

## IMPEDIMENTS IN ADOPTION OF BIO FUNGICIDE - *TRICHODERMA* IN GROUNDNUT PRODUCTION TECHNOLOGY

P. S. Gorfad<sup>1</sup>, J. V. Chovatia<sup>2</sup> and B. N. Kalsariya<sup>3</sup>

1 Associate Professor, College of Agriculture, JAU, Khapat Dist. Porbandar - 362530

2 Assistant Professor, College of Agriculture, JAU, Khapat Dist. Porbandar - 362530

3 Principal, Polytechnic in Agricultural, JAU, Sidsar, Junagadh - 362001

Email : bhkalsariya@jau.in

### ABSTRACT

Groundnut is very important kharif oilseed crop of Saurashtra region and especially of Porbandar district. There is high risk of stem rot disease in groundnut crop. *Trichoderma* is a very effective bio agent to manage plant diseases especially the soil born. *Trichoderma* is the free-living fungus which is commonly found in soil and root ecosystems. It is an effective biocontrol agent against several fungal soil born plant pathogens. For the management of soil born diseases especially stem and pod rot of groundnut, *Trichoderma harzianum* is very effective. It is used for seed treatment and soil application for suppression of disease in groundnut crop. The result of the research finding revealed that the major constraints faced by the groundnut growers were; lack of technical knowledge about application of *Trichoderma* (95.83 per cent) got ranked first, followed by unavailability of *Trichoderma* at subsidized rate (93.33 per cent), lack of soil moisture when application of *Trichoderma* needed in standing crop (90.00 per cent) and unavailability of *Trichoderma* at proper time (87.50 per cent) were ranked second, third and fourth respectively. The important suggestions offered by the groundnut growers were; *Trichoderma* should be available at village level (91.67 per cent), technical guidance should be provided through intensive training programme (80.83 per cent) and it should be timely available at subsidized rate (74.17 per cent) got ranked first, second and third, respectively.

**Keywords :** constraint, trichoderma, adoption, biocontrol

### INTRODUCTION

Groundnut (*Arachis hypogaea L*) is very important kharif oilseed crop of Saurashtra region and especially of Porbandar district. It is cultivated in an area of 91,800 hectares with a production of 1,26,400 million tonnes in the district. In groundnut crop production technology, insect and disease management practices are very complex in nature because it requires technical knowhow and requires precision in use. The excessive uses of agro chemicals in agriculture are hazardous to human being. There are plenty of insecticides and fungicides are used in agriculture which is adversely affects to human being and also to our environment. To solve this problem, there is prime necessity to increase the use of bio pesticides and fungicides for the control of pest and diseases. In rainfed agriculture, these inputs gain added importance in view of their low cost, as most of the farmers are small and marginal and cannot afford to buy expensive insecticides and fungicides. *Trichoderma* is a bio fungicide for reducing the cost of cultivation and for practicing organic farming. For the management of soil borne diseases especially stem and pod rot of groundnut, *Trichoderma harzianum* is very effective.

Now a day's agricultural research emphasizes on integrated disease management (IDM) which promotes biological, cultural and mechanical methods of disease management and advocates need based, judicious use of fungicides. "Grow Safe Food" campaign has been initiated to create awareness about the safe and judicious use of agrochemicals among the various stakeholders. Government also implemented various schemes for creating awareness and adoption of organic farming, IPM, IDM and use of bio products. But, there were some constraints faced by farmers adopting these practices. Looking to above facts, a study entitled "Impediments in adoption of bio fungicide - *trichoderma* in groundnut production technology in Porbandar district" was undertaken with following objectives:

### OBJECTIVES

- (1) To identify the constraints faced by groundnut growers in adoption of the *Trichoderma*
- (2) To seek the suggestions to overcome the constraints faced by groundnut growers in adoption of *Trichoderma*

**METHODOLOGY**

The Ex-post-facto research design was used in the present investigation. Porbandar district of Gujarat state was selected purposively for this study because the groundnut is the major *kharif* crop of the district. It consists of three talukas viz. Porbandar, Ranavav and Kutiyana, which were selected. From selected talukas, 4 villages from each taluka were randomly selected for the study. Thus, total 12 villages from three talukas were selected. Ten farmers from each village were selected for the study. Thus, making sample size 120 groundnut growers were selected from Porbandar district who have used *Trichoderma* in 2018-19.

The constraints were operationalized defined as the difficulties experienced by the groundnut growers to use the *Trichoderma*. For knowing the constraints faced by farmers in adoption of *Trichoderma*, they were asked to give the constraints actually faced by them. To measure the suggestions to overcome constraints, they were requested to give their valuable suggestions. The data were collected

through personal interview schedule. The collected data were tabulated and analyzed in the light of objectives. To assess the constraints in use of *Trichoderma*, the frequency of each constraint was counted and converted into percentage and ranks were assigned accordingly. While the suggestions offered by them were ranked on the basis of frequency and percentage.

**RESULTS AND DISCUSSION**

**Constraints faced by groundnut growers in adoption of *Trichoderma***

A study pertaining to constraints faced by the groundnut growers in adoption of bio fungicide- *Trichoderma*, they were asked to give constraints experienced by them. The information collected was tabulated and frequency and percentage for each constraint was calculated, then the ranks were assigned to the constraint. The results obtained were presented in Table 1.

