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Knowledge Level of Onion Growers on Improved Onion Production Technologies in Gadag District of Karnataka

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Authors' contributions

This work was carried out in collaboration among all authors. Author SKB designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors KCL and KVM managed the analyses of the study. Author DAR managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: To assess the Knowledge level of Onion growers on Improved Onion production technologies and to find out the Relationship between personal, socio economical and psychological characteristics of onion growers with their knowledge level.
Study Design: "Ex-post facto" research design.
Place and Duration of the Study: The present study was conducted during 2017–18 in Gadag district of Karnataka.
Methodology: Two villages from each of the four Taluks of Gadag district were randomly selected and from eight villages, 15 respondents were selected from each village by adopting random sampling method to form a sample of 120 farmers. Data was collected from the respondents by personal interview method using a pre-tested structured interview schedule.
Results: Majority of the farmers have medium level (42.50%) of knowledge followed by high level

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(31.66) of knowledge. Further study revealed that farmers had cent percent knowledge on seed rate, time of sowing, irrigation and weeding, whereas low level of knowledge on transplanting (10%), fertilizer dose (10%) and plant protection (15%). Independent variables like, Education, Mass media exposure, Extension contact, Management Orientation were have significant relationship with knowledge level of onion growers at 1 per cent level of significance, While Age, Farming experience, Innovativeness, Extension participation, Social participation and Risk Orientation at 5 per cent level of significance and variables such as Family size, Land holding , Area under Onion cultivation, Annual income exhibit non-significant relationship with knowledge level of onion growers.

Conclusion: Significant portion of respondents were having medium level of knowledge with most of the independent variables contributing significantly towards their knowledge level on improved onion production technologies.

Keywords: Knowledge level; onion growers; improved onion production technologies.

1. INTRODUCTION

A global review of area and production of major vegetables shows that onion ranks second in area and third in production of the total vegetables in the world. China is first in area and production while India occupied second position in the production. The Big onion produced in Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu are exported to Dubai, Kuwait, Saudi Arabia, Middle East, Malaysia, Singapore, Bangladesh, Sri Lanka etc. small onion produced in Karnataka and Andhra Pradesh are exported to Singapore and Malaysia *etc*.

Onion is one of the most important vegetable crops cultivated extensively throughout the country under a wide range of climatic conditions. It is very important in cookery; hence it is called the “Queen of kitchen” by Germans. Onion consumption is spread throughout the year and there is constant demand for onion bulb all around the year. However, production of onion fluctuates from year to year. The low production results in hike of price which creates discomfort among consumers. The middlemen are taking undue advantage of this situation and exploiting both producers and consumers.

Onion share 11.90 per cent of the total vegetable production of India in 2014-15. India has the largest area under onion in the world through output wise it is second in the world after China. In India, onion is cultivated in Maharashtra, Bihar, Karnataka, Gujarat and Madhya Pradesh. The Nasik region of Maharashtra account for 30.00 per cent of the total crop, followed by Gujarat with 11-13 per cent, Karnataka 10 per cent and Uttar Pradesh 8 to 10 per cent. India is the second largest exporter of onion after the china. Onion accounts for 90.00 per cent of the exports of vegetables from India in the forms of value. In the year 2016-17, 30.69 lakh million tonnes of onion was exported which valued to the tune of Rs.4195.29 cores. In India, the area under onion is 1320.13 thousand hectares and annual production of 20,931.25 thousand tonnes with productivity 15.86 tonnes / ha [1].

Maharashtra is the leading onion producing state in India. Karnataka, which is the second largest onion producer in the country with 16.04 per cent share in the total onion production of 18,927.40 MT. In Karnataka, major growing districts are Dharwad which stands in first position with the production of 5,02,500 tonnes and area of 35,129 hectares followed by Chitradurga with the production of 3,31,612 tonnes with the area of 16,618 ha and Gadag district with the production of 2, 07,896 tonnes with the area of 37,043 ha. In Karnataka, onion is grown in all the three seasons. However, it is predominantly a winter crop. Generally, the onion growers bring their produce to market for sale immediately after the harvest, because of lack of storage facilities and financial problems of onion growers. This result in glut of onion in market and fall in market prices of the onion [2]. Sometimes, the market rate will reach a record low as less than one rupee per kilogram. Then it becomes very difficult for onion growers even to meet the transportation charges. This situation is creating discontent among the farmers giving rise to their agitation for the fair market price.

