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Extent of adoption of recommended package of practices in davanam by contract farming farmers

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Abstract

The research study was conducted during 2019-20 in Chikkaballapur district of Karnataka, India. In total 80 Davanam farmers under contract farming constituted the sample size of the study. The data were collected by employing personal interview method using pre-tested interview schedule. Ex-post-facto research design was employed for the research study. Mean, Standard Deviation, Frequency, Percentage Grouping, t-test Correlation Coefficient and Regression statistical tools were used for analyzing the data. Majority of the Davanam contract farming farmers were educated, small farmers, having small family and had medium extension contact. The contract farming had positive and significant impact on the social variables- organizational participation and extension contact and economic -variables annual income, savings and material possession. Cent per cent of farmers fully adopted seed bed preparation, recommended seed rate, sowing of sprouted seeds and harvesting. Further, majority of Davanam contract farming farmers fully adopted land preparation, irrigation, inter cultivation and weeding, on other hand application of recommended quantity of FYM fertilizers, spraying with Gibberlic acid and plant protection measures were partially adopted by Davanam farmers. Variables such as extension participation, achievement motivation, organizational participation, management orientation and level of aspiration are highly significant with adoption at one per cent level. The independent variables such as family size, family type, mass media exposure, achievement motivation, economic motivation, level of aspiration and management orientation have significantly contributed to the adoption of recommended package of practices by the Davanam contract farming farmers and The R^2 specified that all the 14 independent variables have contributed to the tune of 0.8650 per cent of variation in adoption of recommended package of practices by the Davanam contract farming farmers.

Keywords: Profile characteristics, davanam contract farming, impact of contract farming, extent of adoption

1. Introduction

The scenario of agriculture in India is changing. Farmers are keen in transforming from traditional approach of farming to market-led approach. Farmers are now looking for the means and ways to shift from subsistence agriculture to market oriented production. In this context, contract farming provides a unique opportunity to diversify their production. With minimum risk, it motivates the farmers to take up a new venture. Contract Farming in Davanam is a form of vertical integration for producing Davanam leaves as per the specifications of company through a written agreement. The contracts outline conditions for the production of Davanam and its delivery to buyer's premises. The contract farming, under new approach allows a greater degree of control over the production process and also the quality of product, without any production investment by the company. Karnataka is an emerging state as one of the leading states in contract farming in India

Davanam (*Artemisia pallens*) is well known for its aroma and is generally known as scent crop. It is a native of South India. India holds key position in production of Davanam oil and acquired considerable reputation in international trade. Annual production is about 2 tons/annum and mostly grows in Kashmir valley, Simla, Nainital hills, Karnataka, Tamil Nadu, Uttar Pradesh and Andhra Pradesh. Davanam cultivation under contract farming is highly profitable, even small farmers can practice it. Risk involved due to fluctuation in market price is minimized through contract farming. Farmer is assured of better returns compared to other field crops as the companies offer remunerative price. With this background the present study is undertaken with the following specific objectives.

1. To analyse the profile characteristics of Davanam contract farming farmers.
2. To study impact of contract farming on socio-economic status of Davanam farmers
3. To analyze the Extent of Adoption of Recommended Package of Practices in Davanam by Contract Farming Farmers.
4. To know the Relationship between Personal Characteristics of Contract Farming Farmers and Adoption of recommended Davanam Package of Practices.

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5. To analyse the Contribution of Personal Characteristics of Contract Farming Farmers to the Adoption of Recommended Package of Practices.

2. Methodology

The research study was conducted in Chikkaballapur district of Karnataka, India. Based on the highest production two taluks viz, Gauribidanur and Chikkaballapur were purposively selected. From each taluk 40 Davanam contract farming farmers were randomly selected. Thus, the total sample size for the research study was 80 respondents. The data was collected through personal interview method using pre-tested interview schedule. Ex-post-facto research design was employed for the study. Keeping in view the objectives of the study and amenability, the data were subjected to different statistical tests. These tests include mean, standard deviation, frequency, percentage grouping, t-test, correlation coefficient and regression analysis.

