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Abhishek Naik SDepartment of Agricultural
Extension, UAS, GKVK,
Bengaluru, Karnataka, India**SV Suresha**Department of Agricultural
Extension, UAS, GKVK,
Bengaluru, Karnataka, India

Correlates of adoption of recommended cultivation practices of pomegranate growers using public and private extension services

Abhishek Naik S and SV Suresha

Abstract

The Pomegranate is cultivated as a commercial crop, it needs a critical care at the production level and enhances the need of consultancy service for the production. Hence, there are number of Private people working as consultants along with public extension personnel. The study was conducted in Hiriyuru, Chitradurga and Challakere taluks of Chitradurga district with a total sample size of 120 comprising 60 growers each under public extension and private extension systems. The "Ex-post fact" research design was used in the study. Overall adoption of improved cultivation practices of pomegranate by the growers indicates that the 40 per cent of the growers belongs to medium adoption category in public extension services and in private extension service 40 per cent growers were found in high adoption category. In public extension and private extension the variable like social participation and extension contact had positive and significant relationship with adoption at 5 per cent level. The study also reveals that public and private extension, the variables like farming experience social participation and scientific orientation had positive significant relationship at 5 per cent level with the income of the farmers. With respect to constraints faced by the pomegranate farmers under public extension services was the technical constraint with average percentage (92.33%) whereas in case of private extension services, constraints faced was with labour (90.83%).

Keywords: Adoption, Income, constraints perceived, public and private extension services

Introduction

Pomegranate is an important fruit crop grown in tropical and subtropical regions of India and is commonly known as Dalim, Anar and Matulum. The cultivation of Pomegranate was started since ancient time and growth excels in dry climate. At the global level, India is the world's largest producer of pomegranates, followed by Iran. In Karnataka, pomegranate occupies an area of 28.09 thousand hectares with the production of 328.92 thousand metric tonnes and productivity of 11.71 metric tonnes per hectare.

The cultivation of pomegranate for commercial production requires scientific know how since it demands high investment. In the absence of proper extension guidance, the farmers may suffer with huge losses. The National Agricultural Policy of the Government of India also encourages the participation in the agricultural technology transfer and assures a move towards a regime of financial sustain ability of extension services through affecting in phased manner, a mere realistic cost-recovery of extension services and inputs, while simultaneously safeguarding the interest of the poor and vulnerable sections. Public extension services are not profit oriented and lacking of sufficient staffs for growing population in our country.

Pomegranate being a high value commercial crop many farmers are coming forward to cultivate this crop. It involves high level of technological input, appropriate and timely adoption of improved practices. In this regard, pomegranate growers are required to acquire more knowledge regarding the cultivation aspects of the crop. Knowledge is the basic requirement, which gives impetus to adoption of improved technologies. It is observed that the acquisition of knowledge and adoption of improved cultivation practices depends on farmers personal profile constituted by various socio-economic and psychological characteristics. With this background, the present study was undertaken with the following objectives;

1. To find the overall adoption of improved cultivation practices of pomegranate by the growers with public and private extension services.
2. To delineate the relationship between the selected personal, socio-psychological characteristics of pomegranate growers with adoption of improved cultivation practices and income of the pomegranate growers.
3. To find the constraints perceived by pomegranate growers with public extension services and private extension services

Corresponding Author:**Abhishek Naik S**Department of Agricultural
Extension, UAS, GKVK,
Bengaluru, Karnataka, India

Methodology

The study was conducted in three taluks of Chitradurga district viz; Challakere, Chitradurga and Hiriur considering the area and production of Pomegranate in the district. The 60 farmers who are under public extension service and 60 farmers who are in private extension services were selected as sample for the study. Out of 60 farmers 20 growers from each taluk were selected randomly in both the systems of the extension service. Thus the total sample size constituted was 120. Expost facto Research design was employed in the study (Kerlinger, 2010) [2]. Data were collected by using pre-tested structured interview schedule through personal interview method. The appropriate statistical tools like mean, frequency, percentage and standard deviation were used for analysis of collected data and to know the adoption level and income level, personal socio-psychological characteristics of pomegranate growers under public and private extension services, Z-test to know the differences in performance of

pomegranate growers under public and private extension services and correlation to find out the relationship between the personal, socio-psychological characteristics with performance were employed.

Results and Discussion

Overall adoption level of pomegranate growers with public and private extension services

The Table 1 provides the information of the distribution of pomegranate growers based on adoption of recommended practices as low, medium and high categories. In public extension services two fifth of the pomegranate growers belonged to medium rate (40.00%) of adoption category. Equal percentage of growers (30.00%) comes under high and low adoption category. Under private extension services majorly occupy the High rate (40.00%) of adoption, followed by medium level (33.33%) and low level (26.67%) respectively.

