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RESEARCH ARTICLE :

Knowledge of production technology of banana growers

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SUMMARY : The study was undertaken in the year 2013-14. A sample of 120 banana growers was randomly selected in 7 villages from Achalpur tahsil of Amravati district of Maharashtra. It was revealed that majority of respondents were middle aged group, educated secondary school level, semi medium category of land holding, high level of annual income, medium family size, medium economic motivation, medium innovativeness, medium risk orientation, tube well as source of irrigation, medium social participation, medium source of information. Majority (61.00%) of banana growers had medium level of knowledge followed by (17.00%) and (22.00%) had low and high level of knowledge, respectively. As regard to finding of relational analysis revealed that out of eleven characteristics studied education, land holding, economic motivation, innovativeness, source of irrigation, source of information of respondents had positive significant relationship with knowledge about banana production technology practices at 0.05 level of probability. Whereas characteristics like age, annual income, risk orientation, social participation shows non-significant relationship with knowledge. While size of family had negatively non-significant relationship with knowledge.

KEY WORDS:
Knowledge, Banana, Correlation

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BACKGROUND AND OBJECTIVES

India is predominantly an agricultural country, with more than 65 per cent population living in villages and depending especially upon agriculture and its contribution is nearly about 24 per cent of net national products. Past trend in development of horticulture has been satisfying and this trend has been marked as "golden revolution" with India emerging as the second largest producer of fruits and vegetables and occupying first position in several horticultural crops. Even though India is leading in the productivity of some horticultural crops like grapes, cassava, ginger, turmeric, still there is a scope to increase the productivity in other horticultural crops in comparison to other countries. However, today, as a result of synergy between focused research, technological and policy initiatives and high efficiency inputs, horticulture in India, has become a sustainable and viable venture especially for the small and marginal farmers. Major Indian fruits consist of mango, banana, citrus fruits, apple, guava, papaya, pineapple and grapes. Globally, banana (*Musa*

paradisiaca L.) is fourth most important commodity after rice, wheat and corn. It is produced in tropical and subtropical regions of developing economies. In India also banana is one of the most important major fruit crops. In respect of area it ranks second and first in production (Anonymous, 2009). The specific objectives were to study the profile of the banana growers, the knowledge of banana production technology, the relationship between dependent and independent variables and to study the constraints faced by banana growers.

RESOURCES AND METHODS

An exploratory design of social research was used for the present investigation. Achalpur tahsil was purposively selected for the study. Banana growers in 7 villages were contacted at their places of residence and data were collected by personal interview. From 7 villages, 120 respondents were selected. The data were collected by personal interview.

OBSERVATIONS AND ANALYSIS

The result obtained from the present investigation has been discussed in the following sub head:

Knowledge index:

The data with regards to the overall knowledge of respondents about banana cultivation technology practices have been furnished in Table 1. Majority of the farmers possessing (61.00%) had medium level of knowledge followed by 22.00 per cent having high knowledge level, only (17.00%) respondents possessed low level knowledge about the banana cultivation

Table 1: Distribution of respondents according to their knowledge level about banana cultivation technology practices (n=120)

Sr. No.	Knowledge level	Respondents	
		Frequency	Percentage
1.	Low	20	17.00
2.	Medium	73	61.00
3.	High	27	22.00
	Total	120	100

Table 2 : Distribution of respondents according to their practice wise knowledge about banana cultivation technology (n=120)

Sr. No.	Banana cultivation practices	Respondents	
		Frequency	Percentage
1.	**Soil type** (Black, alluvial, porous, well drained)	80	67.00
2.	**Varieties** (Basrai, Ardhapuri, Shrimanti And G-9)	105	87.00
3.	**Selection of sucker**- Type and quantity of suckers used for banana cultivation (wt. ½ to ¾ kg,4450 suckers per ha)	97	81.00
4.	**Time of planting** -The recommended time of planting banana Mrug bag (June-July)	120	100.00
5.	**Spacing** - Recommended plant to plant and row to row spacing for banana cultivation.(1.5X1.5mt)	98	82.00
6.	**Organic sources** -Quantity of organic manures recommended for banana per ha.(50-60t/ha)	62	52.00
7.	**Chemical fertilizers** - Quantity of chemical fertilizer required per plant. (100:40:100 g/plant)	82	68.00
8.	**Irrigation requirement**-Recommended interval between two irrigation (days).	100	83.00
9.	*Kharif* -15 days	120	100.00
10.	Winter-9 to 10days	99	82.00
11.	Summer - 4 days	98	81.00
12.	Plant protection	75	63.00
	Pests		
13.	Banana stemborer – spray 2.5 kg of carbaryl 50 wp in 1250 litres of water/ha.	72	60.00
14.	Banana aphids –of Dimethoate 30 EC/10lit. water/ha^{-1}.	78	65.00
15.	Banana weevil - Spray 315 ml of Phosphamidon 100 EC/ ha^{-1}	52	43.00
	Diseases		
16.	**Cigarendrot** - Dithane M - 45 (0.25%)	78	65.00
17.	**Panama or wilt** – 50% copper oxychloride	90	75.00
18.	**Harvesting** - Recommended time of harvesting of banana. (75% mature fruit or 110 to 120 days after flowering)	120	100.00

respectively. It could be concluded that banana farmers had medium level of knowledge about recommended banana cultivation technology practices.

