

## Original Research Article

# A Study on Agri-preneurial Behaviour of Kalanamak Rice growers in Siddharth Nagar and Sant Kabir Nagar district of Uttar Pradesh, India

## ABSTRACT

Kalanamak rice, hailed for their nutritional potency and health benefits, present a promising avenue for alleviating these challenges. This study, titled “A Study on Agri-preneurial Behaviour of Kalanamak Rice growers in Siddharth Nagar and Sant Kabir Nagar district of Uttar Pradesh, India,” delves into this potential within the precincts of Siddharth Nagar and Sant Kabir Nagar district. The investigation hones in on two blocks – Birdpur in Siddharth Nagar, and Santha in Sant Kabir Nagar. Methodologically rigorous, the study selected six village from each block and engaged with a total of 120 Kalanamak growers. Data collection unfurled through personalized interview, facilitated by a meticulously crafted questionnaire. To unravel pattern and nuances, statistical tools such as frequency, percentage, mean, and standard deviation orchestrated the classification of data. The coefficient of correlation `r` was invoked to fathom the interplay between Kalanamak growers' attributes, their knowledge, and their adoption of Kalanamak rice. Analysis of the respondent demographics spotlighted several noteworthy trends. A preponderance (70.83%) emerged from middle age group, with educational attainments peaking at the middle school (34.17%). In terms of occupation, 45% were engaged in agriculture, The agrarian landscape was marked by a significant representation from the Other Backward Classes (OBC) category (49.17%), Land holding skewed towards the smaller end (49.17%), Family dynamics, as reflected in size and structure, were characterized by medium level (64.17% and 90.83%, respectively).

*Keywords: -Kalanamak, Rice growers, Sant Kabir Nagar, Socio-economic, Psychological characteristics, Uttar Pradesh.*

## 1. INTRODUCTION

Rice is the basic grain consumed as a food in India gown during *kharif* season which is found in almost every Indian kitchen and plays a very significant role in Indian food security. It is the most common grain and the most common food in India; however, India is not only a big consumer of rice but also it is the second-largest producer of rice in the world after China (Bandumula, 2018). India also holds the largest agricultural land for paddy production in the world (Mahajan *at al.* 2017). In 2022 total arable land for paddy in the world is 158,300,068 hectares with the total production of 685,240,469 tonnes of paddy, out of which 41850000 hectares of the area is held by India only, which produced 133,700,000 tonnes of paddy just second after 196681170 tonnes by China(Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation). India leads in terms of land holdings, while the production is led by China (Pandey *et.al.* 2007). Kalanamak rice variety is the epitome of best aromatic rice cultivated and consumed in Northeastern part of Uttar Pradesh (Chaudhary *et al.* 2012). To the local palate, it was even classed superior to Indian mystery rice Basmati. Kalanamak rice was granted the Geographical Indication (GI) Tag in 2012 by the Government of India.It is a heritage rice variety, which has been under cultivation since time immemorial (Chaudhary and Tran 2001; Chaudhary and Mishra 2010). Exact history of its cultivation is not recorded but it is believed that Kalanamak was the preferred variety for offerings given to Lord

Buddha some 3,000 years ago. Kalanamak has been in cultivation mainly in north-eastern part of Uttar Pradesh and western and central part of Nepal Tarai (Chaudhary *et al.* 2022). Over centuries under cultivation, and farmers way of handling seeds, neglect by rice research institutions and double onslaught on economic front by high yielding varieties (HYV), deterioration in its quality and the area under cultivation has reduced (Kumar *et al.* 2023). As knowing the importance of the Kalanamak in the region to the farmers and retarding condition of the Kalanamak it becomes important to understand the status of the farmers in Sant KabirNagar and Sidharth Nagar district and correlation of various factors with knowledge and extent of adoption to the farmers.

## 2. MATERIAL AND METHOD

The present study was conducted in Siddharth Nagar and Sant Kabir Nagar district which is eastern part of Uttar Pradesh. Siddharth Nagar and Sant Kabir Nagar district is the most important district of the state, for Kalanamak rice grower which is located in eastern part of Uttar Pradesh. From 14 blocks in Siddharth Nagar and 9 blocks in Sant Kabir Nagar district of Uttar Pradesh, one block from each district was purposively selected which are Birdpur and Santha block. From these blocks six villages from each block were selected which are from birdpur block (Badhaya, Ghoswa, Mahadewa, Motipu, Navdihwa and Visunpur) and Santha (Banethu, Bharwaliya, Badgo, Jigina, Parsa Shukla and Parasia). The district, block and village were selected purposively as it has maximum number of Kalanamak rice growers and maximum area covered under this area by Kalanamak rice growers. Purposive sampling method was used for the selection of the district, block and villages. From each village 10 respondents were selection by random sampling technique for the research work. The sample size taken was 120 respondents. The data was collected with the help of personal interview technique with the help of interview schedule.



