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## Information Sources Utilization among Potato Farmers in North East India

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### ABSTRACT

*Information technology has transformed many other aspects of human endeavor and has helped create systems for responding to a wide range of societal needs. The benefits of pertinent farm related information in empowering farmer are significant and remain to be exploited. Potato is one of the most important crops grown successfully in North East India but farmers have limited access to the updated information. A research study was undertaken in four major potato growing states of NE including Assam, Meghalaya, Nagaland and Tripura with a sample of 480 farmers. It was found that potato farmers preferred to utilize informal information sources more than formal as well as the mass media sources with respect to using inputs and taking pertinent decisions with respect to sustainable potato cultivation. Farmers urgently require timely and reliable sources of information for taking important farm management decisions. Therefore, it is recommended to popularize the strategic use of mass media including user friendly ICT tools for better and faster outreach to the target farmers.*

**Key words:** *Information sources; Sustainable potato cultivation; North East India.*

**P**otato is the most important crop cultivated worldwide. It is grown in more than 125 countries and consumed almost daily by more than a billion people. Hundreds of millions of people in developing countries depend on potatoes for their survival. Potato cultivation is expanding strongly in the developing world, where the potato's ease of cultivation and nutrient content has made it a valuable for food security and cash crop for millions of farmers. After harvest, potatoes can be used for a variety of purposes such as fresh vegetable for cooking at home, as raw material for processing into food products, food ingredients, starch and alcohol, as feed for animals, and as seed tubers for growing the next season's crop. Potato development and agricultural development in general requires empowerment of small

farmers through improved access to production inputs, credit and markets.

The crop is grown throughout the year in one or the other parts of the North Eastern region contributes about 6.30 per cent of the total area under potato and 2.17 per cent production in India (NHB, 2018). Potato crop forms an important part of prevailing cropping systems as well as the dietary food habits of the people of the region (Kumar *et al.*, 2008). The semi perishability and bulkiness are the innate characteristic of potato that causes problems in its marketing. Marketing of potato in North eastern states of India is further constrained by hilly topography that comprises about 70 per cent of the total area (Sah *et al.*, 2011), limits its movement which ultimately affects the resource

poor farmers of the region. Marketing and storage were also identified as important weaknesses of potato production in India. *Saikia (2001)* highlighted that the facilities of storage, processing and marketing are deficient for perishable commodities as technological constraint for agricultural development in north eastern region of India. Owing to the highlighted weaknesses, the rural marketing in the region is confined primarily to unorganized sector with domination of private traders.

Though potato is one of major commercial crops of North-eastern India, farmers are facing problems in utilizing various sources of information for all round development. Considering these issues, a research study entitled "Information sources utilization among potato farmers in North East India" was undertaken with an objective to examine the various sources of information sources and level of use among the potato farmers.

## METHODOLOGY

Four highest potato growing states of North-East region namely Assam, Meghalaya, Nagaland and Tripura were selected for the present study. From each of the selected states one highest potato producing district and from each selected districts one highest potato producing block was selected purposively. Further a list of potato growing villages was prepared under each of the selected blocks and four villages were selected randomly from each of the selected blocks. Thus a total sample of 480 farmers was selected by simple random technique including 30 potato farmers having at least three years of farming experience. Face-to-face personal interview was conducted for collection of data using pre tested interview schedule. Data analysis was done using SPAR 2.0 software.

## RESULTS AND DISCUSSION

Table 1 depicts the sources of information utilization by the potato farmers of Assam. It was found that among the different sources of information, informal sources of information ranked first, followed by mass-media and formal sources of information. In case of using informal information sources only 25.00 per cent of the respondents made contact with progressive farmers most often followed by most (53.33%) of the farmers who had active contact with neighbours and 86.67 per cent of farmers never contacted their relatives for using informal sources of information. In case of

using the different mass media sources, majority (73.33%) of the potato farmers of Assam used mobile phones most often as mass media information sources. Further, majority (59.17%) of them used television sometimes, while 100.00 per cent of them never used radio and videoconferencing. In case of formal information sources, majority (64.17%) of the respondents made contact with VEW most often. Further, 51.67 per cent of them contacted Agriculture Officers sometimes while 100.00 per cent of them had never contact with NGOs. This finding was in line with the findings of *Singh et al. (2004)*. Overall analysis revealed that mean score of using informal sources of information was the highest (0.56) among all other sources of information utilized by the farmers.