In spite, lot of efforts have been taken by extension agencies and scientists to materialize the potential of onion, the productivity of onion was stagnate over a period of time. The major reasons were traditional way of cultivation, dominance of local varieties, lack of supporting facilities and wide fluctuation in market price of onion which make onion cultivation unprofitable. In the light of these above facts, the present

study was undertaken to know the Knowledge level of Onion growers on Improved Onion production technologies in Gadag district of Karnataka

2. MATERIALS AND METHODS

The study was conducted in Gadag district of Karnataka state during 2017-18. Four taluks of Gadag district Gadag, Ron, Shirahatti, Naragund were selected. Taluka wise list of onion growing villages was obtained from concerned village based authorities and two villages were selected randomly from each taluka. Thus, in total, eight villages were selected for the study and 15 respondents were selected from each village by adopting random sampling method. Thus, a total of 120 respondents constituted the sample for the study. A pre-tested interview schedule was used to collect the data through personal interview method. The data collected were tabulated and analyzed by using suitable statistical measures.

3. RESULTS AND DISCUSSION

3.1 Overall Knowledge of Respondents with Respect to Recommended Production Technologies of Onion

Table 1 reveals that more than two fifth of the respondents (42.50%) had medium level of knowledge about recommended onion production technologies followed by low (25.84%) and high level (31.66%) of knowledge since the majority of the respondents educated up to middle school and when analysis of mass media was made, majority of respondents possessed television. Further, the study also revealed that most of respondents participated in extension activities such as krishimela demonstrations, and field visits. These factors might have contributed more for possession of medium level of knowledge of onion cultivation practices. The above findings are in confirmation of the results of the study conducted by [3,4].

3.2 Knowledge Level of Onion Growers with Respect to Specific Recommended Production Technologies of Onion

3.2.1 Recommended variety, seed rate and seed treatment

Table 2 revealed that, only 55.00 per cent of the onion growers were having knowledge about recommended variety. In case of seed rate cent per cent of the respondents were having a knowledge about seed rate as per the recommendation. While in case of seed treatment 26.67 per cent of the respondents were having knowledge as per the recommendation. These practices are important aspects of cultivation of any crop and do not vary much with other crops cultivation practices. Therefore most of them were found to have knowledge about these basic practices.

3.2.2 Time of sowing, transplanting, spacing, irrigation

In case of time of sowing they have a cent per cent of knowledge. Where as in case of transplanting only 10 per cent of the respondents were having knowledge as per recommendation and the knowledge level of spacing is 20.84 per cent of the respondents, while in case of irrigation cent per cent of the respondents were having knowledge as per recommendation as shown in the Table 2.

3.2.3 Recommended quantity of FYM, Fertilizer

Table 2 indicated that 16.67 per cent of the respondents were having knowledge about recommended quantity of FYM, where as in case of fertilizer application (10%) of the respondents were having the knowledge as per the recommendation.

Table 1. Overall knowledge of respondents with respect to recommended production technologies of onion (n=120)

Sl.No.	Knowledge categories	Criteria	Respondents	
			Number	Percentage
1.	Low	Less than < 5.19	31	25.84
2.	Medium	Between 5.19 – 6.37	51	42.50
3.	High	More than > 6.37	38	31.66
		Total	120	100

Mean = 6.37; SD = 1.173

3.2.4 Weeding and plant protection

The data in Table 2 reveals that cent per cent of the respondents were having knowledge about weeding. While, in case of plant protection only 15 per cent of the respondents were having knowledge as per recommendation.

Recommended doses of chemicals differ from crop to crop as well as pest to pest. Due to different dosages for different crops, farmers would not have remembered the exact dosage of pesticides and fertilizers. The complexity involved might have resulted in majority having no knowledge of pesticides and fertilizers. Another reason could be that, the farmers noticed low incidence of disease and pests in onion, that have resulted in poor knowledge about pests and disease control measures.

It is logical to derive from the above discussion that the practices which are complex and difficult to remember are moderately known to farmers. On the other hand, the practices which are simple and traditionally practiced were known to majority of farmers. The present findings were in accordance with the results reported by [3,5].

3.3 Relationship between Personal, Socio Economical and Psychological Characteristics of Onion Growers with Their Knowledge Level

Table 3 shows that independent variables like, Education, Mass media exposure, Extension contact, Management Orientation were having significant relationship with knowledge level of onion growers at 1 per cent level of significance. While Age, Farming experience, Innovativeness, Extension participation, Social participation and Risk Orientation were at 5 per cent level of significance and variables such as Family size, Land holding , Area under Onion cultivation, Annual income exhibit non-significant relationship with knowledge level of onion growers.

