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Socio-economical profile of tech-savvy farmers in central zone of Uttar Pradesh

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Abstract
This paper examined the central zone of Uttar-Pradesh state to access the profile of farmers who are involve in digital services. This study conducted in three districts *viz*. Kanpur, Fatehpur and Unnao. A scale was developed by Department of extension education to measure attitude of 225 farmers were approached personally by the investigator for collection of relevant data. Most of the respondents belongs to middle age group. That great majority of the respondents were formally educated. The reason for this might be due to the facility for primary to higher secondary education available at the village. Most of the farmers had low to medium level of mass media exposure & clear majority of the respondents had annual income more than 50,000Rs.

Keywords: Digitization, Jugad-vehicle, income and land holding

Introduction
Indian agriculture had been on traditional lines till the 60s. During the green revolution, quick dissemination of technological information from Indian agriculture research system to the farmers and their feedback to the research system were the vital input in transfer of agricultural technology. But gap between farmers and technology remains a challenge for the extension workers even today. Farmers are using the 'Internet of Things' and smart sensors to get access to valuable information like soil moisture, nutrient levels, temperature of produce in storage and status of farming equipment. The sector is also ripe for the use of big data analytics and artificial intelligence, technologies that have been deployed successfully in various sectors across the globe.

Objective: - To know the profile of digital services using farmers.

Methodology
To study the present enquiry a four-stage random and purposive sampling technique will be adopted to select the district, the blocks, the villages and the respondents. District Kanpur, Unnao and Fatehpur of central zone of U.P. will be selected purposively for the present study because of investigator's convenience, nearness to the existence of C.S.A University of Agriculture and Technology, Kanpur. One block from each district having abutment with online medium and technology will be selected randomly from the universe of the development blocks having acquaintance with online medium and services of district Kanpur, Unnao and Fatehpur from each selected block, three villages will be selected on random basis. A list of the farmers who were familiar with digital mediums will be prepared from the 9 selected villages with the help of local personnel and Gram Pradhan. From this list, 225 farmers will be selected randomly keeping in view that these farmers had enough interest in digital mediums.
The data collected through interview method was classified, tabulated and analyzed statistically in the light of objective of the study.

Result and Discussion

Table 1: Distribution of farmers on the basis of their age group, N=225

S. No.	Age Group	No. of Farmers	Percentage
1.	Young age (21 to 35 years)	45	20.00
2.	Middle age (36-45 years)	148	65.78
3.	Old age (above 45 years)	32	14.22
	Total	225	100.00

The above table shows that maximum 65.77 percent farmers belonged to the middle age group followed 20 and 14.22 percent farmers belonged to the young and old age group, respectively.

Thus, result indicates that farmers of middle age group were largely influenced by digitization and they show real interest in capacity building activities.

Table 2: Distribution of farmers on the basis of their caste, N=225

S. No.	Caste	No. of Farmers	Percentage
1.	General (GEN)	52	23.12
2.	Other backward caste (OBC)	135	60
3.	Scheduled caste (SC)	38	16.88
	Total	225	100

We can observe from above table that maximum 60 percent farmers belonged to other backward caste followed by 23.11 and 16.88 percent belonged to the general and schedule caste, respectively.

So, it is the evident from the above table that maximum farmers belonged to other backward caste category, which were having keen interest in digitization and capacity building.

Table 3: Distribution of farmers on the basis of their educational status, N=225

S. No.	Education status	No. of Farmers	Percentage
1.	Illiterate	26	11.55
2.	Up to primary	32	14.23
3.	Up to high school	53	23.56
4.	Up to intermediate	40	17.78
5.	Up to graduation	45	20.00
6.	Above graduation	29	12.88
	Total	225	100.00

Table explain that the maximum 23.55 percent farmers were having up to high school followed by 20.00, 17.77, 14.22 and 12.88 percent farmers having education up to graduation, up to intermediate, up to primary and above graduation, respectively. Only 11.55 percent farmers were found illiterate. Thus, it can be easily notice that the educated up to high school categories of farmers were having good interest in digital services and capacity building. This finding was in conformity with findings of Hari Nandan Prasad (2015) [4].

Table 4: Distribution of farmers on the basis of their type of family, N=225

S. No.	Type of family	No. of farmers	Percentage
1.	Nuclear family	149	66.22
2.	Joint family	76	33.78
	Total	225	100.00

It is evident from table that out of 225 farmers proportion of nuclear family and joint family was 66.22:33.77. This indicates that majority of Farmers belonged to nuclear family pattern as compared to joint family pattern.

Table 5: Distribution of farmers on the basis of land holding size, N=225

S. No.	Size of family	No. of farmers	Percentage
1.	Marginal farmer (up to1hectare)	128	56.89
2.	Small farmers (1-2hectare)	67	29.78
3.	Big farmers (above 2 hectare)	30	13.33
	Total	225	100.00

Thus, above table explain that the majority of farmers 56.88 percent has marginal size of holding whereas 29.77 percent farmers were small farmers and only 13.33 percent farmers were big farmers. Thus, it is clear that majority of farmers belongs to category of marginal farmers having awareness about digitization and capacity building.

This finding was in line with the studies of Prakash Amit and Rahul (2007) [3].

Table 6: Distribution of farmers based on occupation, N=225

S. No.	Occupation	No. of farmers	Percentage
1.	Farming	102	45.33
2.	Farming + Business	53	23.55
3.	Farming + Service	70	31.12
	Total	225	100.00

From the above table we can understand that 45.33 percent farmers were doing farming as a main occupation followed by farming & business-23.55 percent and farming & service-31.11 percent respectively.