From Table 2, it was found that among the use of different sources of information, informal information sources ranked first followed by formal sources of information and mass-media. In case of using informal information sources only 26.67 per cent of the potato farmers made contact with progressive farmers most often, followed by most (65.00%) of the farmers who contacted neighbours and 49.17 per cent of them never contacted their relatives under informal sources of information. In case of using formal information sources majority (30.83%) of the respondents made contact with VEW most often. Further, 90.83 per cent of them contacted Agriculture Officers sometimes while 100.00 per cent of them had never contact with NGOs. In case of using the different mass media sources, majority (76.67%) of the potato farmers of Meghalaya used mobile phones most often as mass media information source. Further, majority (50.83%) of them used television sometimes, while 100.00 per cent of them never used radio and videoconferencing. These findings were similar to the findings of *Singh et al. (2004)*. Overall analysis revealed that mean score of using informal information sources was the highest (0.804) among the other sources of information utilized by the farmers.

Table 3 indicates the sources of information utilization by the potato farmers of Nagaland. It was found that among the different sources of information utilization, informal sources of information ranked first followed by formal sources of information and mass-media information sources. In case of using informal information sources only 11.67 and 47.50 per cent of the potato growers made contact with friends most often

**Table 1. Distribution of potato farmers based on their utilization of information sources in Assam (N=120)**

Information sources	Most often		Sometimes		Never		MS	Rank
	No.	%	No.	%	No.	%		
Radio	0	(0.00)	0	(0.00)	120	(100.00)	0.479	II
Television	45	(37.50)	71	(59.17)	4	(3.33)		
Exhibition	0	(0.00)	22	(18.33)	98	(81.67)		
Printed media (Poster, Folder, etc)	0	(0.00)	21	(17.50)	99	(82.50)		
Newspaper	11	(9.17)	68	(56.67)	41	(34.17)		
Internet	1	(0.83)	6	(5.00)	113	(94.17)		
Mobile	88	(73.33)	25	(20.83)	7	(5.83)		
Smartphone , SMS based services	0	(0.00)	15	(12.50)	105	(87.50)		
Videoconferencing	0	(0.00)	0	(0.00)	120	(100.00)		
VLW/VEW	77	(64.17)	35	(29.17)	8	(6.66)	0.408	III
Agriculture Officer	16	(13.33)	62	(51.67)	42	(35.00)		
SDAO	0	(0.00)	28	(23.33)	92	(76.67)		
HO	0	(0.00)	7	(5.83)	103	(85.83)		
KVK	20	(16.67)	25	(20.83)	75	(62.50)		
ATMA	2	(1.67)	19	(15.83)	99	(82.50)		
NGOs	0	(0.00)	0	(0.00)	120	(100)		
ICAR	6	(5.00)	23	(19.17)	91	(75.83)		
Friends	7	(5.83)	47	(39.17)	66	(55.00)	0.560	I
Relatives	0	(0.00)	16	(13.33)	104	(86.67)		
Neighbours	7	(5.83)	64	(53.33)	49	(40.83)		
Progressive farmers	30	(25.00)	54	(45.00)	36	(30.00)		

**Table 2. Distribution of potato farmers based on their utilization of information sources in Meghalaya (N=120)**

Information sources	Most often		Sometimes		Never		MS	Rank
	No.	%	No.	%	No.	%		
Radio	0	(0.00)	0	(0.00)	120	(100.00)	0.510	III
Television	37	(30.83)	61	(50.83)	22	(18.33)		
Exhibition	0	(0.00)	17	(14.17)	103	(85.83)		
Printed media (Poster, Folder, etc)	0	(0.00)	14	(11.67)	106	(88.33)		
Newspaper	17	(14.17)	51	(42.50)	52	(43.33)		
Internet	19	(15.83)	41	(34.17)	60	(50.00)		
Mobile	92	(76.67)	20	(16.67)	8	(6.67)		
Smartphone , SMS based services	0	(0.00)	17	(14.17)	103	(85.83)		
Videoconferencing	0	(0.00)	0	(0.00)	120	(100.00)		
VLW/VEW	32	(26.66)	44	(36.67)	44	(36.67)	0.554	II
Agriculture Officer	9	(7.50)	109	(90.83)	2	(1.67)		
SDAO	0	(0.00)	25	(20.83)	95	(79.17)		
HO	33	(27.50)	30	(25.00)	57	(47.50)		
KVK	12	(10.00)	62	(51.67)	46	(38.33)		
ATMA	1	(0.83)	32	(26.67)	87	(72.50)		
NGOs	0	(0.00)	0	(0.00)	120	(100.00)		
ICAR	37	(30.83)	48	(40.00)	35	(29.17)		
Friends	22	(18.33)	65	(54.17)	33	(27.50)	0.804	I
Relatives	18	(15.00)	43	(35.83)	59	(49.17)		
Neighbours	1	(0.83)	78	(65.00)	41	(34.17)		
Progressive farmers	32	(26.67)	54	(45.00)	34	(28.33)		

and sometimes and 65.00 per cent farmers never contacted progressive farmers using informal sources of information needs. In case of using formal information sources, majority (24.17%) of the potato farmers made contact with VEW most often. Further, 71.67 per cent of them contacted Agriculture Officers sometimes, while 100.00 per cent of them had never contact with NGOs. In case of using the different mass media sources, majority 39.17 per cent and 44.17 per cent of the potato farmers of Nagaland used mobile phones most often and sometimes as their media information sources, while 100.00 per cent of them never used radio and videoconferencing. These findings were similar to the findings of *Singh et al. (2004)*. Overall analysis revealed that mean score of using informal information sources was the highest (0.525) among other sources.

