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Technological needs of banana growers of Cuddalore district

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Abstract
Technological base for improving productivity and income of the rural population in the field of agriculture has broadened with the success of Green revolution that the country witnessed during mid sixties. Various technological innovations have been released claiming spectacular yield potential at research stations. As a result of this research and transfer of technology programmes, the national production has increased over time in the decades, thus balancing the population growth and food production of our country. Only few studies are available on the transfer of technology of banana growers. Hence, the present study was formulated to understand the technological needs of banana growers of Cuddalore district. The study was conducted in Cuddalore district of Tamil Nadu state Cuddalore district has seven taluks. Banana is being grown in all the seven taluks. Among them, Cuddalore is the principal banana growing taluk. Six revenue villages viz., Vellakarai, Ramapuram, Annavalli, Vazhisothanaipalyam, Karaikadu and Thirumanikuzhi occupied the first six places under banana cultivation. Hence, they were selected on the basis of maximum area under banana cultivation.A sample size of 120 was fixed for the study. The respondents in banana cultivation expressed high level of technological needs in the major subject matter areas of farm implements (3.600), plant protection (3.389), fertilizer management (3.341), plant growth regulator (3.183), post – harvest management (3.166), weed management (2.975) and varieties (2.950)

Keywords: banana growers, technological base, green revolution.

Introduction
Technological base for improving productivity and income of the rural population in the field of agriculture has broadened with the success of Green revolution that the country witnessed during mid sixties. Various technological innovations have been released claiming spectacular yield potential at research stations. As a result of this research and transfer of technology programmes, the national production has increased over time in the decades, thus balancing the population growth and food production of our country. Only few studies are available on the transfer of technology of banana growers. However, the benefits of the new production technology have accured mostly to big farmers while the marginal and small farmers have been bypassed in the development process.

At present in the Indian Institute of Horticultural Research Bangalore, research on banana is directed towards increased production and productivity. Considering the problems and need for strategic and basic research, a National Research Centre for Banana has been established at Tiruchirapalli to meet the challenges of banana in the country. Hence, the present study was formulated to understand the technological needs of banana growers of Cuddalore district.

Methodology:
The study was conducted in Cuddalore district of Tamil Nadu state Cuddalore district has seven taluks. Banana is being grown in all the seven taluks. Among them, Cuddalore is the principal banana growing taluk. There are 77 revenue villages in Cuddalore block. These revenue villages were arranged in descending order based on the maximum area under banana cultivation. From the list, 6 revenue villages viz., Vellakarai, Ramapuram, Annavalli, Vazhisothanaipalyam, Karaikadu and Thirumanikuzhi occupied the first six places under banana cultivation. Hence, they were selected on the basis of maximum area under banana cultivation. A sample size of 120 was fixed for the study considering the limitations of time and other resources. From the list of farmers in each selected villages, farmers cultivating banana were identified. A total number of 120 respondents were identified from selected six villages by using the proportionate random sampling technique.
Based on the average mean score obtained the major subject matter areas were assigned ranks in the ascending order of technological needs.

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They were further classified into two categories of high and low technological needs. The major subject matter areas having the average mean score above the overall mean score fell under 'High technological need' while those subject matter areas having the average mean score below the overall mean score fell under 'Low technological need category'. Based on the mean score obtained, each specific technology was classified into three, categories viz., 'High level of technological need', 'Moderate level of technological need' and 'Low level of technological need' based on cumulative frequency method. The data collection was done with the use of a well-structured and pre-tested interview schedule

Findings and Discussions
Technological needs of banana growers in banana cultivation
The information on the technological needs as perceived by banana growers in banana cultivation was gathered and the results are given in Table 1.

Table 1: Technological needs of banana growers (n=120)