Table 1: Overall of adoption of recommended practices by pomegranate growers under public and private extension services n=120

Adoption category	Frequency	Percentage of adopter under public extension service (n1=60)	Frequency	Percentage of adopter under private extension service (n2=60)
Low	18	30.00	16	26.67
Medium	24	40.00	20	33.33
High	18	30.00	24	40.00

The public extension service suffers with the shortage of staff to offer the extension services on a regular basis to all the farmers in critical stages of crop growth. Further, the lack of extension contact of farmers under public extension might have also contributed for the above result.

Relationship between the personal, socio-psychological characteristics of the pomegranate growers and adoption of recommended practices with public and private extension services

Table 2 revealed that in public extension service the variables like family size, social participation and extension contact and scientific orientation had positive and significant relationship

at 5 per cent level. The willingness of the family to use the family labour, reduced dependency on the external labour, reduced expenditure on labour may be the reasons for positive relationship of family size with the adoption of the practices. Social participation makes an individual to get the information from the other social organizations. Whereas, the scientific orientation exhibited highly significant relationship at 5 per cent level with the adoption of technologies. The farmers with scientific orientation tend to look for scientific application of the technologies in true sense. Further, it motivates them to get to know the scientific findings in other places seek information and try to adopt in their field. Hence, this might have influenced the adoption.

Table 2: Relationship between the personal, socio-psychological characteristics of the pomegranate growers and adoption of recommended practices with public and private extension services n=120

Sl. No.	Variables	Correlation coefficient (r)		
		Public extension service (n1=60)	Private extension service (n2=60)	Pooled
1.	Education	0.052NS	0.036NS	0.072 NS
2.	Family size	0.318*	0.032NS	0.078 NS
3.	Farming experience	0.232NS	0.213NS	0.243 NS
4.	Social participation	0.309*	0.258*	0.259*
5.	Mass media exposure	0.078NS	0.058NS	0.099 NS
6.	Extension agency contact	0.347*	0.211NS	0.101NS
7.	Extension participation	0.155NS	0.255*	0.029 NS
8.	Scientific orientation	0.344*	0.233NS	0.221 NS
9.	Achievement motivation	0.129NS	0.201NS	0.134 NS
10.	Decision taking ability	0.011NS	0.021NS	0.241NS
11.	Risk orientation	0.110NS	0.241*	0.244 NS
12.	Management orientation	0.028NS	0.219NS	0.059 NS
13.	Innovative proneness	0.087NS	0.106NS	0.123*

** Indicate 1% level of significance

*Indicates 5% level of significance NS- Non Significant

Education, farming experience, mass media exposure, extension participation, achievement motivation, decision making ability, risk orientation, management orientation and innovative proneness had no significant relationship with adoption.

In private extension service the variables like social

participation, extension participation and risk orientation had positive significant relationship with the adoption at one percent level of significance. The justifications drawn for the public extension service can be suitably drawn for the present trend also.

With respect to pooled data variables like education, farming

experience mass media exposure, extension contact, scientific orientation, achievement motivation, decision-making ability, management orientation and innovative proneness had non-significant relationship with adoption level of pomegranate farmers. However, social participation and innovative proneness had positive and significant relationship with one percent level of significance. The findings are in agreement with the results of the study conducted by Shanbogha (2016) [3].

Relationship between the income of the pomegranate growers with personal, socio-psychological characteristics with public and private extension service

Table 3 indicated that for public extension service the variables like farming experience, social participation, extension contact and scientific orientation had positive significant relationship at 5 per cent level with the income of the farmers who seek extension service from private

extension. Family size show significant relation at one percent level of significance. The family size will make an individual to thrive hard to earn more and to get decent income to run his family. Further, the educational expenses of the family, the change of life style would increase the family expenditure and to compensate the farmers are willing to earn more from cash crops like pomegranate.

Naturally farming experience provides them the required confidence to invest and to get the investment along with the good returns. Further, the experience they gained might have made them to understand the technologies easily and to adopt them without any hassles. The scientific orientation will enable them to apply the principles of science of crop cultivation scientifically. The exposure to the external world through social participation, exchanging of information with the friends and neighbors will also drive them to get better income. These may be the probable reasons for the above observed results.

