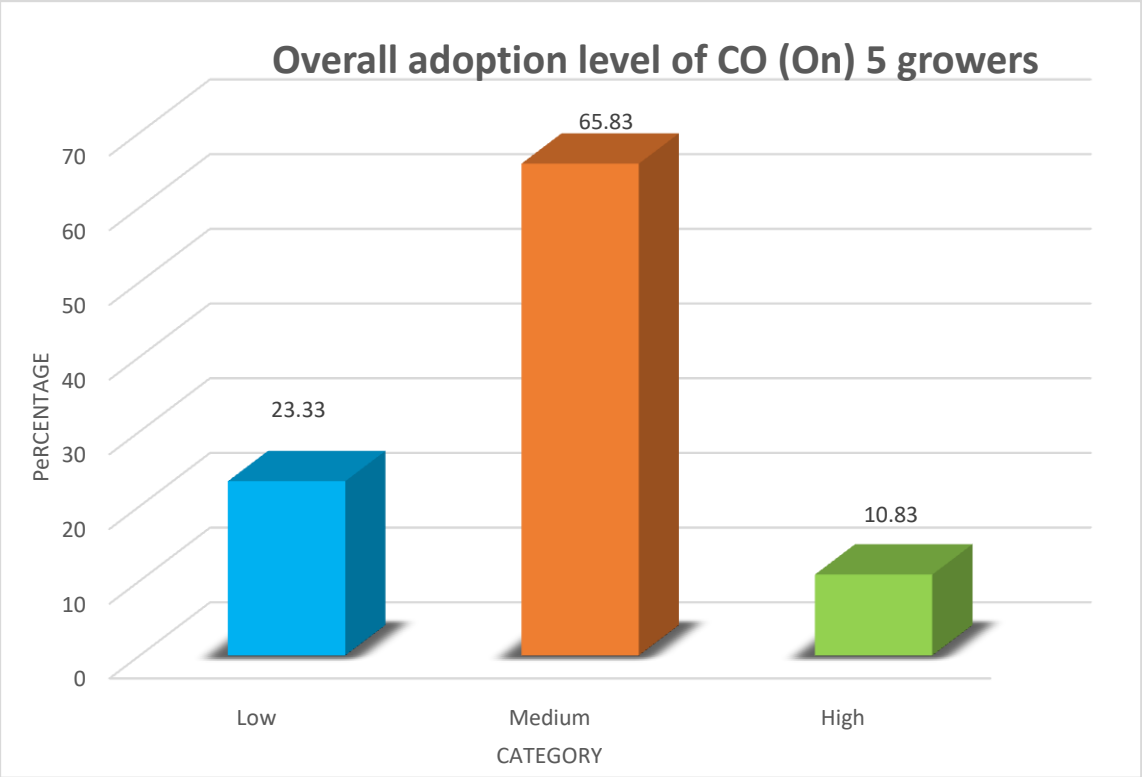

Fig. 1. Overall adoption level of CO (On) 5 growers about recommended cultivation practices

It was concluded from the Fig. 1, that majority (65.83%) of the farmers had medium level of adoption. Next to that 23.33 per cent of farmers had low level of adoption and it was followed by high (10.83%) level of adoption. The reasons might be the farmers had good extension agency contact and information seeking behaviour. The findings of the present study were in concordance with the results of Singh et al., (2019) [6].

4. CONCLUSION

The results obtained from the study shown that most of the farmers (65.83%) in Perambalur district had medium level of adoption of CO (On) 5. Three fourth (75.00%) of the farmers had not adopted drip irrigation practice due to incompatibility of drip with existing field situation. This shows that they did not know to use drip irrigation practice properly. So, they should be given with basic training about how to use drip effectively. Regarding pest and disease management, onion thrips and basal rot disease incidence were high when compared with other pests and diseases. If they follow the recommended practice, they can reduce crop loss and increase the yield efficiently. Exactly half (50.00%) of the farmers were not followed the recommended time of harvest. Since they had previous experience of how to harvest and when to harvest, they followed their own practice. Since the CO (On) 5 variety did not have qualities preferred by Agricultural and Processed Food Products Export Development Authority (APEDA), it did not prefer for exporting. So, the quality of small onion should be improved in future to increase marketing opportunities and to get best prices.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the

advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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