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RESEARCH ARTICLE :

Constraints faced by banana growers in adoption of banana production technology

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SUMMARY : The present study was conducted in Nanded district of Marathwada region of Maharashtra State with an objective to study the constraints faced by banana growers in adoption of banana production technology and obtained their suggestions to overcome these constraints. The data were collected with the help of interview schedule. The result of the study depicted that majority of the banana growers faced the constraints of load shedding of electricity during irrigation, followed by non-availability of suckers at the time of planting, high cost of wages for preparatory tillage operations, high cost of FYM or compost and chemical fertilizers and poor quality of suckers for planting. The data regarding suggestions of the respondents given to overcome the constraints faced by them in adoption of banana production technology revealed that information regarding irrigation should be given in time by extension agencies, followed by tissue culture plants should be made available in sufficient quantity, government should provide NADEP and vermicompost unit and pesticide should be provided at low cost, message alerts through SMS about insect, pest and control measures should be given to farmers in time, good quality sucker should be supplied to farmers in time and reducing the cost of fertilizer were the major suggestions.

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KEY WORDS :
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BACKGROUND AND OBJECTIVES

The importance of fruits and vegetables in human diet is universally recognized. It has been realized that fruit and vegetables are protective foods necessary for the maintenance of human health. Banana (*Musa* spp.) is one of the important fruit crop not only in India but also in the world. Maharashtra is a progressive state in the field of modern horticulture in the country. The diverse agro-ecological conditions prevailing in Maharashtra has made it possible to grow different types of horticultural crops. Maharashtra is the largest producer of horticultural and vegetable crops.

The research outcome reveals that agricultural technology is never completely accepted by the farmers in all respects due to number of constraints faced by them in its adoption, as such there always appears to be a gap between the recommended technology by the scientists and its modified form at the farmer's level. The technological gap is, thus, the major problem in the efforts of increasing

agricultural production in the country. A need of the day is to reduce the technological gap between the agricultural technologies recommended by the scientists and its acceptance by the farmers on their field by solving the constraints faced by them. For overcoming these conditions new technologies must be adopted with efficient use of resources. Hence, an investigation on constraints faced by banana growers in adoption of banana production technology was undertaken. It is expected that barriers to some extent in adoption of banana production technology will be overcome due to utilization of findings of this study.

RESOURCES AND METHODS

The present study was conducted in Nanded district of Marathwada region of Maharashtra state because this district occupied major area under banana cultivation in the Marathwada region. Two tehsils *viz.*, Ardhapur and Mudhkhed were selected from Nanded district purposively as they have highest area under banana cultivation in the district. Six villages from each selected tahasil were selected considering the highest hectarage under banana crop. Ten banana growers were selected randomly from each selected villages, which comprised a sample of 120 banana growers for the study. Ex-post facto design approach was used for present study. The data were collected with the help of interview schedule by contacting the sample banana growers personally. The frequency and percentage of each constraints was worked out to measure the constraints encountered, perceived by the respondents. Suggestions were secured from the banana growers to overcome these constraints experienced by them in adoption of banana production technology. The similarly number and percentage of each suggestions were worked out to measure the suggestions given by them.

OBSERVATIONS AND ANALYSIS

The findings of the present study as well as relevant discussion have been presented under following heads.

Constraints faced by the respondents in adoption of banana production technology :

The various constraints faced by the respondents in adoption of banana production technology are given in Table 1.

Table 1 depicts data regarding soil and preparatory tillage. It is evident from the data that 87.50 and 66.67 per cent of respondents were having problems of high cost of wages and labour shortage, respectively, whereas 37.50 per cent of them having lack of scientific knowledge about preparatory tillage. Regarding FYM or compost, 83.33 per cent and 75.00 per cent respondents perceived the problems of high cost of FYM and non-availability of FYM at proper time, respectively. Whereas lack of scientific knowledge about FYM application was also one of the problems stated by 41.66 per cent respondents.