S. No.	Technologies	Mean score	Rank
1	Field prepration		
	(i) Stubble collection	2.000	
	(ii) Cleaning the field boundaries	2.128	
	(iii) Quantity of FYM to be applied	2.200	
	(iv) Time of land preparation	1.800	
	Average mean score	2.032	XI
2	Varieties		
	(i) Varieties recommended in the area	2.800	
	(2) Characteristics of recommended varieties	3.100	
	Average mean score	2.950	VII
3	Suckers and planting		
	(i) Selection of good quality suckers	3.000	
	(ii) Method of sucker treatment with fungicide	3.200	
	(iii) Method of planting	2.400	
	(iv) Maintenance of plant population	2.600	
	Average mean score	2.800	VIII
4	Irrigation management		
	(i) Economic use of water	2.100	
	(ii) Time of irrigation	2.300	
	(iii) Drip irrigation	3.916	
	Average mean score	2.772	IX
5	Weed management		
	(i)Hand weeding	2.600	
	(ii) Herbicides	3.200	
	(ii) Method of application of herbicides	3.300	
	(iv) Time of weeding	2.800	
	Average mean score	2.975	VI
6	Fertilizer management		
	(i) Application of required inorganic fertilizer	3.400	
	(ii) Application of bio-fertilizer	3.300	
	(iii) Nutrient deficiency in banana	3.000	
	(iv) Method of application	3.666	
	Averagemean score	3.341	III
7	Plant protection		
	(i) Identification of pest	3.600	
	(ii) Identification of disease	3.646	
	(iii) ETL for various pest and disease	3.100	
	(iv) Recommended fungicides and pesticides	3.700	
	(v) Preparation of spray fluide	2.900	
	Average mean score	3.389	II
8	Plant growth regulator		
	(i) Recommended plant growth regulator	3.266	
	(ii) Method of application	3.100	
	Average mean score	3.183	IV
9	Inter – cultural operation		
	(i) Desuckering	1.700	
	(ii) Propping	1.750	
	Average mean score	1.725	XII
10	Harvesting		
	(i) Time of harvest	2.446	
	(ii) Method of harvest	2.500	
	Average mean score	2.473	X
11	Post – harvest		
	(i) Method of storage	3.000	

	(ii) Grading the banana	3.333	
	Average mean score	3.166	V
12	Farm implements		
	(i) Labour saving implements	3.800	
	(ii) Method of using implements	3.400	
	(iii) Maintenance of farm implements	3.600	
	Average mean score	3.600	I
	Overall mean score	2.857	

From the data in Table 1, it could be observed that the respondents in banana cultivation expressed high level of technological needs in the major subject matter areas of farm implements (3.600), plant protection (3.389), fertilizer management (3.341), plant growth regulator (3.183), post – harvest management (3.166), weed management (2.975) and varieties (2.950) which ranked from I to VII. This is evident from their respective average mean scores which were found to be above the overall mean score of 2.857. This finding is in line with the findings of Vengatesan (2005) [2].

The average mean score in the range of 1.725 to 2.800 indicated low level of technological needs in the areas viz., sucker and planting (2.800), irrigation management (2.772), harvesting (2.475), field preparation (2.032) and inter-cultural operation (1.725).

It is quit interesting to know the results from Table 1, that out of thirty seven specific subject matter areas studied for assessing the technological needs of respondents in banana cultivation a high level of technological need was observed in fifteen technologies with there mean score ranging from 3.196 to 3.916. the specific technologies identified with high level of technological needs were viz., drip irrigation (3.916), labour saving implements (3.800), recommended fungicides and pesticides (3.700), method of fertilizer application (3.666), identification of disease (3.646), identification of pest (3,600), maintenance of farm implements (3.600), application of required inorganic fertilizers (3.400), method of using implement (3.400), grading the banana (3.333) application of bio-fertilizer (3.300), method of application of herbicides (3.300) recommended plant growth regulator (3.266), method of sucker treatment with fungicides (3.200) and herbicides (3.300), These technologies are the major components in enhancing the productivity. Hence, high level of technological need would have been expressed for these specific subject matter areas. The outcome is in accordance with that of Vengatesan (2005) [2] who reported that majority of the respondents were in need of farm implements techniques and maintenance. This finding is in line with the findings of Deshpande and Ali (2010) [1]

However, some of the technologies like characteristics of recommended varieties (3.100), ETL for various pest and disease (3.100), method application of plant growth regulator (3.100), method of storage (3.000), nutrient deficiency in banana (3.000), preparation of spray fluide (2.900), time of weeding (2.800), varieties recommended in the area (2,800), hand weeding (2.600), maintenance of plant population (2,600) and method of harvest (2.500) belonged to medium level of technological needs category with the mean score value ranging from 2.473 to 3.195.

For the rest of the technologies, low level of technological needs was observed with the mean score value ranging from 1.700 to 2.472. The technological mean score in the table revealed that the respondents expressed low level of technological need in the specific subject mater areas viz., time of harvesting (2.446), method of planting (2.400), time of irrigation (2.300), quantity of FYM to be applied (2.200),

cleaning of filed boundaries (2.128), economic use of water (2.100), stubble collection (2.000), time of land preparation (1.800), propping (1.750) and desuckering (1.700). Most of these technologies were traditionally followed practices by the respondents. Further, the respondents had adequate knowledge and skill on these technologies. Vengatesan and Santha Govind. (2014) [3], expressed that majority of the respondents needed production tools and post-harvest operation machines.

Conclusion
Technological needs of banana growers in the study have been amply analysed and the results showed that respondents differed in their adoption and performance under varied conditions. Labour and energy saving technologies are farmers greatest need. In addition, they required production technologies for their commodities, constraints and objectives. The strategy developed in this study on technological needs of banana growers can serve as an empirical blue print for developing appropriate technologies for empowering farming communities on a sustainable basis.

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