**Figure 1**Data collection ofduring the survey work

## 3. RESULT AND DISCUSSION

### **The socio-economic and psychological characteristics of Kalanamak rice growers.**

The data presented in the Table 1 clearly indicates that a majority (70.83%) of the Kalanamak rice growers belong to the middle age group. This is followed by 15.00% of the farmers who fall into

the old age category, while 14.17% of the farmers are in the young age group. These findings align with the results of Singhet *et al.* (2022). Additionally, the study revealed that the highest proportion (70.83%) of respondents of this age category was observed in Siddharth Nagar district, as compared to Sant Kabir Nagar district. Referring to Table 1, it is evident that the majority of respondents (34.17 percent) possessed a middle school education. This was followed by 17.5 percent who were categorized as illiterate, 13.33 percent with a primary school education, 12.5 percent with a high school education, 11.67 percent with intermediate education, and 10.83 percent holding a graduate degree or higher. Furthermore, the study revealed that the highest percentage (34.17%) of respondents with middle school education was recorded in Siddharth Nagar district, in comparison to Sant Kabir Nagar district. Venkataramaiah (1990). Based on the data presented in Table 1, the majority of respondents (45%) were involved in agriculture, followed by (29.16%) engaged in both agriculture + labour, and (25.84%) involved in a combination of agriculture + business activities. Furthermore, the study found that the highest proportion (45%) of respondents engaged in agriculture was recorded in Siddharth Nagar district, as compared to Sant Kabir Nagar district Dhanotiya (2012). According to Table 1 the majority of Kalanamak rice growers (49.16 percent) belonged to the OBC caste category, followed by the General caste category (30.00 percent), SC (20.84 percent). One cause could be that the majority of the respondents were from a lower socioeconomic status. In the study maximum (49.00%) of OBC caste category respondents were recorded in Siddharth Nagar compression to Sant Kabir Nagar district. The information provided in Table 1 reveals that among the total of 120 respondents, the majority (49.17 percent) possessed land holdings of up to 1 hectare. Following this, 40 percent of the respondents had land holdings ranging from 1 to 2 hectares, while 10.83 percent held more than 2 hectares of land. Moreover, the study highlighted that the highest percentage (49.17%) of respondents with land holdings were observed in Siddharth Nagar district, as compared to Sant Kabir Nagar district. The data presented in Table 1 indicates that out of the 120 respondents, 64.66 percent belonged to medium-sized families with 8 to 13 members, 19.17 percent belonged to large families with more than 14 members, and 16.66 percent belonged to small families with over 15 members. Among the studied districts, the maximum number of respondents with a family size (64.17%) were recorded in Siddharth Nagar, compared to Sant Kabir Nagar district Trivedi and Pareek (1965). According to Table 1 shows that the majority of Kalanamak rice growers (90.83 percent) came from joint families, while (9.17 percent) came from nuclear families. The fragmentation or separation of rural families could be the major cause of this finding. In the studied maximum (90.83%) of family respondents were recorded in Siddharth Nagar compression to Sant Kabir Nagar district Trivedi and Pareek (1965). The classification of respondents according to their annual income has been presented in Table 1 it indicated that out of total 120 respondents (45 percent) middle level of income in 1 to 2 lakhs, whereas (41.67 percent) farmer were having low level in between up to 1 lakh, followed by (13.33 percent) were having high level income above 2 lakhs respectively. According to Table 1 shows that the majority (65.84 percent) had a medium level of farming experience ranking from 15 to 34 years, followed by high level (28.34 percent) of more than 35 years. However, (18.33 percent) of the respondents had low experience of Kalanamak rice cultivation respectively. In the study maximum (65.84%) of farming experience respondents were recorded in Siddharth Nagar