The data in Table-1 reveals that 35.00 per cent of the Davanam growers belonged to young age group, followed by 31.25 per cent and 33.75 per cent were belonged to middle age and old age groups respectively. About 48.75 per cent, 31.25 per cent, 13.75 per cent, 3.75 per cent and 1.25 per cent of the farmers studied up to high school, middle school, PUC, graduation and primary school respectively. The remaining 1.25 per cent of the farmers were illiterates. Majority of the Davanam growers under contract farming were belonged to small land holding category (86.25%), 10.00 per cent were marginal farmers and 3.75 per cent were belonged to big land holding category. As high as 43.75 per cent were belonged to high annual income category, 36.25 per cent and 32.50 per cent were belonged to low and medium annual income category respectively. Majority (72.50%) farm families were

comes under nuclear family and 27.50 per cent of them belonged to joint family. Majority of farmers (81.25%) were belonged to Small family followed by 28.75 per cent were belonged to medium family and 12.50 per cent were belonged to large family category. As high as 57.50 per cent of respondents were having medium level of extension contact followed by 28.75 were having low and 13.75 per cent were having high level of extension contact respectively. It is evident that 48.75 per cent of respondents were having high achievement motivation followed by 26.25 per cent of the respondents were having low and 25.00 per cent were having medium level achievement motivation. As high as 45.00 per cent farmers belonged to high economic motivation followed by 37.50 per cent to medium and 17.50 per cent to low level of economic motivation category respectively. About 48.75 per cent of respondents come under high organization participation followed by medium (27.50%) and low (23.75%) level of organization participation. Majority of Davanam contract farming farmers belonged to high mass media exposure (53.75%), followed by 31.25 per cent to low and 15.00 per cent to medium level mass media exposure respectively. Further, 45.00 per cent of respondents were belonged to high management orientation followed by 28.75 per cent belonged to low and 26.25 per cent belonged to medium management orientation category respectively. About 50.00 per cent of respondents come in high extension participation followed by low (28.75%) and medium (21.25%) level of extension participation. Further, as high as 47.50 per cent of respondents were belonged to high aspiration level followed by 31.25 per cent belonged to low level and 21.25 per cent belonged to medium level of aspiration respectively.

Table 1: Profile Characteristics of Davanam Contract Farming Farmers

Sl. No.	Characteristics	Category	Respondents	
			No	Per cent
1	Age	Young	28	35.00
		Middle	25	31.25
		Old	27	33.75
2	Education	Illiterate	1	1.25
		Primary school	1	1.25
		Middle school	25	31.25
		High school	39	48.75
		PUC	11	13.75
		Graduation and above	3	3.75
3	Land Holding	Marginal	8	10.00
		Small	69	86.25
		Big	3	3.75
4	Annual Income Mean = 2.20 Lakhs	Low	29	36.25
		Medium	26	32.50
		High	35	43.75
5	Family Type	Nuclear	58	72.50
		Joint	22	27.50
6	Family Size	Small	65	81.25
		Medium	10	12.50
		Large	5	6.25
7	Extension Contact Mean = 11.56 SD=1.05	Low	23	28.75
		Medium	46	57.50
		High	11	13.75
8	Achievement Motivation Mean = 9.22 SD=0.84	Low	21	26.25
		Medium	20	25.00
		High	39	48.75
9	Economic Motivation Mean = 14.76 SD=2.06	Low	14	17.50
		Medium	30	37.50
		High	36	45.00

10	Organization Participation	Low	19	23.75
	Mean =22.03	Medium	22	27.50
	SD=4.51	High	39	48.75
11	Mass Media Exposure	Low	25	31.25
	Mean =7.13	Medium	12	15.00
	SD=1.12	High	43	53.75
12	Management Orientation	Low	23	28.75
	Mean = 34.88	Medium	36	26.25
	SD=2.64	High	21	45.00
13	Extension Participation	Low	23	28.75
	Mean = 14.47	Medium	17	21.25
	SD=1.67	High	40	50.00
14	Level of Aspiration	Low	25	31.25
	Mean = 23.20	Medium	17	21.25
	SD=2.83	High	38	47.50

(n=80)

2. Impact of Contract Farming on Socio-Economic Status of Davanam Farmers.

The results presented in Table-2 indicates that all the indicators of social variables viz; organizational participation (9.28), extension contact (6.46), mass media exposure (1.88), and extension participation (1.72) had shown positive change due to contract farming in Davanam. If we look at the overall improvement in socio-economic status of farmers it showed that mean difference is increased due to contract farming. It is very curious to know that there was a good economic impact with respect to annual income (Rs. 2,37,800) which is evident in the mean difference increase. On the other hand it was

interesting to know that there was a decrease in draft power (Rs. 3650) had shown mean difference decrease due to contract farming. In savings there was an increase (Rs.96,625) due to contract farming from farmer's income which was more compared with the other variables except annual income (Rs.4,03,253). But when we saw the overall social and economic impact all the indicators were found to be significant at one per cent level, whereas extension participation, mass media exposure were non-significant. The findings are in conformity with the findings of Sahana (2013) [5].