Hence it may be stated that all the farmers were having farming as one of their main sources of income. Thus, it can be concluded that most of our farmers were doing other job work with farming.

Table 7: Distribution of farmers based on housing pattern, N=225

S. No.	Housing pattern	No. of farmers	Percentage
1.	Kachcha house	26	11.55
2.	Pacca house	127	56.45
3.	Mixed	72	32.00
	Total	225	100.00

It is clear from the table that the maximum 56.44 percent farmers having pacca hose followed by 32 and 11.55 percent who possessed mixed and kachcha house, respectively.

Thus, it is clear from most of the farmers were having pacca house.

Table 8: Distribution of farmers based on material possession

S. No.	Farm assets	No. of farmers	Percentage
1.	Bullock	12	5.33
2.	Tractor	82	36.44
3.	Ferti-cum seed drill	25	11.11
4.	Cultivator	80	35.55
5.	Plough	90	40.00
6.	Thresher	52	23.11
7.	Sprayer and duster	48	21.33
8.	Chaff cutter	66	29.33
9.	Rotavator	62	27.55
10.	Reaper	53	23.55

It is obvious from table that majority of 40.00 percent farmers possessed plough followed by 5.33, 36.44, 11.11, 35.55, 23.11, 21.33, 29.33, 27.55 and 23.55 percent possessed bullock, tractor, ferticum seed drill, cultivator, thresher,

sprayer & duster, chaff cutter, rotavator and reaper, respectively.
Thus, it is clear that those farmers, who possessed good no. of resources took more interest in digital services and capacity building through these services in respective area. This finding was in conformity with the findings of Prasad (2015).

Table 9: Distribution of farmers on the basis of farm income, N=225

S. No.	Farm income	No. of farmers	Percentage
1.	Lower group (up to 50,000)	52	23.11
2.	Medium group (50,001 to 1 lac)	97	43.11
3.	Higher group (above 1 lac)	76	33.78
	Total	225	100.00

It is clear from the table above that maximum 43.11 percent farmers fall under the category of medium income group followed by 23.11 and 33.77 percent farmers belonged to the category of lower and higher income group, respectively.
Thus, it can be said that majority of farmers belonged to medium income category and try to use digital services for various purposes.

Table 10: Distribution of farmers on the basis of source of credit, N=225

S. No.	Source of credit	No. of farmers	Percentage
1.	Co-operative societies	48	21.34
2.	Commercial bank	134	59.55
3.	Money lender	12	05.34
4.	Relative/others	31	13.77
	Total	225	100.00

It is clear from the table that maximum 59.55 percent farmers were borrowing credit from commercial banks followed by 21.33, 5.33 and 13.77 percent farmers depend upon co-operative societies, money lender and relatives, respectively.
Thus, it can be said that majority of the farmers availed credit facilities by the commercial banks to the various purposes of crop production activities.

Table 11: Distribution of farmers on the basis of source of irrigation, N=225

S. No.	Source of irrigation	No. of farmers	Percentage
1.	Tube well	145	64.44
2.	Pumping set	61	27.12
3.	Canal	11	04.88
4.	Pond	8	3.56
	Total	225	100.00

The table explain that the highest majority 64.44 percent farmers were using tube well as a source of irrigation followed by 27.11, 04.88 and 03.55 percent farmers were using electric motor, cannel and pond as a source of irrigation, respectively.
Thus, it can be said that majority of the farmers were using tube well as a source of irrigation.

Table 12: Distribution of farmers on the basis of their mass media exposure, N=225

S. No.	Mass media exposure	No. of farmers	Percentage
1.	Radio	112	49.77
2.	Television	225	100.00
3.	Mobile phone	192	85.33
4.	Telephone	011	4.88
5.	Newspaper	180	80.00
6.	Journal/magazine	56	24.88
7.	Others	42	18.66

The distribution of farmers on the basis of mass media exposure is depicted in the table. About 100 percent majority of the farmers possessed television followed by 49.77, 85.33, 4.88, 80.00, 24.88 and 18.66 percent farmers possessed radio, mobile phone, telephone, newspaper journals/magazine and others, respectively.
Thus, it is obvious that the majority of the farmers were having television for mass media exposure and mobile phone for digital services. This finding was in agreement with the findings of Prasad (2015) and Gorla (2008) [1].

Table 13: Distribution of farmers on the basis of transportation material, N=225

S. No.	Transportation medium	No. of farmers	Percentage
1.	Bullock cart	19	08.44
2.	Jugad vehicle (made by farmers)	48	21.33
3.	Jeep/car	34	15.11
4.	Tractor	89	39.55
5.	Others	35	15.55
	Total	225	100.00

The distribution of farmers based on transportation material is depicted in the table. About 39.55 percent majority of the farmers having tractor trolley followed by 08.44, 21.33, 15.11 and 16.44 percent farmers having bullock cart, jugad vehicle, jeep/car and others respectively.
Thus, it is obvious that most of the farmers were having tractor trolley for transportation and have interest in capacity building by digital services.

Conclusion

During the study we found that our most of farmers belonged to middle aged group (36-45years) within other backward caste. Most of farmers are studied up to high school because of nearness of small schools to the village and nuclear families are growing in villages also. In our study most of our digital services user belongs to the marginal farmer category and also that is the reason behind our farmers' primary sours of livelihood is farming with medium group of income. Within time television is primary source of media exposure while era of landline telephones got ended and it is because of digitization.

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