



P-ISSN: 2349-8528

E-ISSN: 2321-4902

IJCS 2019; SP6: 443-446

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(Special Issue -6)
3rd National Conference
On

**PROMOTING & REINVIGORATING AGRI-HORTI,
TECHNOLOGICAL INNOVATIONS
[PRAGATI-2019]
(14-15 December, 2019)**

A study on assessment on knowledge gap of banana grower's of Bhagalpur district of Bihar

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Abstract

The present study was undertaken in Bhagalpur district of Bihar to examine Knowledge gap of banana grower's in various areas of improved banana cultivation technology. Attempt was also made to know the associations of selected socio-economic and psychological Variables with the level of knowledge. The study was conducted by purposively selecting Naugachia block of Bhagalpur district. 95 banana growers were selected from two villages randomly with through use of structured interview schedule. Findings indicate that as high as 74.84 percent knowledge gap existed among the farming community in relation to the improved banana cultivation technology. Analysis of data related with knowledge gap in different sub – areas of main areas indicated a knowledge gap ranging from 40 percent to 73 percent.

Keywords: knowledge gap, training need, banana growers

Introduction

Banana (*Musa Species*) the “queen of tropical fruit” is considered to be one of the oldest fruit known to mankind. It has enjoyed Universal popularity in this country from times immemorial. It may be one of the reasons why the banana is Called “Apple of Paradise”. It is the oldest cultivated tropical fruit in India accounting for 31.07 percent of total fruit production from 12.44 percent area under fruit crops. At present India is the largest producer of banana in the world (Kumar, 2008) [5]. In the state Bihar, it is also the second most important fruit crop after mango and is mostly grown in two regions Viz. Vaishali and the north eastern (Khoshi) region. In the tract around the Ganga basin of Bhagalpur district banana cultivation is specialized type of farming giving more remunerative income to the growers in comparison to cereals and other plantation crops. Agro climatic situation of this district is well suited for banana cultivation and possesses abundant scope for extension of area under this fruit. The production and productivity is much lower in the state as compared to other states like Maharashtra, Gujarat and Tamil Nadu. Further, the training need index for each respondent was calculated in terms the area of knowledge gap were considered to be the areas of training need (Sreedaya *et al.* 2000) [12]. The simple reason for the low production and productivity seems to be the lack of scientific knowledge of banana production technology. Barma and Pathak (2011) [1] reported that the majority of the farmers did not have adequate knowledge on production recommendation and that more than half of the production recommendations were not known to them. Sufficient research has been conducted by Rajendra Agricultural University itself through various centers on the basis of which the production technology of banana has been standardized but it seems that the farmers of this state are by and large unaware of latest production technology of this fruit crop. Banana is considered as the most important energy provides food and is a good source of

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mineral salts and vitamins. Banana produced a more balanced diet than many fruits. Bananas play a key role in the economy and food security of India.

Materials and methods

The study was conducted in Bhagalpur district of Bihar. Bhagalpur district was purposively selected as area of research in view of its importance in terms of area and total production of banana crop. Among 15 blocks, Naugachia block having the highest acreage under banana cultivation was per positively selected as local of research. Two banana growing villages having the largest area under banana cultivation were selected. For the purpose of selection of the respondents, stratified random sampling procedure was used and 95 respondent farmers from each strata were selected by random sampling procedure.

Further, the knowledge gap index for each respondent was calculated in terms of percentage as per the formula given below. Knowledge gap index = potential – extent / potential X 100. The results were analyzed and interpreted highlighting the knowledge gap in improved banana cultivation technology.

Results and Discussion

Knowledge of cultivation technology is affected by various socio – economic, personal, and psychological and communication factors of the farmers. Therefore, an attempt has been made to explore relationship between the socio – economic, psychological and communicational variables and

the level of knowledge of improved banana cultivation technology.

Knowledge gap in the main areas of improved Banana cultivations technology

The gap in the knowledge of the total farmers in relation to the main areas of improved banana cultivation technology is presented in Table-1. Table-1 revealed maximum knowledge gap to the tune of 74.84 percent in the area of plant protection measures. Therefore, first priority needs to be given in this area of banana cultivation technology while organizing farmers training on this crop (Kubde *et al.*, 2000) ^[4]. Fertilizer management were the second major problem in which the knowledge gap was as high 64.17 percent. In other four areas such as post harvest technology, crop management, irrigation management and pre – planting technique, the knowledge gap was observed between 62-51 percent. Hence, it may be concluded that a vast knowledge gap starting from 74.84 percent to 50.85 percent existed among the farming community of the area in relation to the improved banana cultivation technology.