In case of sucker and planting technique, non-availability of suckers at the time of planting (91.67 %), poor quality of suckers (79.16 %) and lack of scientific knowledge about planting technique (70.83%) were major constraints expressed by the respondents, whereas 44.16 per cent of respondents mentioned high cost of suckers. In the context of sucker treatment, 64.16 per cent and 45.83 per cent respondents faced the problems of non-availability of fungicide at proper time and high cost of fungicide, respectively. Whereas 29.16 per cent respondents perceived the problems of lack of technical knowledge about sucker treatment.

In case of application of chemical fertilizers, high cost of fertilizers (82.50%) and lack of scientific knowledge about fertilizer application (54.16%) were major constraints expressed by the respondents. Whereas 35.00 per cent respondents mentioned that they did not get fertilizers at proper time. Regarding intercultural operations, 72.50 per cent, 49.16 per cent and 37.50 per cent respondents perceived the problems of non-availability of intercultural machineries at proper time, lack of knowledge about plants which is required for wind breaks and lack of knowledge about intercultural operations, respectively, whereas non-availability of labours at proper time reported by 20.83 per cent of the respondents.

In the context of plant protection, high cost of insecticide or pesticide and complexity in use of plant protection measures were the important reasons reported by 65.83 per cent and 51.66 per cent, respectively for non-adoption of these practice. Whereas 48.33 per cent and 25.00 per cent respondents perceived the problems of non-availability of duster and sprayer and lack of scientific knowledge about plant protection, respectively. Regarding irrigation water management, load shedding of electricity (95.83%) and scarcity of water (62.50%) were major constraints expressed by the respondents.

Whereas 37.50 per cent respondents expressed the problems of lack of knowledge about proper irrigation management. In the context of harvesting, 69.16 per cent and 53.33 per cent respondents faced the problems of high cost of wages and non-availability of labour at proper time, respectively.

Table 1 : Constraints faced by the respondents in adoption of banana production technology (n=120)

Sr. No	Constraints	Frequency	Percentage
Related to soil and preparatory tillage			
1.	Labour shortage	80	66.67
2.	High cost of wages	105	87.50
3.	Lack of scientific knowledge	45	37.50
Related to FYM or compost			
1.	High cost of FYM or compost	100	83.33
2.	Non availability of FYM at proper time	90	75.00
3.	Lack of scientific knowledge about its application	50	41.66
Related to sucker and planting technique			
1.	High cost of suckers	53	44.16
2.	Lack of scientific knowledge about planting technique	85	70.83
3.	Non availability of suckers at the time of planting	110	91.67
4.	Poor quality of suckers	95	79.16
Related to sucker treatment			
1.	High cost of fungicide	55	45.83
2.	Non availability of fungicide at proper time	77	64.16
3.	Lack of technical knowledge about sucker treatment	35	29.16
Related to chemical fertilizers			
1.	High cost of fertilizers	99	82.50
2.	Lack of scientific knowledge about its application	65	54.16
3.	Non-availability of fertilizers at proper time	42	35.00
Related to intercultural operations			
1.	Non-availability of labours at proper time	25	20.83
2.	Lack of knowledge about intercultural operation	45	37.50
3.	Lack of knowledge about plants which is required for wind breaks	59	49.16
4.	Non-availability of intercultural machineries at proper time	87	72.50
Related to plant protection measures			
1.	High cost of insecticides or pesticides	79	65.83
2.	Complexity in use of plant protection measures	62	51.66
3.	Lack of scientific knowledge about plant protection	30	25.00
4.	Non-availability of duster and sprayers	58	48.33
Related to utilization of irrigation water			
1.	Load shedding of electricity	115	95.83
2.	Scarcity of water	75	62.50
3.	Lack of knowledge about proper irrigation management	45	37.50
Related to harvesting			
1.	High cost of wages	83	69.16
2.	Non-availability of labour at proper	64	53.33

Suggestions given by the respondents to overcome the constraints faced by them in adoption of banana production technology :

The various suggestions given by the banana growers to overcome the constraints faced by them in adoption of banana production technology are given in Table 2.