Table 2: Impact of Contract Farming on Socio-Economic Status of Davanam Farmers

Sl. No.	Variable	Mean score		Mean difference due to contract farming	Paired t- value
		Before contract farming	After contract farming		
I.	Social Variable				
a.	Extension Contact	5.10	11.56	6.46	8.07**
b.	Extension participation	12.75	14.47	1.72	0.68NS
c.	Mass media exposure	5.25	7.13	1.88	0.71NS
d.	Organizational participation	12.75	22.03	9.28	8.48**
II.	Economic Variable				
a.	Annual income (Rs.)	165453	403253	237800	515**
b.	Savings (Rs.)	16700	96625	79925	3.71**
c.	Material possession				
	i. Draft Power (Rs.)	6975	10625	3650	4.46**
	ii. Farm implements(Rs.)	9275	27457	18182	3.59**
	iii. Household materials	5723.75	45930	40206.25	5.49**

(n=80)

3: Extent of Adoption of Recommended Package of Practices in Davanam by Contract Farming Farmers

It is evident from Table-3 that in nursery raising cent per cent of Davanam farmers under contract farming fully adopted seed bed preparation, recommended seed rate and sowing of sprouted seeds. Further, 82.50 per cent of farmers fully adopted and 17.59 per cent of farmers partially adopted irrigation as per recommendation. Incorporation of recommended quantity of FYM was partially adopted by 63.73 per cent and 36.25 per cent fully adopted. Further, spraying of 2 per cent urea solution was adopted by 55 per cent of farmers in 3 weeks, 58.75 per cent in 4 weeks and 60 per cent in 5 weeks. In the main field majority of Davanam farmers fully adopted land preparation (72.50%), recommended spacing (53.75%), planting of seedlings at correct age (88.75%), Irrigation (83.75%), Inter-cultivation (83.75%) and weeding (63.75%). Further, cent per cent of the farmers fully adopted harvesting. On the contrary majority of Davanam farmers partially adopted application of recommended quantity of FYM to the main field (61.25%),

basal application of phosphorus (73.75%) and potash (76.25%), top dressing with nitrogen 15 days after planting 67.50 per cent, 30 days after planting 61.25 per cent and 45 days after planting 52.50 per cent. In addition spraying with 300ppm gibberlic acid 30 days after planting 30 days 56.25 and 60 days per cent after planting, 60 days 56.25 per cent and plant protection measures (55.00%). These findings are in confirmation with the findings of Sahana (2013) [5].

Majority of the Davanam farmers fully adopted seed bed preparation, seed rate, spacing, sowing, planting of seedlings at correct age, sprouted seeds, irrigation, land preparation, inter-cultivation, weeding and harvesting, since these are age old practices and involves less skill. On the other hand majority of Davanam farmers partially adopted FYM due to its non-availability. The application of fertilizers and its solutions and gibberlic acid and recommended plant protection measures were also partially adopted since these practices involves more skill. This calls for skill oriented training and timely supply of inputs at right time to the farmers.

Table 3: Extent of Adoption of Recommended Package of Practices in Davanam by Contract Farming Farmers

Sl. No.	Recommended Package of Practices	Adoption					
		Fully		Partially		No.	
		No.	Per cent	No.	Per cent	No.	Per cent
I	Nursery Raising						
1	Seed bed preparation	80	100.00	0	0.00	0	0.00
2	FYM	29	36.25	51	63.75	0	0.00
3	Seed rate	80	100.00	0	0.00	0	0.00
4	Sowing of sprouted seeds	80	100.00	0	0.00	0	0.00
5	Irrigation	66	82.50	14	17.50	0	0.00
6	Spraying of 2% urea solution						
	A. 3 weeks	19	23.75	46	57.50	15	18.75
	B. 4 weeks	17	21.25	47	58.75	16	22.50
	C. 5 weeks	14	17.50	48	60.00	18	22.50
II	Main field						
1	Land preparation	58	72.50	22	27.50	0	00.00
2	FYM	31	38.75	49	61.25	0	00.00
3	A) Basal dose						
	i) Phosphorus	21	26.25	59	73.75	0	0.00
	ii) Potash	19	23.75	61	76.25	0	0.00
	B) Top dressing with nitrogen after planting						
	i) 15 days	22	27.50	54	67.50	4	5.00
	ii) 30 days	20	25.00	49	61.25	11	13.75
iii) 45 days	23	28.75	42	52.50	15	18.75	
4	Spacing	43	53.75	37	46.25	0	0.00
5	Planting of seedlings at correct age	71	88.75	9	11.25	0	0.00
6	Irrigation	67	83.75	13	16.25	0	0.00
7	Inter cultivation	67	83.75	13	16.25	0	0.00
8	Weeding	51	63.75	29	36.25	0	0.00
9	Spraying with 300 ppm Gibberlic acid after planting						
	i) 30 days	23	28.75	45	56.25	12	15.00
	ii) 60 days	26	32.50	45	56.25	9	11.25
10	Plant protection measures	36	45.00	44	55.00	0	0.00
11	Harvesting	80	100	0	0.00	0	0.00

(N=80)

4. Relationship between Personal Characteristics of Contract Farming Farmers and Adoption of Recommended Davanam Package of Practices.