compression to Sant Kabir Nagar district. Nisha and Rajasekaran (2018).According to Table 1 shows that the majority (36.67 percent) had a low level of mass media ranking from up to 10, followed by medium level (35 percent) of 11 to 12. However, (28.33 percent) of the respondents were having high level mass media of Kalanamak rice cultivation respectively. In the studied maximum (36.67%) of farming mass media respondents were recorded in Siddharth Nagar compression to Sant Kabir Nagar district Amithaet *al.* (2014).According to Table 1 shows that the majority (71.67 percent) had a medium level of social participation ranking from 2 to 9, followed by high level (15 percent) of above 10. However, (13.33 percent) of the respondents were having low social participation of Kalanamak rice cultivation respectively. In the studied maximum (71.67%) of social participation respondents were recorded in Siddharth Nagar compression to Sant Kabir Nagar district. Trivedi and Pareek (1965).According to Table 1 shows that the majority (65 percent) had a medium level of extension contact ranking from 4 to 8, followed by low level (20.83 percent) of up to 3. However, (14.17 percent) of the respondents were having high level extension contact of Kalanamak rice cultivation respectively. In the studied maximum (65%) of extension contact respondents were recorded in Siddharth Nagar compression to Sant Kabir Nagar district. Amithaet *al.* (2014).

**Table 1 The socio-economic and psychological characteristics of Kalanamak ricegrowers.**

	Sr. No.	Category Age (InYears)	Frequency	Percentage
<b>Age</b>	1.	Young (Below 31 years)	17	14.17
	2.	Middle (32 to 55 years)	85	70.83
	3.	Old (Above 56 years)	18	15.00
<b>Educational status</b>	1.	Illiterate	21	17.50
	2.	Primary school	16	13.33
	3.	Middle school	41	34.17
	4.	High school	15	12.50
	5.	Intermediate	14	11.67
	6.	Graduate & above	13	10.83
<b>occupational status</b>	1.	Agriculture	54	45.00
	2.	Agriculture + Labour	35	29.16
	3.	Agriculture + Business	31	25.84
<b>Caste</b>	1.	General	36	30.00
	2.	OBC	59	49.16
	3.	SC	25	20.84
<b>Size of land holding</b>	1.	Up to 1 ha	59	49.17
	2.	1 to 2 ha	48	40.00
	3.	More than 2 ha	13	10.83
<b>Family size</b>	1.	Small (Up to 7 member)	20	16.66

	2.	Medium(8 to 13 member)	77	64.17
	3.	Large(Above 14 member)	23	19.17
<b>Family type</b>	1.	Joint	109	90.83
	2.	Nuclear	11	9.17
<b>Annual Income</b>	1.	< Rs. 1,00,000	50	41.67
	2.	Rs.1,00,001–Rs. 2,00,000	54	45.00
	3.	> Rs. 2,00001	16	13.33
<b>Farming Experience</b>	1.	Low (up to 14 year)	22	18.33
	2.	Medium (15 to 34 year)	79	65.84
	3.	High (above 35 year)	19	15.83
<b>Massmedia exposure</b>	1.	Low (up to 10)	44	36.67
	2.	Medium (11-12)	42	35.00
	3.	High (more then 13)	34	28.33
<b>Social Participation</b>	1.	Low (up to 1)	16	13.33
	2.	Medium (2 to 9)	86	71.67
	3.	High (Above 10)	18	15.00
<b>Extension agent contact</b>	1.	Low (up to 3)	25	20.83
	2.	Medium (4 to 8)	78	65.00
	3.	High (Above 9)	17	14.17

### **Knowledge of farmers about Kalanamak rice.**

It refers to the knowledge of the respondents about the recommendation cultivation practices of Kalanamak rice. The knowledge plays a key role in maximization of the profit by adopting new improved technology.

### **Adoption of farmer about Kalanamak rice**

It refers to the adoption of the respondents about the recommendation cultivation practices of Kalanamak rice. The knowledge plays a key role in maximization of the profit by adopting new improved technology.

**Table 2 Classification of the respondents according to their level of knowledge and level of adoption (n=120)**

<b>Variables</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Level of knowledge</b>	<b>Low (up to 11)</b>	<b>24</b>	<b>20.00</b>
	<b>Medium (12 to 13)</b>	<b>64</b>	<b>53.33</b>
	<b>High (above 14)</b>	<b>32</b>	<b>26.67</b>
<b>Level of adoption</b>	<b>Low (up to 17)</b>	<b>28</b>	<b>23.33</b>
	<b>Medium (18 to 20)</b>	<b>71</b>	<b>59.17</b>
	<b>High (above 21)</b>	<b>21</b>	<b>17.5</b>

It is observed from the table 2 that majority of the respondents (53.33 percent) had medium level of knowledge about recommended farming of Kalanamak whereas, (26.67 percent) and (20 percent) of the respondents were having low and high level of knowledge about the recommended farming of Kalanamak rice growers. It was observed from Table 2 that majority (59.17 percent) of the respondents had medium level adoption of recommended farming practices of Kalanamak rice. The percentage of respondents having low adoption was (23.33 percent) whereas only (17.5 percent) respondents were having high level of adoption.

