



# A DIAGNOSTIC STUDY OF TRAINING NEEDS OF PLANT PROTECTION IN TAPIOCA IN TAMIL NADU

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## Abstract

Tapioca is one of the most important tropical root crops. Its starchy roots are a major source of dietary energy for more than 500 million people. It provides raw material for paper, laundry, pulp, textiles, pharmaceuticals, glue, plywood, rubber, medicine and glucose industries. In South India, tapioca is widely grown in Kerala and Tamil Nadu. To achieve the growing demands of increasing population in our country the tapioca production has to be raised. Most of the tapioca growers are still practising primitive technologies in plant protection. This is primarily due to the reason that there is considerable gap between the technology developed on the research farms and its implementation in the tapioca field. The transfer of technology is a function of many development factors, training being an important one. Hence, a study was undertaken to identify the training needs of tapioca growers in plant protection. The study was taken up in the tapioca predominant districts of Salem, Dharmapuri, Namakkal and Villupuram in Tamil Nadu state with a sample size of three hundred growers selected based on random sampling procedure. This study revealed that majority of the respondents perceived training need regarding pest management, disease management and weed management. Under pest management, aspects like 'management of red spider mite', 'management of scales' and 'identifying red spider attack' were the specific subject matter areas the farmers sought for training. With regard to disease management, 'management of cercospora leaf spot' and 'management of phoma disease' are the specific subject matter areas where farmers need training. With regard to weed management, the farmers wanted training on specific aspects like 'method of preparation weedicide spray solution' and 'correct time and method of application of weedicides'.

**Key words:** Training needs, Plant protection and Tapioca growers.

## Introduction

Tapioca (*Manihot esculenta crantz*) globally known as "famine crop", is one of the most promising root tubers. It is believed to have grown in India for more than a century, which remains as a staple food, for about 500 million people worldwide. This starchy root belongs to the spurge family *Euphorbiaceae*. It is also called as monioc, mandioca and yucca in different parts of the world. It is grown by smallholder farmers around the world for its high yield and significant caloric content and tolerance to inconsistent and low water availability. At present, tapioca supports food security and income for over 800 million people worldwide (Linder *et al.*, 2013).

World production of tapioca in 2013-14 is estimated at over 277 million tonnes from an area of about 20 million hectares. Nigeria (20 percent), Thailand (11 percent),

Indonesia (9 percent) and Brazil (8 percent) are the world's largest producers with respect to area under tapioca. In tapioca cultivation, India ranks 25<sup>th</sup> in area, 11<sup>th</sup> in production and 1<sup>st</sup> in productivity (34.95 tonnes/ha). Tapioca is cultivated in an area of 0.21 million ha in India, with a total production of 7.74 million tonnes. Tamil Nadu State stands first (64 percent) in respect of tapioca production and also processing of tapioca into starch & sago. The cultivation of tapioca spread widely in Kerala as food crop and slowly became an industrial crop in Tamil Nadu due to its high industrial value for its products. Tapioca is being cultivated in major 14 districts including Namakkal (21 percent), Dharmapuri (19 percent), Salem (15 percent), Villupuram (14 percent), Trichy (9 percent), Erode (5 percent), and Thiruvannamalai (5 percent) in an area of 1.21 lakh hectare (Srikanth, 2018).

Edison (2005) reported that tapioca provides ample scope for diversification and value addition. There lies a

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vast opportunity for non-traditional uses of tapioca in the form of value added foods, animal feed formulation, production of starch, sago as well as commodity chemicals like citric acid and high fructose syrup. Tapioca is an enterprise that provides support to the rural industrial sector. More than 5 lakhs of rural people are directly employed in tapioca based industries. This has given employment for the rural mass and augments the economic growth of rural India.

At present, new plant protection technologies in the cultivation of tapioca are not utilized fully by farmers due to some constraints. Training of farmers is necessary in tapioca field. Most of the tapioca growers are still practicing primitive technologies in plant protection. This is primarily due to the reason that there is considerable gap between the technology developed on the research farms and its implementation in the tapioca field. The transfer of technology is a function of many development factors, training being an important one. In order to make any training more meaningful and effective, training needs of the farmers have to be established prior to any training programme in plant protection, so that the specific subject matter areas of training could be determined on the basis of the needs or expectations of the farmers for effective plant protection.

## Materials and Methods

The study was conducted in the tapioca predominant districts of Salem, Dharmapuri, Namakkal and Villupuram in Tamil Nadu State. Attur, Harur, Rasipuram and Sankarapuram taluks were purposively selected since they have the largest area under tapioca cultivation in Salem, Dharmapuri, Namakkal and Villupuram districts respectively. A total number of 300 tapioca growers were selected following the proportionate random sampling method. The data were collected through personal interview using a well-structured, pre-tested interview schedule. The collected data were properly analysed using statistical procedures and the results are tabulated.

## Result and Discussion

The findings on the training needs of plant protection of the farmers are presented in the headings viz. pest management, disease management and weed management.

### a) Training Needs of Tapioca Growers in Pest Management

The specific subject matter areas in pest management where the tapioca growers perceived the need for training are presented in Table 1.