Thus, it can be said that farmer have very little knowledge about cultivation of banana with improved technology. Most crucial areas in which the farmers possessed much lower knowledge than expected were the plant protection as the knowledge gap in this area was highest. Kumari Sushma and Bhashkaran (1995) ^[6] reported that majority of farmers perceived a medium to high level training need in plant protection in rice cultivation.

Table 1: Knowledge gap in the main areas of improved Banana cultivations technology

Sl.	Main areas	Knowledge possessed (%)	Knowledge gap (%)
1	Preplanting technique	49.15	50.85
2	Fertilizer management	35.83	64.17
3	Crop management	44.92	55.08
4	Irrigations management	48.05	51.95
5	Plant protections measures	25.16	74.84
6	Post harvest technology	38.78	61.68
	Mean	40.32	59.68

Knowledge gap in the sub area of pre – plating technique

Table 2. Showed that 45-59 percent knowledge gap existed in the various sub – areas of the pre – planting technique of the improved banana cultivation. In the sub – areas of manuring knowledge gap was highest that is 59.17 percent whereas the minimum knowledge gap (45 percent) was found in the sub areas of type of land required. About 51 percent of the farmers were not aware of the knowledge of the time of banana plantation. Knowledge gap in the sub areas of selection of variety for dwarf and long of banana came to be 52.76 percent. The minimum knowledge gap was observed in the sub areas of depth and diameter of banana pit. It was to the tune of 46.48 percent.

Table 2: Knowledge gap in the Sub-areas of pre-planting techniques

Sl.	Sub areas	Knowledge possessed (%)	Knowledge gap (%)
1	Type of land required	55.00	45.00
2	Time of plantation	49.16	50.84
3	Banana pit	53.52	46.48
4	Mannuring	40.83	59.17
5	Selection of variety	47.24	52.76

Knowledge gap in the sub areas of fertilizer management

From table 3. It is clear that in the case of fertilizer management, the knowledge gap was observed to be in the sub-area of use of potassic fertilizers. The farmers showed 73.34 percent knowledge gap in the sub-areas such as the quantity and time of the use of potassic fertilizers concerning the quantity and time of the use of phosphatic fertilizer, the knowledge gap was 61.17 percent and in the case of quantity and time of use of nitrogenous fertilizer the knowledge gap was minimum to the tune of 57.50 percent.

Table 3: Knowledge gap in the Sub-areas of Fertilizer management

Sl.	Sub areas	Knowledge possessed (%)	Knowledge gap (%)
1	Nitrogen (quantity + time)	42.50	57.50
2	Phosphorus (quantity + time)	38.33	61.67
3	Potash (quantity + time)	26.66	73.34

The finding that the minimum knowledge gap was in the quantity and time of use of nitrogenous fertilizer, suggests that the farmers had better knowledge of the dose and time of use of nitrogenous fertilizer in Banana cultivation as

compared to the management of other two chemical fertilizers.

Knowledge gap in the sub areas of crop management

The table 4. Reveals that most of the farmers did not know the distance between row to row and plant to plant of the planting banana.

Table 4: Knowledge gap in the Sub-areas of crop management

Sl.	Sub areas	Knowledge possessed (%)	Knowledge gap (%)
1	Plant spacing (R to R +P to P)	31.50	67.50
2	Interculture weeding (No. + Time + name of weedicide)	44.16	65.84
3	Desuckering	59.10	40.90

The knowledge gap existed in this sub – area of crop management was 67.50 percent. The farmers were having

relatively better knowledge in the number and time of desuckering in this sub – area of crop management and that was 40.90 percent. The sub – area of inter – culture, which included the number and time of weeding and the chemical name of the weedicide, exhibited a knowledge gap of 65.84 percents.

Knowledge gap in the sub - areas of irrigation management

The data in respect to the knowledge gap in the areas of irrigation management are presented in Table 5. The maximum gap was observed in the sub – areas of identification of the number of irrigation. It was 57.67 percent in the case of banana farmers. This was followed by 55.68 percent and 52.50 percent in the sub – areas of critical stage and day's interval between the two irrigation.

Table 5: Knowledge gap in the Sub-areas of irrigation management

Sl.	Sub areas	Knowledge possessed (%)	Knowledge gap (%)
1	No. of irrigation required	42.33	57.67
2	Days interval	57.50	52.50
3	Critical Stage	44.32	55.68

It is important to mention that in the study area, pumping set it the only source of irrigation in the absence of a canal or any other government funded irrigation source. Realizing their present state of economic conditions, the farmers are seemingly not taking interest in possession of scientific knowledge of irrigation management in relation to the banana cultivation because simple acquisition of knowledge is not going to pay the farming community unless the same in

translated into action. However, if the use of a technology is not supposed to give a significant result as compared to the investment in it, particularly when the technology is costly one, it is logical that the farmers, specially the farmers with limited resources, will hesitate for using that technology.