**Table 3 Relationship between socio-economic and psychological characteristics of Kalanamak rice growers with knowledge and adoption**

Sr. No.	Variables	Correlation coefficient (r) with level of knowledge	Correlation coefficient (r) with level of adoption
1.	Age	0.085	0.070
2.	Education qualification	0.010	0.032
3.	Occupational	0.116	0.188**
4.	Caste	0.008	-0.204**
5.	Land holding	0.099	0.176
6.	Family Size	-0.289**	-0.148
7.	Family Type	-0.189**	0.011
8.	Annual Income	0.113	0.143
9.	Farming Experience	-0.068	-0.068
10.	Mass media exposure	0.313**	0.177
11.	Social participation	0.173	0.292**
12.	Extension contacts	0.409**	0.314**

Age of respondents had non –significant relationship with the Knowledge. There was non-significant statistical relationship between knowledge and age of Kalanamak ( $r = 0.085$ ). It means that the age was not influenced of knowledge the Kalanamak rice growers. Relation between education of the Kalanamak rice growers is non-significant with their knowledge about recommender farming practices of Kalanamak rice ( $r = 0.010$ ). Caste of Kalanamak rice growers in non-significant and positively related with their knowledge level about recommended farming practices of Kalanamak rice ( $r = 0.008$ ). Land holding of Kalanamak rice growers was found to be non-significant with their knowledge about recommended farming practices of Kalanamak rice ( $r = 0.099$ ). Family size of Kalanamak rice growers was found to be negatively non-significant with their knowledge about recommended farming practices of Kalanamak rice ( $r = -0.289$ ). Family type of Kalanamak rice growers was found to be negatively non-significant with their knowledge about recommended farming practices of Kalanamak rice ( $r = -0.189$ ). Annual income of the Kalanamak rice growers is non-significant with their knowledge

about recommender farming practices of Kalanamak rice ( $r = 0.113$ ). Farming experience in Kalanamak cultivation of Kalanamak rice growers was observed to be highly non-significant and negatively related with their knowledge about recommended farming practices of Kalanamak rice ( $r = -0.068$ ). Mass media exposure of Kalanamak rice growers is non-significant and positively related with their knowledge level about recommended farming practices of Kalanamak rice ( $r = 0.313$ ). Social participation of Kalanamak rice growers was found to be non-significant with their knowledge about recommended farming practices of Kalanamak rice ( $r = 0.173$ ). Extension contact of Kalanamak rice growers is non-significantly and positively related with their knowledge level about recommended farming practices of Kalanamak rice ( $r = 0.409$ ) table 3.

Age of respondents had non-significant relationship with the adoption. There was non-significant statistical relationship between adoption and age of Kalanamak ( $r = 0.070$ ). It means that the adoption was not influenced and age of the Kalanamak rice growers. Relation between education of the Kalanamak rice growers is non-significant with their adoption about recommender farming practices of Kalanamak rice ( $r = 0.032$ ). Relation between occupation of the Kalanamak rice growers is non-significant and positively related with their adoption about recommender farming practices of Kalanamak rice ( $r = 0.188$ ). Caste of Kalanamak rice growers is non-significant and negatively related with their adoption level about recommended farming practices of Kalanamak rice ( $r = -0.204$ ). Land holding of Kalanamak rice growers was found to be non-significant and positively related with their adoption about recommended farming practices of Kalanamak rice ( $r = 0.176$ ). Family size of Kalanamak rice growers was found to be negatively non-significant with their adoption about recommended farming practices of Kalanamak rice ( $r = -0.148$ ). Family type of Kalanamak rice growers was found to be non-significant with their adoption about recommended farming practices of Kalanamak rice ( $r = 0.011$ ). Annual income of the Kalanamak rice growers is non-significant with their adoption level about recommender farming practices of Kalanamak rice ( $r = 0.143$ ). Farming experience in Kalanamak cultivation of Kalanamak rice growers was observed to be negatively non-significant and positively related with their adoption about recommended farming practices of Kalanamak rice ( $r = -0.068$ ). Mass media exposure of Kalanamak rice growers is non-significant and positively related with their adoption level about recommended farming practices of Kalanamak rice ( $r = 0.177$ ). Social participation of Kalanamak rice growers was found to be non-significant with their adoption about recommended farming practices of Kalanamak rice ( $r = 0.292$ ). Extension contact of Kalanamak rice growers is non-significant and positively related with their adoption level about recommended farming practices of Kalanamak rice ( $r = 0.314$ ) table 3.