From Table 4, it was evident that among the different sources of information utilization, informal sources of information ranked first followed by mass-media and formal sources of information respectively. In case of using informal information sources only 20.83 per cent of the respondents made contact with progressive farmers most often followed by most (59.17%) of the farmers contacted their neighbours and 86.67 per cent of the potato growers never contacted their relatives for their informal sources of information needs. In case of using the different mass media sources, majority (73.33%) of the potato farmers of Tripura used mobile phones most often as mass media information source. Further, majority (59.17%) of them used television sometimes, while 100.00 per cent of them never used radio and videoconferencing. In case of using formal information sources majority (50.83%) of the respondents made contact with VEW most often. Further, 61.67 per cent of them contacted Agriculture Officers sometimes while 100.00 per cent of them had never contact with NGOs. This finding was in similar to the findings of *Singh et al. (2004)*. Further, Overall analysis revealed that mean score of using informal information sources was the highest (0.562) among the other sources of information utilized by the farmers.

Table 5 revealed that 71.68 per cent of the potato growers of Assam had medium level of information sources utilization; followed by 14.16 per cent of them had low as well as high level of information sources utilization respectively. In case of potato farmers of Meghalaya, 68.33 per cent of them had medium level of

information sources utilization, followed by 19.17 per cent and 12.50 per cent of them having low and high level of information sources utilization. In case of potato growers of Nagaland, majority (70.00%) of them had medium level of information sources utilization, followed by 17.50 per cent and 12.50 per cent of them having high and low level of information sources utilization respectively. *Jha & Thorie (2012)* in their study found that only 15.18 per cent of the potato growers had high exposure to mass media sources of information. In case of potato growers of Tripura, majority (52.50%) of the respondents had medium level of information sources utilization while 32.50 per cent of them had low and 15.00 per cent of them had high information sources utilization. In case of overall potato growers of North-east, 72.29 per cent of them had medium level of information sources utilization, while 14.38 per cent of them had low and 13.33 per cent of them had high level of information sources utilization. These findings were in accordance with the findings of *Suresh (2004)*, *Nagesh (2006)* and *Shree et al. (2020)*.

Table 6 indicates the significant difference in information sources utilization pattern among the potato growers of selected NE states with respect to sustainable potato cultivation. It was observed that there exists a significant difference in information sources utilization pattern between the potato growers of Assam and Meghalaya, Meghalaya and Nagaland as well as Tripura and Meghalaya at 1% level of probability, whereas there was no significant difference in information sources utilization pattern between the potato growers of Nagaland and Tripura as well as Tripura and Assam.

## CONCLUSION

Majority of the potato farmers of NE states comprising Assam, Meghalaya, Nagaland and Tripura used mobile as their most preferred mass media information source for obtaining pertinent information related to sustainable potato cultivation. In case of formal information sources, potato farmers of Assam, Nagaland and Tripura used VEW as their primary information source but potato farmers of Meghalaya obtained required information from ICAR research institute. In case of informal information sources, potato farmers of Nagaland obtained relevant information from friends as primary information source, whereas potato farmers from Assam, Meghalaya and Tripura preferred

**Table 3. Distribution of potato farmers based on their utilization of information sources in Nagaland (N=120)**

Information sources	Most often		Sometimes		Never		MS	Rank		
	No.	%	No.	%	No.	%				
Radio	0	(0.00)	0	(0.00)	120	(100)	0.455	III		
Television	26	(21.67)	46	(38.33)	48	(40.00)				
Exhibition	0	(0.00)	20	(16.67)	100	(100)				
Printed media (Poster, Folder, etc)	0	(0.00)	31	(25.83)	89	(74.17)				
Newspaper	17	(14.17)	51	(42.50)	52	(43.33)				
Internet	19	(15.83)	41	(34.17)	60	(50.00)				
Mobile	47	(39.17)	53	(44.17)	20	(16.67)				
Smartphone , SMS based services	0	(0.00)	31	(25.83)	89	(74.17)				
Videoconferencing	0	(0.00)	0	(0.00)	120	(100)				
VLW/VEW	29	(24.17)	37	(30.83)	54	(45.00)			0.466	II
Agriculture Officer	4	(3.33)	86	(71.67)	30	(25.00)				
SDAO	0	(0.00)	25	(20.83)	95	(79.17)				
HO	25	(20.83)	36	(30.00)	59	(49.17)				
KVK	12	(10.00)	62	(51.67)	46	(38.33)				
ATMA	8	(6.67)	46	(38.33)	66	(55.00)				
NGOs	0	(0.00)	0	(0.00)	120	(100)				
ICAR	2	(1.67)	41	(34.17)	67	(55.83)				
Friends	14	(11.67)	57	(47.50)	49	(40.83)	0.525	I		
Relatives	11	(9.17)	41	(34.17)	68	(56.66)				
Neighbours	1	(0.83)	52	(43.33)	67	(55.83)				
Progressive farmers	8	(6.67)	34	(28.33)	78	(65.00)				