Knowledge gap in the sub - areas of Plant protection measure

Table 6: Knowledge gap in the Sub-areas of Plant protection measure

Sl.	Sub areas	Knowledge possessed (%)	Knowledge gap (%)
1	Viral diseases (symptom + control measures)	24.34	75.66
2	Disease caused by bacterial / insects (Symptom + control measure)	25.98	74.02

The knowledge gap in the sub-areas of identification of the diseases caused by virus along with their control measures was slightly higher i.e. 75.66 percent. Similarly the gap in the knowledge in the sub-area of disease caused by bacteria was about 74 percent. This indicated that the farmers were not having better knowledge of the control measures of disease caused by virus and bacteria.

Knowledge gap in the sub - areas of post harvest technology

The post harvest technology included two important sub-areas (i) time of harvest (ii) curing of bunch. The data related to knowledge gap in these two sub-areas of post harvest technology is presented in Table 7.

Table 7: Knowledge gap in the Sub-areas of post harvest technology

Sl.	Sub areas	Knowledge possessed (%)	Knowledge gap (%)
1	Harvesting time	35.83	64.17
2	Curing of bunch	41.73	58.27

The table revealed that the knowledge gap in the sub – area of harvesting time was to the tune of 64.17 percent. Similarly, the gap in the knowledge in the sub-area of curing of bunch was about 58 percent. The study indicated that the vast gap exists in between knowledge possessed by the farmers and the knowledge should have been among the farmers in relation to the post – harvest technology of banana crop.

Problem in Banana cultivation as perceived by the farmers

Know the Various problems associated with the cultivation of banana as perceived by the farmers. The data are presented in Table 8.

Table 8: Constraints perceived by banana growers

Sl. No	Constraints				
A	Technological Constraints	Frequency	Percentage	Rank	Over all Rank
1	Susceptibility of plant disease like panama wilt	82	86.13	I	II
2	Incidence of insect/pest attack like banana weevil	74	77.89	II	VI
3	Poor yield due to nutrient deficiency in the soil	41	43.15	III	IX
4	Non-availability of suitable improved variety	23	24.21	V	XI
5	Failure in fruit formation due to unfavorable weather conditions	25	26.31	IV	X
B	Socio personal Constraints				
1	Lack of knowledge about banana production technology	76	80.00	II	V
2	Lack of contact with Agricultural Scientist, BAO and VLWs	79	83.15	I	IV
3	Poverty of respondent	71	74.73	III	VIII
C	Economic Constraints				
1	Low profit due to high cost of cultivation	85	89.47	I	I
2	High price of chemicals for plant protection	81	85.26	II	III
3	High price of manure and fertilizers	73	76.84	III	VII

It is clear from the table the main problems that the banana growers perceived were low profit due to high cost of cultivation (89.47%) and susceptibility of plant to disease like banana wilt (86.13%). However, only 24.21 percent felt non-availability of suitable improved variety and 26.31 percent felt as failure in fruit formation due to unfavorable weather conditions. Suggests that intensive programme of training and demonstration should be conducted in the area to up-date and renew knowledge about banana production technology.

Conclusions

The study revealed knowledge gap of banana grower's. Maximum knowledge gap in relation to the improved banana cultivation technology was observed in the area of plant protection measures. Followed by fertilizer management (64.17 percent). Similarly, the minimum knowledge gap was found in the area of pre – planting technology (50.85 %).

The analysis of the data related to the knowledge gap in different sub – areas of the main areas indicated a knowledge gap ranging from 50 percent to 75 percent. In the area of pre – planting technique the knowledge gap in the different components existed in between 45 percent to 59.17 percent. In the area fertilizer management, the gap in the knowledge in different components was observed in between 57.50 percent to 73.34 percent. In the different components of the crop management, this gap found in between 40.90 percent to 67.50 percent. Similarly, in the area of irrigation management the knowledge gap ranged in between 52.50 percent to 57.67 percent in various components. So far as the gap in the knowledge of various components of plant protection measure was concerned, it existed in between 75.66 percent to 74.02 percent. Finally in the main area of post harvest technology, this knowledge gap was observed in between 58.27 percent to 64.17 percent in the different components.

The high knowledge gap in all the areas of improved banana Cultivation technology depicts the poor extension effort being made to transfer the technology among the farmers. Hence, efforts should be made for widespread diffusion of the improved banana cultivation technology. This will not only help the banana growers to earn more profit by way at using the improved banana cultivation technology, but will also help bringing more and more farmers under the banana cultivations. Further, while organizing training for banana growers not only the knowledge gap index should be taken into consideration but the farmer's perceived need should be taken care of.

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