The data from Table 2 revealed that majority of the respondents (94.16%) suggested to information regarding irrigation should be given in time by extension agencies, whereas 91.66 per cent respondents suggested that tissue culture plants should be made available in sufficient quantity. While 87.50 per cent of the respondents suggested that government should provide NADEP and vermicompost unit and pesticide should be provided at low cost suggested by 85.00 per cent of the respondents. Message alerts through SMS about insect, pest and control measures should be given to farmers in time suggested by 77.50 per cent of the respondents. Good quality sucker should be supplied to farmers in time suggested by 73.33 per cent respondents, whereas 62.50 per cent of them suggested to reduced cost of fertilizer and information regarding proper time of harvesting, marketing should be given in time by extension agencies suggested by 61.66 per cent respondents. Information regarding low cost intercultural operation should be given by extension agencies, suggestion expressed by 54.16 per cent respondents, whereas 48.33 per cent respondents suggested that training programme should be organized to improve the knowledge regarding land use, proper use of soil and detail package of practices. Government should provide cent per cent subsidy for good quality organic manure suggested by 46.66 per cent respondents,

Table 2 : Suggestions given by the respondents in adopting the recommended banana production technology (n=120)

Sr. No.	Suggestions	Frequency	Percentage
Related to soil and preparatory tillage			
1.	Training programme should be organized to improve the knowledge regarding land use, proper use of soil and detail package of practices.	58	48.33
2.	Farm mechanization should be motivated among the farmers in group by providing machinery on subsidy bases.	44	36.67
Related to FYM or compost			
1.	Government should provide NADEP and vermicompost unit.	105	87.50
2.	Government should provide 100 per cent subsidy for good quality organic manure	56	46.66
Related to sucker and planting technique			
1.	Good quality sucker should be supplied to farmers in time.	88	73.33
2.	Tissue culture plants should be made available in sufficient quantity	110	91.66
Related to sucker treatment			
1.	Fungicides for sucker treatment should be made available in rural area at proper time	48	40.00
Related to chemical fertilizers			
1.	Cost of fertilizer should be reduced	75	62.50
2.	Fertilizer should be made available at proper time	52	43.33
Intercultural operation			
1.	Information regarding intercultural operation should be given in time by extension agencies.	49	40.83
2.	Information regarding low cost intercultural operation should be given by extension agencies.	65	54.16
Related to plant protection measures			
1.	Message alerts through SMS should be given to farmers about insect, pest and its control measures in time.	93	77.50
2.	Pesticide should be provided at low cost.	102	85.00
Related to utilization of irrigation water			
1.	Information regarding irrigation should be given in time by extension agencies.	113	94.16
2.	Information regarding proper time of irrigation should be provided.	48	40.00
Related to harvesting			
1.	Information regarding proper time of harvesting, marketing should be given in time by extension agencies	74	61.66

whereas 43.33 per cent respondents suggested that fertilizer made available at proper time.

Data further revealed that information regarding intercultural operation should be given in time by extension agencies suggested by 40.83 per cent respondents, information regarding proper time of irrigation should be provided suggested by 40.00 per cent, whereas 40.00 per cent respondents suggested that fungicides for sucker treatment should be made available in rural area at proper time and farm mechanization should be motivated among the farmers in group by providing machinery on subsidy bases (36.67%). The similar findings were also reported by Thorat (2003); Atar (2012) and Chavan (2014).

Conclusion :

On the basis of the result regarding constrains faced by the banana growers in adoption of banana production technology concluded that majority of the banana growers faced the constraints of load shedding of electricity during irrigation, followed by non-availability of suckers at the time of planting, high cost of wages for preparatory tillage operations, high cost of FYM or compost and chemical fertilizers and poor quality of suckers for planting.

The data regarding suggestions of the respondents given to overcome the constraints faced by them in adoption of banana production technology revealed that information regarding irrigation should be given in time by extension agencies, followed by tissue culture plants should be made available in sufficient quantity, government should provide NADEP and vermicompost unit and pesticide should be provided at low cost, message alerts through SMS about insect, pest and its control measures should be given to farmers in time, good quality sucker should be supplied to farmers in timed and reducing the cost of fertilizer were the major suggestions.

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