

**RESEARCH PAPER**

Profile analysis and factors influencing the adoption of pulses production practices of farmers in Andhra Pradesh – baseline study under biotech *Kisan* hub project

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Abstract : Biotech-*Kisan* hub has been established at Acharya N.G. Ranga Agricultural University, Guntur, Andhra Pradesh with the major objectives of assessment of the yield gaps in major pulses and groundnut grown in scarce rainfall and north coastal zones. As part of the project, a base line survey was conducted at selected 25 villages of Srikakulam, Visakhapatnam, Anantapur and Kurnool districts to assess the potentials of the districts by developing a database in order to exploit resources and develop action plans in co-operation with line departments. Sixty farmers from each district were randomly selected to obtain baseline information making the total sample size is 240 farmers cultivating the targeted pulse crops in the district. A pre-tested interview schedule was used to collect data from the respondents. A profile analysis was done and revealed that the North coastal zone showed Low scores in Knowledge, Risk orientation and Mass media participation and medium in Innovativeness, Social participation and Extension contact, while the Scarce rainfall zone showed medium in all the variables except for Risk orientation. The findings also revealed that the Adoption index was found to be medium to low in case of Srikakulam and Visakhapatnam districts and Medium to High in case of Ananthpur and Kurnool districts indicating that more focused interventions are required in the North coastal zone when compared to Scarce rainfall zone. The overall adoption index indicated in Table 3 showed that majority of the respondents fell in the medium category (49.00%) followed by High (35.00%) and low category (15.00%) indicating that there is scope to increase adoption of recommended practices. The chi square test of profile characteristics and adoption indicated that all the six independent variables- Knowledge, Innovativeness, Risk orientation, Mass media participation, Social participation and Extension contact are significantly influencing the adoption levels of farmers in the four districts.

Key Words : Biotech hub, Agroclimatic zones, Recommended practices

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INTRODUCTION

India is leading importer of pulses. Production of pulse/ legume crops has been stagnant over the years (Singh *et al.*, 2015). The Department of Biotechnology, Ministry of Science and Technology conceptualized the *Kisan* (Krishi Innovation Science Application Network) Biotech hub programme in all the agro-climatic zones of India. The project is introduced in Andhra Pradesh as “Establishment of *Kisan* Biotech Hub” in the state of Andhra Pradesh with the aim to improve the overall living conditions of small and marginal farmers through better agricultural productivity by introducing scientific interventions and best management practices.

In Andhra Pradesh the project is being implemented by Acharya N.G. Ranga Agricultural University since 2018 with the main hub located at University headquarters, Guntur and two sub hubs covering two agro-climatic zones of the state *viz.*, North coastal zone and Scarce rainfall zone. The implementing partners in the North coastal zone are Krishi Vigyan Kendra, Amadalavalasa and Krishi Vigyan Kendra, Kondempudi for the target pulse crops Uradbean, Moong bean and Rajma. The implementing partners in the Scarce rainfall zone are Krishi Vigyan Kendra, Kalyandurgam and Krishi Vigyan Kendra, Banavasi for the target pulse crops Pigeonpea, Chickpea and Groundnut.

As a part of this project a baseline survey was conducted in the target districts to analyse the prevailing situation in the target districts prior to project intervention. The major aim was to assess the potentials of the districts by developing a database in order to exploit resources and develop action plans in co-operation with line departments. The present study was undertaken with the following objectives:

- To study the selected personal variables of the pulse farmers,
- To assess the adoption of recommended practices of the pulse farmers and
- To analyse the constraints perceived by the farmers in adopting recommended practices.

MATERIAL AND METHODS

Ex-post facto design was followed for the study. The study was conducted in Andhra Pradesh which is one of the states in implementation of Biotech *Kisan* hub programme. Two districts from each agro climatic zone were purposively chosen. Srikakulam and

Visakhapatnam from the North Coastal zone, Kurnool and Anathapur from the Scarce Rainfall zone. Sixty farmers from each district were randomly selected to obtain baseline information making the total sample size is 240 farmers cultivating the targeted pulse crops in the district. A pre-tested interview schedule was used to collect data from the respondents. Selected characteristics of the respondents’ *viz.*, knowledge, mass media participation, Innovativeness, risk orientation, social participation and extension contact were considered as independent variables of the study.

The adoption index were assessed based on the scores on all the recommended practices of pulse production as adopted and not adopted and the scores on all practices were summated. The respondents were further categorized into three groups based on their adoption levels separately for each district as low, medium and High. Further, the association between the profile characteristics and the adoption was analysed using Chi square analysis.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Profile of the respondents:

It is evident from the Table 1 that majority of the respondents of Srikakulam district were low on knowledge (48.33%), risk orientation (60.00%) and mass media participation (48.33%) and scored medium in innovativeness (50.00%), social participation (50.00%) and extension contact (50.00%). In case of Visakhapatnam district majority of the respondents were low on knowledge (55.00%), risk orientation (58.33%) and mass media participation (58.33%) and scored medium in innovativeness (46.67%), social participation (51.67%) and extension contact (51.67%). The results were more or less similar.

In case of Ananthpur district, majority of the respondents scored medium for the variables knowledge (50.00%), innovativeness (55.00%), mass media participation (50.00%), social participation (51.67%) and extension contact (58.33%) but scored low for risk orientation (50.00%). In case of Kurnool district majority of the respondents were medium in knowledge (48.33%), innovativeness (55.00%), mass media participation (58.33%), social participation (46.67%) but scored low in risk orientation (58.33%) and extension contact (46.67%).