The reason might be that as majority of the respondents belongs to the old age, Further it is an universal phenomenon that age increases the experience in their profession also keep increasing and also not difficult to understand because education helps an individual in acquisition of knowledge, broadening the vision and motivating towards higher accomplishments and also for mass media participation, some of the respondents have heard/seen the agricultural programmes broadcasted/telecasted, this might be the reason for significant relation with these variables. The study is in line with the results [4].

Age, Farming experience, Innovativeness, Extension participation, Social participation, Risk Orientation were positively significant with knowledge level of onion growers at 5 per cent level of significance. The findings are in line with the findings of [6] and [7].

Innovativeness is a psychological trait which indicates a greater degree of willingness to change and try new ideas. Farmers possessing higher innovativeness will be having better opportunities better ability to try new practices and strive hard towards adopting those practices earlier. These findings are in the line with the results of [6] and [7].

Participation in extension activities such as, demonstrations, farmers field schools, field days, krishi melas, meetings etc would promote the acquisition and consequent adoption of farm technologies. Regular participation in extension activities exposes farmers to new areas of farming techniques with a quest to knowledge about production and marketing aspects. Also, extension participation provides the opportunities for contrived experiences and serves as reinforcement in gaining knowledge not only agricultural innovations but also including various marketing aspects like grading, packaging, etc. The results of the present study are in conformity with the findings of [6].

For social participation the probable reason might be participation in social institution gives an opportunity to know the information about the developmental programmes and schemes which are available in different line departments which may influence for the knowledge level. The results of the present study are in conformity with the findings of [6].

For management orientation the probable reason might be the farmers with better knowledge about the managing the situation and resources can make a better decisions and planning about production and marketing aspects which influence the economic performance of the farmers. The findings of the study are supported by the findings of [8].

For risk orientation, it is expressed as the degree to which a farmer is oriented to take risk and has courage to face uncertainties in any enterprises.

Table 2. Knowledge level of onion growers with respect to specific recommended production technologies of onion (n=120)

Sl. No.	Recommended practices	Knowledge level			
		Yes		No	
		Frequency	Percentage	Frequency	Percentage
1.	Recommended variety (Bellary Red, Telagi red and Pusa red,)	66	55.0	54	45.0
2.	Seed rate(7.5 -10 kg and 5-6 kg per hectare)	120	100.0	00	0.00
3.	Seed treatment (Captan and Trichoderma)	32	26.67	88	73.33
4.	Time of sowing (June-July, Sept.– Oct and Jan – Feb)	120	100.0	00	0.00
5.	Transplanting	12	10.0	108	90.0
6.	Spacing (10x15 cm)	25	20.84	95	79.16
7.	Irrigation(once in 4 to 6 days)	120	100.0	00	0.00
8.	Recommended quantity of FYM (30 tonne)	20	16.67	100	83.33
9.	Fertilizer(125:50:125 kg/ha)	12	10.0	108	90.0
10.	Weeding (Butaclore and Oxyflorofin)	120	100.0	00	0.00
11.	Plant protection (Dithane, Captan and Mancozeb) (Dimethoate and Chloropyriphos)	18	15.0	102	85.0

Table 3. Relationship between personal, socio economical and psychological characteristics of onion growers with their knowledge level (n=120)

Sl. no	Characteristics	Correlation coefficient (r)
1.	Age	0.223^{*}
2.	Education	0.364^{**}
3.	Family size	0.124^{NS}
4.	Land holding	0.041^{NS}
5.	Area under Onion cultivation	0.018^{NS}
6.	Farming experience	0.156^{*}
7.	Annual income	0.122^{NS}
8.	Innovativeness	0.120^{*}
9.	Mass media exposure	0.412^{**}
10.	Extension contact	0.294^{**}
11.	Extension participation	0.154^{*}
12.	Social participation	0.188^{*}
13.	Management Orientation	0.278^{**}
14.	Risk Orientation	0.212^{*}

** Significant at 5% level*
*** Significant at 1% level*
NS: Non significant

A farmer who is having this particular trait normally will have better knowledge. Similar findings were reported by [9].

4. CONCLUSION

It can be concluded from the above findings that majority of the respondents have medium level of knowledge about improved cultivation practices of onion, majority were medium aged and middle school education level with high innovativeness having good participation in extension activities. On an overall though farmers have fair level of knowledge, they are lacking knowhow regarding specific practices like plant protection, fertilizer dose, transplanting and recommended spacing and seed treatment. Therefore the concerned researchers, extension personnel should guide

and advise the farmers by training and demonstration on specific practices to overcome these lacunae.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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