**Table 4. Distribution of potato farmers based on their utilization of information sources in Tripura (N=120)**

Information sources	Most often		Sometimes		Never		MS	Rank		
	No.	%	No.	%	No.	%				
Radio	0	(0.00)	0	(0.00)	120	(100)	0.485	II		
Television	45	(37.50)	71	(59.17)	4	(3.33)				
Exhibition	0	(0.00)	22	(18.33)	98	(81.67)				
Printed media (Poster, Folder, etc)	0	(0.00)	21	(17.50)	99	(82.50)				
Newspaper	13	(10.83)	70	(58.33)	37	(30.83)				
Internet	1	(0.83)	6	(5.00)	113	(94.17)				
Mobile	88	(73.33)	25	(20.83)	7	(5.83)				
Smartphone , SMS based services	0	(0.00)	15	(12.50)	105	(87.50)				
Videoconferencing	0	(0.00)	0	(0.00)	120	(100)				
VLW/VEW	61	(50.83)	28	(23.33)	31	(25.83)			0.420	III
Agriculture Officer	11	(9.17)	74	(61.67)	35	(29.17)				
SDAO	0	(0.00)	28	(23.33)	92	(76.67)				
HO	0	(0.00)	7	(5.83)	113	(94.17)				
KVK	11	(9.17)	32	(26.67)	77	(64.17)				
ATMA	17	(14.17)	14	(11.67)	89	(74.17)				
NGOs	0	(0.00)	0	(0.00)	120	(100)				
ICAR	20	(16.67)	31	(25.83)	69	(57.50)				
Friends	15	(12.50)	55	(45.83)	50	(41.67)	0.562	I		
Relatives	0	(0.00)	16	(13.33)	104	(86.67)				
Neighbours	1	(0.83)	71	(59.17)	48	(40.00)				
Progressive farmers	25	(20.83)	46	(38.33)	49	(40.83)				

**Table 5. Level of information sources utilized by the potato farmers (N=480)**

NE states	Level	No.	%	MS	SD
Assam	Low (<7.20)	17	14.16	10.23	3.07
	Medium (7.20-13.30)	86	71.68		
	High (>13.30)	17	14.16		
Meghalaya	Low (<9.50)	23	19.17	12.79	3.34
	Medium (9.50-16.10)	82	68.33		
	High (>16.10)	15	12.50		
Nagaland	Low (<7.30)	15	12.50	10.38	3.04
	Medium (7.30-13.30)	84	70.00		
	High (>13.30)	21	17.50		
Tripura	Low (<10)	39	32.50	10.40	3.31
	Medium (10-13.70)	63	52.50		
	High (>13.70)	18	15.00		
Overall farmers	Low (<7.50)	69	14.38	10.95	3.37
	Medium (7.50-14.30)	347	72.29		
	High (>14.30)	64	13.33		

to obtain required information from progressive farmers. Analysis also revealed that potato farmers preferred to utilize informal information sources more than formal as well as the mass media sources. It is therefore recommended to popularize the strategic use of mass media including user friendly ICT tools for better and faster outreach to the target farmers. This will be helpful

**Table 6. Comparative account of information sources utilized for sustainable potato cultivation**

Name of the state	(μ)	Z value	Probability
Assam	10.23	-6.015**	<0.01
Meghalaya	12.79		
Meghalaya	12.79	5.757**	<0.01
Nagaland	10.38		
Nagaland	10.38	0.090	>0.05
Tripura	10.40		
Tripura	10.40	-0.338	>0.05
Assam	10.23		
Tripura	10.40	5.488**	<0.01
Meghalaya	12.79		
Assam	10.23	-0.453	>0.05
Nagaland	10.38		

\*\* Significant at 1% level of probability

in providing the updated information to the farmers with accuracy, authenticity as well as at the right time of their need.

**CONFLICTS OF INTEREST**

The authors declare that they have no conflicts of interest.

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