It is evident from the distribution in Table 2 that, cent per cent of respondents had knowledge about time of planting of banana and interval between two irrigation in *Kharif* season and harvesting of banana. Whereas great majority of respondents had knowledge about banana cultivation technology practices, knowledge about varieties of banana Basrai, Ardhapuri, Srimanti, and G-9 (87.00%), interval between two irrigation (83.00%), use of specific planting distance between two plants (82.00%), selection of type and quantity of sucker (81.00%), knowledge about panama wilt (75.00%), respondents had knowledge about over all plant protection measures (75.00%), quantity of chemical fertilizer required per plant (68.00%), soil type (67.00%), knowledge about pest aphids and cigar rot disease (65.00%), and the majority of respondents also had knowledge about control of pest banana stem borer (60.00%) and quantity of organic manures recommended for banana (52.00%). Similar results were reported by Angait (2009).

Relational analysis :

In order to find out the relationship of the selected characteristics of the respondents with their knowledge, correlation co-efficients were worked out. The results obtained from the relational analysis have been presented as below :

Coefficient of correlation :

It is observed from the Table 3 that, among selected variables education, land holding, economic motivation, innovativeness, source of irrigation, source of information of respondents had positive significant relationship with knowledge about banana production technology practices at 0.05 level of probability. Whereas characteristics like age, annual income, risk orientation, social participation showed non-significant relationship with knowledge. While size of family had negatively non-significant relationship with knowledge.

The result, therefore, stated that the characteristics of respondents namely, education, land holding, economic motivation, innovativeness, source of irrigation, source of information were found positive with knowledge about banana production technology practices by the farmers. The similar results were reported by Naik (2013); Bhure (2012) and More (2002).

Correlation co-efficient of independent variables shows that, education, land holding, economic motivation, innovativeness, source of irrigation, source of information of respondents had positive significant relationship with knowledge about banana cultivation technology practices at 0.05 level of probability. Whereas characteristics like age, annual income, risk orientation, social participation, showed non-significant relationship with knowledge. While size of family had negatively non significant relationship with knowledge. Hence, the Null hypothesis was accepted with respect to these characteristics and concluded that these characteristics were not correlated with production technology by banana growers.

Constraints:

Problems faced by the respondents in use of new technology practices depicted in Table 4 show that, in

Table 3 : Co-efficient of correlation of selected characteristics of respondents with their knowledge about Banana cultivation practices

Sr. No.	Variables	'r' values
1.	Age	0.0512^{NS}
2.	Education	0.3317**
3.	Land holding	0.2446**
4.	Annual income	0.0819^{NS}
5.	Size of family	-0.0447^{NS}
6.	Economic motivation	0.2018**
7.	Innovativeness	0.3078**
8.	Risk orientation	0.0480^{NS}
9.	Source of irrigation	0.2025**
10.	Social participation	0.0489^{NS}
11.	Source of information	0.2507**

** indicates significance of value at P=0.05 NS=Non-significant

case of production constraints less than half of the respondents reported lack of knowledge about non availability of improved variety (39.00%) and shortage of water (18.00%). In case of situational constraints majority of respondents reported constraints as non-availability of labour (67.00%) as major constraint followed by non availability of fertilizers and insecticides in time (42.00%) and non-availability of adequate FYM (38.00%). In case of technical constraints over one third of the respondents expressed constraint as lack of knowledge about appropriate stage and doses of application of fertilizer (34.00%) followed by (21.00%), of respondents had constraint lack of knowledge about improved varieties. In case of economic constraints majority of respondents (83.00%) reported that they faced constraint of high labour charge followed by (82.00%) respondents reported constraint as high cost of improved variety seeds, fertilizers, FYM and insecticides. Whereas, (54.00%) of respondent reported that inadequate sources of finance. In case of storage constraints more than three fourth of the respondents reported non-availability of storage facility for banana produce (79.00%) and nearly equal number of respondents also faced the problems of banana deterioration due to lack of storage facility (73.00%). In case of marketing constraints majority of respondents (81.00%) reported constraints in banana cultivation was non remunerative prices during the time of glut in market, fluctuating prices of produce in market (68.00%), followed by high cost of transport (61.00%) and irregular demand for banana produce (54.00%). The (42.00%) respondents reported constraint lack of knowledge about market prices. In case of other constraint small per cent of respondents reported constraints like lack of interest in banana cultivation (7.00%) and complicated banana cultivation (6.00%). Similar results were reported by

Table 4: Constrains faced by farmers in adoption of banana cultivation technology practices

Sr. No.	Constraints	Frequency	Percentage
1.	**Production**		
	Non-availability of improved variety / sucker in time	47	39.00
	Shortage of water	22	18.00
2.	**Situational**		
	Non-availability of adequate FYM	45	38.00
	Non-availability of labour in time	80	67.00
	Non-availability of fertilizers and insecticides in time	50	42.00
3.	**Technical**		
	Lack of knowledge about improved variety	25	21.00
	Lack of knowledge about appropriate stage and doses of application of fertilizers	40	34.00
4.	**Economic**		
	Inadequate sources of finance	65	54.00
	High cost of improved variety seeds, fertilizers, FYM and insecticides	98	82.00
	High labour charge	100	83.00
5.	**Storage**		
	Non-availability of storage facility for banana produce	95	79.00
	Great loss of deterioration of banana for want of storage facility	88	73.00
6.	**Marketing**		
	Fluctuating prices of produce in market	82	68.00
	Irregular demand for banana produce	65	54.00
	Non-remunerative prices during the time of glut in market	97	81.00
	High cost of transportation by truck / tractor	73	61.00
	High cost of packing material	41	34.00
	Lack of knowledge about current market prices	50	42.00
7.	**Any other**		
	Lack of interest	8	7.00
	Complicated cultivation	7	6.00

Hendge *et al.* (2007).

Conclusion:

These findings revealed that, majority (61.00%) of the respondents had medium level of knowledge about banana cultivation technology practices. The knowledge of production technology by banana grower's increase may be due to better education, land holding, economic motivation, innovativeness, source of irrigation and source of information of farmers.

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