#### **4. CONCLUSION**

Majority of the Kalanamak rice growers belonged to the middle age group, most of them had received education qualification in middle school and illiterate, most of them had occupation in agriculture, most of them is of OBC caste, having small land holding, medium family size, joint family type, medium annual income, medium farming experiences, low mass media, medium social participation, medium extension contact. It was observed that the majority of the Kalanamak rice growers were observed in medium level of knowledge regarding recommended farming of

Kalanamakrice, while a medium level of adoption category regarding recommended farming of Kalanamak rice. It was concluded that Kalanamak growers characteristics viz. Age, educational qualification, occupation, land holding, annual income, mass media exposer, extension contact was positively and non-significantly related with the knowledge of recommended cultivation and level of adoption for Kalanamak rice, while family size, family type, farming experience were negatively and correlated non-significantly with knowledge whereas caste, family size, farming experience was negatively non-significant with level of adoption.

## REFERENCES

- Amitha, C. D., Karthikeyan, C., Mansingh, J. P., Theodore, R. K., Kumar, D. S. and Patil, S. G. Socio-economic Categorization-A New Classification for the Farm Households. *Indian Journal of Extension Education*, (2023); 59(3): 38-42.
- Bandumula, N. Rice production in Asia: Key to global food security. *Proceedings of the National Academy of Sciences, India Section B: Biological Sciences*, (2018); 88, 1323-1328.
- Chaudhary, R. C. and Mishra, S. B. Collection of unique rice germplasm from the cradle of rice (*Oryza sativa* L.) in Eastern Uttar Pradesh. In: Genetic Resources of Rice in India: Past and Past and Present; Ed. S. D. Sharma. Today & Tomorrow's Printers, New Delhi, (2010); pages: 587 - 594.
- Chaudhary, R. C. and Tran, D. V. Speciality Rices of the World: Breeding, Production and Marketing; Food and Agriculture Organization of the United Nations, Rome, (2001); Italy; 358 pp.
- Chaudhary, R. C., Mishra, S. B., Yadav, S. K., and ALI, J. Extinction to distinction: Current status of Kalanamak, the heritage rice of eastern Uttar Pradesh and its likely role in farmers' prosperity. *Gene*, (2012); 16, 16.
- Chaudhary, R. C., Sahani, A., and Mishra, S. B. Improvement of Local Germplasm of Kalanamak Rice to benefit Environment, Health and Wealth. *Scientific Research Journal of Agriculture and Life Sciences*. (2022);2(1), 1-7.
- Dhanotiya, B. Study on women entrepreneurial behaviour in self-help group through KVK Kasturba Gram Indore district of MP, M. Sc. (Ag.) Thesis Submitted to Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalyaya.
- Directorate of Economics and Statistics, Ministry of Agriculture, Government of India*. (n.d.). <https://eands.dacnet.nic.in/>
- Kumar, S., Singh, P.K., and Jagannath, M. A. Breeding BaunaKalanamak 101 as a new aromatic variety of heritage rice for Uttar Pradesh: A review. *The Pharma Innovation Journal*. (2023); 12(6), 986-990.
- Mahajan, G., Kumar, V. and S Chauhan, B. S. Rice production in India. *Rice production worldwide*, (2017); 53-91.
- Nisha, S. M. and Rajasekaran, V. Employability skills: A review. *IUP Journal of Soft Skills*, (2018); 12(1), 29-37.
- Pandey, S., Bhandari, H., Ding, S., Prapertchob, P., Sharan, R., Naik, D., and Sastri, A. Coping with drought in rice farming in Asia: insights from a cross-country comparative study. *Agricultural Economics*, (2007); 37, 213-224.
- Pareek, U. and Trivedi, G. Factor Analysis of Socioeconomic Status of Farmers in India. *Rural Sociology*, (1965); 30(3).

Singh, S. P., Stephen, A. J., Noel, A. S. and Jhariya, P. N. Study on socio economic profile, economic potential of paddy seed, potentiality of selected varieties and constraints for adaptation of high-end quality rice in Siddharth Nagar district of Uttar Pradesh. (2022).

Venkataramaiah, P. *Development of socio-economic status scale* (Doctoral dissertation, Ph. D. Thesis). (1990).