Table 4: Relationship between Personal Characteristics of Contract Farming Farmers and Adoption of Recommended Davanam Package of Practices.

(n=80)

Sl. No	Characteristics	Correlation Coefficient (r)
1	Age	-0.094 NS
2	Education	0.081NS
3	Land holding	0.108 NS
4	Annual income	0.206*
5	Family type	0.89NS
6	Family size	0.070 NS
7	Extension contact	0.143*
8	Extension participation	0.305**
9	Mass media exposure	0.67NS
10	Achievement motivation	0.291**
11	Economic motivation	0.036NS
12	Organizational participation	0.304**
13	Management orientation	0.272 **
14	Level of aspiration	0.263 **

NS: Non-Significant; *: Significant at 5 percent level;** : Significant at 1 per cent level.

The Correlation test carried to know the relationship between personal characteristics of contract farming farmers and adoption of recommended Davanam package of practice is presented in (Table-4) indicates that variables, extension participation, achievement motivation, organizational participation, management orientation and level of aspiration

are highly significant at one per cent level, Whereas, annual income and extension contact were significant at 5 per cent level on the other hand age, education, land holding, family type, family size, mass media exposure and economic motivation were non-significant with adoption. It may be due to the fact that high extension participation, organizational participation, achievement motivation, management orientation and level of aspiration might have helped the farmers to enhance their knowledge on adoption of recommended package of practices. Further, motive to achieve helped them to actively involved in farmers oriented organization to gain more knowledge on agriculture and management. The findings are in confirmation with the findings of Sahana (2013) [5].

5. Contribution of Personal Characteristics of Contract Farming Farmers to the Adoption of Recommended Davanam Package of Practices.

The independent variables such as family size, family type, mass media exposure, achievement motivation, economic motivation, level of aspiration and management orientation have significantly contributed to the adoption of recommended package of practices by Davanam contract farming farmers (Table 5). The R² specified that all the 14 independent variables have contributed to the tune of 0.8650 per cent of variation in adoption of recommended package of practices by Davanam contract farming farmers. The family size, family type, mass media exposure, achievement motivation, economic motivation, level of aspiration and management orientation have contributed more in adoption of recommended package of practice may be due to the fact that

the family members involve in different activities of contract farming and motivation urge to obtain more income and watching more agricultural programmes in mass media. The findings are in line with the findings of Sahana (2013) [5]

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Table 5: Contribution of Personal Characteristics of Contract Farming Farmers to the Adoption of Recommended Package of Practices

Sl. No	Characteristic	Regression Coefficient(b)	Standard Error of Regression coefficient	't' value
1	Age	0.0224	0.1496	0.14NS
2	Education	0.0695	0.1364	0.50NS
3	Land holding	0.0919	0.1501	0.61 NS
4	Annual income	0.3770	0.1611	2.34*
5	Family Type	0.5714	0.1127	5.07**
6	Family Size	1.0152	0.1894	5.36**
7	Extension Contact	0.3499	0.1643	2.13*
8	Extension Participation	0.3770	0.1611	2.34*
9	Mass media Exposure	0.5141	0.1204	4.27**
10	Achievement motivation	0.4936	0.1178	4.19**
11	Economic motivation	0.5695	0.1464	3.89**
12	Organizational Participation	0.3814	0.1879	2.03*
13	Management orientation	0.4999	0.1577	3.17**
14	Level of aspiration	0.5919	0.1701	3.48**

(N=80), NS: Non-Significant; *: Significant at 5 per cent level; **: Significant at 1 per cent level.

$R^2 = 0.8650$

Conclusion

Contract farming modernizes farmers by providing new technology, inputs and technical advice besides linking them to the international market. In Davanam cultivation under contract farming is highly profitable, even small farmers can practice it. Risk involved due to fluctuation in market price is minimized through contract farming. The Davanam farmers partially adopted recommended package of practices like application of FYM, fertilizers spraying with gibberlic acid and plant protection measures. This calls for imparting skill oriented training programmes to the Davanam farmers with timely supply of critical inputs to obtain more production and income.

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