Table 3: Relationship between the income of the pomegranate growers with personal, socio-psychological characteristics with public and private extension service n= 120

Sl. No.	Variables	Correlation coefficient (r)		
		Public extension service (n1=60)	Private extension service (n2=60)	Pooled
1.	Education	0.050NS	0.023NS	0.035 NS
2.	Family size	0.335**	0.014NS	0.037 NS
3.	Farming experience	0.246*	0.264*	0.265*
4.	Social participation	0.337*	0.205*	0.158*
5.	Mass media exposure	0.084NS	0.033NS	0.075 NS
6.	Extension agency contact	0.289*	0.103NS	0.054 NS
7	Extension participation	0.54NS	0.234*	0.040 NS
8	Scientific orientation	0.368*	0.243*	0.042 NS
9	Achievement motivation	0.089NS	0.262*	0.167 NS
10	Decision taking ability	0.015NS	0.024NS	0.246*
11	Risk orientation	0.055NS	0.217*	0.289*
12	Management orientation	0.121NS	0.242*	0.084 NS
13	Innovative proneness	0.099NS	0.143NS	0.223*

** Indicate 1% level of significance *Indicates 5% level of significance NS- Non Significant

Further, variables like education, mass media exposure, extension participation, economic motivation, achievement motivation, decision-making ability, risk orientation, management orientation and innovative proneness had no significant relationship with the income level of pomegranate farmers.

In private extension service farming experience, social participation, extension participation, economic motivation, scientific orientation, achievement motivation, risk orientation and management orientation had significant relationship at 5 per cent level with income level of pomegranate growers. The reasons attributed in case of public extension can also be drawn for the private extension service availing farmers also in case of farming experience, social participation and extension participation and scientific orientation. However, the economic motivation which influences the income under private extension service can be explained with the facts the urge to get more income for the livelihood security, providing decent life style and saving for the future use might have contributed. Achievement motivation motivate the individual to excel himself in the society by way of earning more income, recognition, status in the society, and fair external incentives like awards. This may be reason for its positive relationship with the income level of the farmers. Whereas the education, family size, mass media exposure, extension contact, decision-making ability, and innovative proneness had non-significant relationship with income level of pomegranate farmers.

With private extension service social participation shows the positive relationship with adoption because farmers are exposing to the village level, taluk level organization and district level organization leads gain in knowledge of most of the institution related to crop, hence this variable directly or indirectly contributing towards the increasing. Extension participation also positive relationship with adoption because the farmers participate in extension methods like method demonstration, study tour etc. leads to adoption of innovation leads to increasing of income. Risk taking behavior also positively influence the adoption of level of farmers because it test individual is capability to handle the uncertain situation. The findings are in agreement with the results of the study conducted by Shanbogha (2016) [3].

Constraints perceived by pomegranate growers under public extension services

Table 4 revealed the constraints faced by the pomegranate farmers under public extension services. Most important problems perceived by pomegranate growers were the technical constraint with average percentage (92.33%). It was followed by labour (91.41%), marketing (85.80%), input (66.67%) and financial (27.78%) constraint.

In light of the above observation it can be attributed to the fact that under public extension services, the extension agent as to provide information to the large number of people and it could be interpreted also from the secondary data that the ratio between farmers and extension agent is very huge.

Further, the extension agent in public extension service has to cater to the information needs of many other fruit crops and it is next to impossible to make available all the information required by the pomegranate farmers and that too in time. The crop demands intensive and timely operations and even it requires skilled labors at the time of harvesting and packaging. Hence, they might have felt labour problem as the second most problem. Further, the marketing is a factor which the farmers cannot manipulate on their own and it is

determined by many other factors including the economic principle of demand and supply. However, the volatility of the market might have influenced the farmers to perceive that it is also an important constraint. It is quite obvious that the farmers growing pomegranate needs to be economically sound because of its high production cost and hence listed as the least perceived problem. The findings are in agreement with the results of the study conducted by Shanbogha (2016)^[3].

Table 4: Constraints as perceived by Pomegranate growers using Public Extension Service n1=60