**Table 1:** Training Needs of Tapioca Growers in Pest Management

(n=300)

S.No	Items	Most Needed		Needed		Not Needed		Mean Score
		No.	Percent	No.	Percent	No.	Percent	
1.	Identifying whitefly attack	92	30.67	13	4.33	195	65.00	1.66
2.	Management of whitefly	180	60.00	12	4.00	108	36.00	2.24
3.	Identifying scales attack	156	52.00	18	6.00	126	42.00	2.10
4.	Management of scales	241	80.33	14	4.67	45	15.00	2.65
5.	Identifying red spider mite attack	207	69.00	24	8.00	69	23.00	2.46
6.	Management of red spider mite	250	83.33	18	6.00	32	10.67	2.73
Average mean score								2.31

**Table 2:** Training Needs of Tapioca Growers in Disease Management

(n=300)

S.No	Items	Most Needed		Needed		Not Needed		Mean Score
		No.	Percent	No.	Percent	No.	Percent	
1.	Identifying mosaic	72	24.00	14	4.67	214	71.33	1.53
2.	Management of mosaic	158	52.67	12	4.00	130	43.33	2.09
3.	Identifying tuber rot	46	15.33	9	3.00	245	81.67	1.34
4.	Management of tuber rot	183	61.00	5	1.67	112	37.33	2.24
5.	Identifying phoma disease	166	55.33	15	5.00	119	39.67	2.16
6.	Management of phoma disease	222	74.00	13	4.33	65	21.67	2.52
7.	Identifying cercospora leaf spot	210	70.00	18	6.00	72	24.00	2.46
8.	Management of cercospora leaf spot	243	81.00	15	5.00	42	14.00	2.67
Average mean score								2.13

**Table 3:** Training needs of tapioca growers in weed management

(n=300)

S.No	Items	Most Needed		Needed		Not Needed		Mean Score
		No.	Percent	No.	Percent	No.	Percent	
1.	Method of preparation of weedicide spray solution	164	54.67	28	9.33	108	36.00	2.19
2.	Correct time and method of application of weedicides	125	41.67	23	7.67	152	50.67	1.91
3.	Identification of weeds	0	0.00	0	0.00	300	100.00	1.00
Average mean score								1.70

It could be inferred from Table 1 that majority of the respondents perceived training need for 'management of red spider mite' (Mean Score-MS 2.73) and 'management of scales' (MS2.65). This is followed by training need for 'identifying red spider mite attack' (2.46), 'management of whitefly' (MS 2.24), 'identifying scales attack' (MS 2.10) and 'identifying whitefly attack' (MS 1.66).

While comparing the training needs for 'management of pests' with the training needs for 'identifying pests' it could be observed that farmers expressed comparatively lesser training need for identifying the pests. This clearly indicates that farmers are fairly familiar with the identification of pests, and the symptoms but they lack knowledge with regard to the management of pests. This finding is in line with findings of Satheeshkumar (2007).

#### **b) Training Needs of Tapioca Growers in Disease Management**

The specific subject matter areas in disease management where the tapioca growers perceived the need for training are presented in Table 2.

It could be inferred from Table 2 that majority of the respondents perceived training need for 'management of cercospora leaf spot' (Mean Score-MS 2.67). This is followed by training need for 'management of phoma disease' (MS 2.52), 'identifying cercospora leaf spot' (MS 2.46), 'management of tuber rot' (MS 2.24), 'identifying phoma disease' (MS 2.16), 'management of mosaic' (MS 2.09), 'identifying mosaic' (MS 1.53) and 'identifying tuber rot' (MS 1.34).

While comparing the training needs for 'management of diseases' with identification of diseases', it could be observed that farmers expressed comparatively lesser training need for 'identifying the diseases. This clearly indicates that farmers are familiar with the identification of the diseases, but not with the disease management. This finding is in line with the findings of Selvarani (2000).

#### **c) Training Needs of Tapioca Growers in Weed Management**

The specific subject matter items in weed management where tapioca growers perceived training need are given in Table 3.

Table 3 reveals that more than half of the respondents expressed training need for 'method of preparation of weedicide spray solution' (Mean Score-MS 2.19). This is followed by training need for 'correct time and method of application of weedicides' (MS 1.91).

Further it could be observed from the Table that farmers did not express any training need for 'identification of weeds' (MS 1.00) as farmers are quiet familiar with all kinds of weeds. Hence, it could be inferred that farmers needed training in both preparation of weedicide spray solution and method of application of weedicides.

### **Conclusion**

This study revealed that majority of the respondents perceived training need regarding pest management, disease management and weed management. Under pest management, aspects like 'management of red spider mite', 'management of scales' and 'identifying red spider attack' were the specific subject matter areas the farmers sought for training. With regard to disease management, 'management of cercospora leaf spot' and 'management of phoma disease' are the specific subject matter areas where farmers need training. With regard to weed management, the farmers wanted training on specific aspects like 'method of preparation weedicide spray solution' and 'correct time and method of application of weedicides'.

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