Table 1 : Personal profile of the respondents (n=240)

Sr. No.	Personal characteristics	Agro-climatic zones											
		North coastal districts						Rayalaseema districts					
		Srikakulam (n=60)		Visakhapatnam (n=60)		North coastal zone (n=120)		Ananthapur (n=60)		Kurnool (n=60)		Scarce rainfall zone (n=120)	
F	%	F	%	F	%	F	%	F	%	F	%		
1.	Knowledge												
	Low	29	48.33	33	55.00	62	51.67	19	31.67	17	28.33	36	30
	Medium	22	36.67	21	35.00	43	35.83	30	50	29	48.33	59	49.17
	High	9	15.00	6	10.00	15	12.5	11	18.33	14	23.33	25	20.83
2.	Innovativeness												
	Low	23	38.33	27	45.00	50	41.67	18	30	21	35	39	32.5
	Medium	30	50.00	28	46.67	58	48.33	33	55	28	46.67	61	50.83
	High	7	11.67	5	8.33	12	10	9	15	11	18.33	20	16.67
3.	Risk orientation												
	Low	36	60.00	35	58.33	71	59.17	30	50	35	58.33	65	54.17
	Medium	17	28.33	21	35.00	38	31.67	18	30	18	30	36	30
	High	7	11.67	4	6.67	11	9.17	2	3.33	7	11.67	9	7.5
4.	Mass media participation												
	Low	28	46.67	27	45.00	55	45.83	25	41.67	21	35	46	38.33
	Medium	35	58.33	29	48.33	64	53.33	30	50	33	55	63	52.5
	High	7	11.67	14	23.33	21	17.5	5	8.33	6	10	11	9.17
5.	Social participation												
	Low	25	41.67	22	36.67	47	39.17	20	33.33	21	35	41	34.17
	Medium	30	50	31	51.67	61	50.83	31	51.67	28	46.67	59	49.17
	High	5	8.33	7	11.67	12	10	9	15	11	18.33	20	16.67
6.	Extension contact												
	Low	28	46.67	25	41.67	53	44.17	20	33.33	28	46.67	48	40
	Medium	30	50	31	51.67	61	50.83	35	58.33	21	35	56	46.67
	High	2	3.33	4	6.67	6	5	5	8.33	11	18.33	16	13.33

The overall profile picture indicated that the North coastal zone showed low scores in knowledge, risk orientation and mass media participation and medium in innovativeness, social participation and extension contact while the Scarce rainfall zone showed medium in all the variables except for risk orientation (Barkade *et al.*, 2019).

Adoption of recommended pulse production practices:

The findings in Table 2a indicate that the adoption Index was medium to low in case of Srikakulam and Visakhapatnam districts and Medium to High in case of Ananthpur and Kurnool districts indicating that more focused interventions are required in the North coastal zone when compared to Scarce rainfall zone. The overall adoption index indicated in Table 2b showed that majority of the respondents fell in the medium category (49.00%) followed by High (35.00%) and low category (15.00%) (Singh *et al.*, 2018).

The findings indicate that as majority of the

Table 2a: District-wise distribution of the respondents based on their adoption index

Sr. No.	District	Adoption index	Respondents	
			Frequency	Percentage
1.	Srikakulam	Low (upto 33.33)	21	35.00
		Medium (33.34 to 66.66)	34	57.00
		High (Above 66.66)	05	8.00
2.	Visakhapatnam	Low (upto 33.33)	27	45.00
		Medium (33.34 to 66.66)	38	63.00
		High (Above 66.66)	03	5.00
3.	Ananthapur	Low (upto 33.33)	09	15.00
		Medium (33.34 to 66.66)	33	55.00
		High (Above 66.66)	18	30.00
4.	Kurnool	Low (upto 33.33)	06	10.00
		Medium (33.34 to 66.66)	27	45.00
		High (Above 66.66)	27	45.00

Table 2b: Distribution of the respondents based on overall adoption of pulse production technologies (n=180)

Category	Overall adoption index	
	Frequency	Percentage
Low (upto 33.33)	37	15.00
Medium (33.34 to 66.66)	118	49.00
High (Above 66.66)	85	35.00

respondents in all the four districts fell in the medium category of adoption there is a lot of scope to introduce interventions that would help to increase the adoption in all four districts. More strategic interventions are needed in North coastal zone when compared to scarce rainfall zone. This should be focused in future course of action.

Association between socio-economic and personal characteristics of the farmers and their adoption level :

The association between dependent and independent variables was studied by using statistical tool chi-square test. The results presented in the Table 3 indicate that among the six independent variables taken up for the study, only variable innovativeness and extension contact were highly significant in association with the level of adoption while the variables like risk orientation, mass media participation and extension contact had at significant association with adoption. These findings are in line with the findings of Singh *et al.* (2018).

Table 3: Chi square analysis of farmers characteristics and their level of adoption of recommended practices (n=240)

Sr. No.	Variable	Chi square
1.	Knowledge	0.012*
2.	Innovativeness	0.223**
3.	Risk orientation	0.010*
4.	Mass media participation	0.017*
5.	Social participation	0.110*
6.	Extension contact	0.219**

* and ** indicate significance of values at P=0.05 and 0.01, respectively

This clearly throws light that all the six independent variables are significantly influencing the adoption levels of farmers in the four districts. Thus, while developing action plans for increasing adoption rate these factors need to be considered.

Conclusion:

The base line survey of the profile of the respondents

in the four districts threw light on the fact that all the variable in the profile study significantly influenced adoption level of the farmers. The results also indicated that there is tremendous scope for increasing the adoption rate of pulse production technologies in the four districts as the adoption index was found medium. More thrust should be given to North coastal districts where adoption index was comparatively lower than scarce rainfall districts. The results also indicated that the major variables associated with adoption were innovativeness and extension contact were highly significant in association with the level of adoption. Hence, thrust should be given to these areas prior to any intervention and accordingly action plans to be developed.

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