Sl. No.	Production constraints	Frequency	percent	Average (%)	Rank
1.	Labour				
a	High labour cost	56	93.33	91.41	II
b	Lack of skilled labour	54	90.00		
c	Labour requirement for operations is very high	55	91.67		
d.	Labour requirement for operations is very high	52	86.67		
	Total	217			
2.	Technical				
a	Pest and Disease incidence	57	95.00	92.33	I
b	Pest and disease management is difficult	56	93.34		
c	Lack of knowledge on pruning operation high	57	95.00		
d	Lack of harvesting equipments	55	91.67		
e	Lack of knowledge on right stage of harvesting ripened fruits for harvest	52	86.67		
	Total	327			
3.	Marketing				
a	Lack of Market accessibility	55	91.67	85.8	III
b	Lack of transportation facilities	54	90.00		
c	Lack of storage facilities	54	90.00		
d	Lack of Proper price for produce	53	88.33		
e	Lack of market knowledge	53	88.33		
f	Exploitation by middlemen	52	86.67		
g	Heavy market levies	52	86.67		
h	Source of information on price of product	52	86.67		
	Total	425			
4	Input				
a	Non availability of quality seedlings	40	66.67	66.67	IV
b	Non availability of manures	30	50.00		
c	Non availability of chemical fertilizers in time	35	58.33		
d	Non availability of plant protection chemicals	35	58.33		
e	Lack of irrigation facilities	55	91.67		
f	Electricity (for irrigation) supply/ shortage	45	75.00		
	Total	240			
5.	Financial	16.66			
a	Not capable of investment	15	25.00	27.78	V
b	High initial cost of chemicals	20	33.34		
c	Non availability of working capital	15	25.00		
	Total	50			

Constraints faced by pomegranate growers under Private extension services

Table 5 revealed the constraints faced by the pomegranate farmers under private extension services. Most important constraint was labour with percent of 90.83. It was followed by input (71.66%), technical (67.5%), marketing (47.29%) and financial (12.22%) constraints.

The private extension service is provided on a regular day to day basis for scientific cultivation of crops keeping the returns in mind. Further, these regular operations require skilled and non-skilled labours and its requirement is large. However, the present situation of the villages in terms of family size, migration of youth to nearby town and cities further aggravated the labour problem. Hence, the farmers might have indicated that the labour is the major constraint. It is

curious to see that the input constraint is ranked second may be because of the reason that the timely availability of the required input is difficult since there will be a huge demand among the farmers of pomegranate who seek information from the private extension service. The marketing constraint is expressed by less number of farmers just because the consultant who is providing information will also help them in marketing of the fruits in suitable markets including the export. Further, the qualities of fruits they get will also facilitate them to market their produce very easily. The farmers who are willing to invest in the crop along with the fee to the private consultant will only take up this kind of arrangement and because of their better economic status they might have ranked at the end. The findings are in agreement with the results of the study conducted by Shanbogha (2016)^[3].

Table 5: Constraints faced by pomegranate growers under Private extension services n2=60

Sl. No.	Production constraints	Frequency	Percent	Average	Rank
1	Labour				
a	High labour cost	57	95.00	90.83	I
b	Lack of skilled labour	55	91.67		
c	Non-availability of labour during the season	54	90.00		
d	Labour requirement for operations is very high	52	86.67		
	Total	218			
2	Technical				
a	Pest and Disease incidence high	40	66.67	67.5	III
b	Pest and disease management is difficult	41	68.33		
c	Lack of knowledge on pruning operation	40	66.67		
d	Lack of harvesting equipments	45	75.00		
e	Lack of knowledge on right stage of harvesting ripened fruits for harvest	35	58.33		
f	Lack of knowledge on correct methods of packaging	42	70.00		
	Total	243			
3	Marketing				
a	Lack of Market accessibility	35	58.33	47.29	IV
b	Lack of transportation facilities	31	51.67		
c	Lack of storage facilities	25	46.67		
d	Lack of Proper price for produce	27	45.00		
e	Lack of market knowledge	11	18.33		
f	Exploitation by middlemen	35	58.33		
g	Heavy market levies	37	61.67		
h	Source of information on price of product	23	38.33		
	Total	224			
4	Input				
a	Non availability of quality seedlings	46	76.67	71.66	II
b	Non availability of manures	40	66.67		
c	Non availability of chemical fertilizers in time	44	73.33		
d	Non availability of plant protection chemicals	41	68.33		
e	Lack of irrigation facilities	42	70.00		
f	Electricity (for irrigation) supply/ shortage	45	75.00		
	Total	258			
5.	Financial				
a	Not capable of investment	09	15.00	12.22	V
b	High initial cost of chemicals	05	8.33		
c	Non availability of working capital	08	13.33		
	Total	22			

Conclusion

The adoption of the recommended practices by private extension system is better compared to public extension system which implies the continuous guidance by the extension worker would enhance the adoption of practices and the public extension needs to be engaged in establishing good rapport with the farmers and to promote the technologies. The variables like social participation, which contribute for increase in the adoption of recommended practices, need to be considered and used for promoting the pomegranate technology both in public and private extension systems. The important constraints which are listed by the public extension needs to be evaluated carefully and requires corrective measures. Further, the family labors need to be encouraged to participate in farm operations which have more significance in reducing the labour crisis and cost of production.

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