**Table 1: Distribution of groundnut growers according to constraints faced by them in adoption of *Trichoderma***

(n= 120)

Sr. No.	Constraints	Frequency	Percent	Rank
1	Lack of technical knowledge about application of <i>Trichoderma</i>	115	95.83	I
2	Unavailability of <i>Trichoderma</i> at subsidized rate	112	93.33	II
3	Lack of soil moisture when application of <i>Trichoderma</i> needed in standing crop	108	90.00	III
4	Unavailability of <i>Trichoderma</i> at proper time	105	87.50	IV
5	Castor cake used with <i>Trichoderma</i> as career agent is costly	98	81.67	V
6	Application of <i>Trichoderma</i> is difficult at the time of sowing	85	70.83	VI
7	Labour cost increased because it cannot mix with other chemical fertilizers	77	64.17	VII
8	Unavailability of <i>Trichoderma</i> at Taluka level when highly needed	68	56.67	VIII
9	It is difficult to apply through drip or sprinkler irrigation system	57	47.50	IX
10	Application of <i>Trichoderma</i> not much effective once groundnut crop gets infested with fungal disease	53	44.17	X

It is apparent from Table 1 that the most important constraints perceived by groundnut growers in adoption of *Trichoderma* were; lack of technical knowledge about application of *Trichoderma* (95.83 per cent) got ranked first, followed by unavailability of *Trichoderma* at subsidized rate (93.33 per cent), lack of soil moisture when application of *Trichoderma* needed in standing crop (90.00 per cent), unavailability of *Trichoderma* at proper time (87.50 per cent) and castor cake used with *Trichoderma* as career agent is costly (81.67 per cent) were ranked second, third, fourth and fifth respectively.

Whereas, application of *Trichoderma* is difficult at the time of sowing (70.83 per cent), labour cost increased because it cannot mix with other chemical fertilizers (64.17 per cent), unavailability of *Trichoderma* at taluka level when highly needed (56.67 per cent), it is difficult to apply through drip or sprinkler irrigation system (47.50 per cent) and application of *Trichoderma* not much effective once groundnut crop get infested with fungal disease (44.17 per cent) ranked sixth, seventh, eighth, ninth and tenth, respectively.

The efforts should be carried out by various agencies

like; policy makers, researchers, extension workers, inputs suppliers, marketing personnel, etc. to promote the use of *Trichoderma* in an efficient way to overcome the constraints faced by the farmers in adoption of a bio fungicide – *Trichoderma* in groundnut crop.

These findings are supported with Thorat, K. S. (2012), Bhalekar *et al.* (2013), Karade *et al.* (2014), Shehrawat *et al.* (2016) and Desai *et al.* (2018).

### Suggestions offered by groundnut growers to overcome the Constraints faced by groundnut growers in adoption of *Trichoderma*

An attempt was made to seek the suggestions from groundnut growers to overcome different constraints faced by them in adoption of *Trichoderma* in groundnut crop. The respondents were requested to give their valuable suggestions against problems faced by them in adoption of *Trichoderma*. The suggestions offered by the farmers are presented in Table 2.

**Table 2: Suggestions from respondents to overcome constraints faced by them in adoption of *Trichoderma***

(n= 120)

Sr. No.	Suggestions	Frequency	Percent	Rank
1	Trichoderma should be available at village level	110	91.67	I
2	Technical guidance should be provided through intensive training programme	97	80.83	II
3	It should be Timely available at subsidized rate	89	74.17	III
4	Method demonstration should be organized to improve the skill of farmers for <i>Trichoderma</i> application	77	64.17	IV
5	Increase awareness about the use and importance of <i>Trichoderma</i>	69	57.50	V
6	<i>Trichoderma</i> should be available in liquid form so that it can be used in drip irrigation system easily	65	54.17	VI

The data given in Table 2 revealed that the most important suggestions offered by the farmers to overcome the constraints associated with adoption of *Trichoderma* in sequential order were; *Trichoderma* should be available at village level (91.67 per cent) got ranked first followed by technical guidance should be provided through intensive training programme (80.83 per cent), it should be timely available at subsidized rate (74.17 per cent), method demonstration should be organized to improve the skill of farmers for *Trichoderma* application (64.17 per cent), increase awareness about use of *Trichoderma* (57.50 per cent) and *Trichoderma* should be available in liquid form, so that it can be used in drip irrigation system (54.17per cent) were ranked second, third, fourth, fifth and sixth, respectively.

These findings are supported with Kerketta *et al.* (2015) and Desai *et al.* (2018).

### CONCLUSION

From the above finding, it can be concluded that application of *Trichoderma* is good practice to control soil born diseases in groundnut in Porbandar district of Gujarat. It is ecofriendly and safe for our food chain. Keeping these important benefits of *Trichoderma* in mind, farmers started the adoption of *Trichoderma* but at the same time, they have been facing many constraints like; lack of technical knowledge about application of *Trichoderma* (95.83 per cent) got ranked

first, followed by unavailability of *Trichoderma* at subsidized rate (93.33 per cent), lack of soil moisture when application of *Trichoderma* needed in standing crop (90.00 per cent) and unavailability of *Trichoderma* at proper time (87.50 per cent) were ranked second, third and fourth respectively.

The suggestions offered by the groundnut growers to overcome the constrains faced in adoption of *Trichoderma* were; *Trichoderma* should be available at village level (91.67 per cent), technical guidance should be provided through intensive training programme (80.83 per cent) and it should be timely available at subsidized rate (74.17 per cent) got ranked first, second and third, respectively.

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