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Utilization pattern of information sources for weather forecast among farmers of Chhattisgarh plains

OP ParganihaDOI: <https://doi.org/10.22271/chemi.2020.v8.i4e.10033>**Abstract**

There is a large deficit of information and knowledge in this vulnerable region which impedes decision making and assessment of climate related risks. The information on changing climatic conditions and its impact on agriculture and allied activities must be made available to those farmers that are far from weather stations. This study was conducted to determine utilization pattern of information sources for weather forecast among 240 farmers of Chhattisgarh Plains during 2016. The respondents were asked about the mass media sources utilized by them and it was found that almost half of respondents were having low level of use of mass media sources. Majority (55.83%) of the respondents were having low level of utilization of information sources for collecting weather information followed by 33.75 per cent of them had reported medium level of utilization. It revealed that friends/relatives/etc., newspaper, mobile and national TV channel were most credible sources of information to collect weather related information with credibility index of 76.54, 69.24, 65.48 and 60.54 per cent, respectively. National TV channel, friends/relatives/etc., newspaper and regional TV channel were most frequently used information sources for gathering weather related information with the extent of 61.46, 52.50, 49.17 and 28.13 per cent, respectively. The utility of information related to weather forecast were 39.30, 35.55 and 31.80 per cent for national TV channel, friends/relatives/etc. and news paper, respectively. It can conclusively say that friends/relatives/etc. and newspaper were more credible among the respondents. More than half of them were using those sources for gathering information but most of the respondents were not applying it in their actual practice due to irrelevancy of weather related information. Therefore, relevant and timely weather forecast is needed to build trust among the respondents so that they can change their cultivation practices according to changing climatic condition.

Keywords: Climate change, information sources, weather forecast, utilization pattern, credibility**Introduction**

Agriculture has been the most important sector in Indian economy that provides food and livelihood security to majority of its population. Agriculture places heavy burden on the environment in the process of providing humanity with food and fiber, while climate is the primary determinant of agricultural productivity. Given the fundamental role of agriculture in human welfare, concern has been expressed by federal agencies and others regarding the potential effects of climate change on agricultural productivity. In India, climate change has been putting additional stress on ecological and socioeconomic systems that already facing tremendous pressures due to rapid urbanization, industrialization and economic development. Climate change is predicted by scientists to have the main impact on agriculture, economy and livelihood of the populations of developing countries and India is one of them, where large parts of the population depend on climate sensitive sectors like agriculture and forestry for livelihood. In order to understand how farmers would respond to climate change, it is essential to study farmers' perceptions on climate change and its impact on agriculture. As the understanding on global climate and its change is pre requisite to take appropriate initiatives to combat climate change.

As the understanding on global climate and its change is pre requisite to take appropriate initiatives to combat climate change. The only solution for these huge populations seems to be adequate and relevant adaptation strategies. It has been reported that there is a large deficit of information and knowledge in this vulnerable region which impedes decision making and

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assessment of climate related risks, and adaptation (McSweeney *et al.*, 2010) [5]. Adaptation to climate change requires that farmers first notice that the climate has altered. Farmers then need to identify potentially useful adaptations and implement them.

Timely and accurate information related to weather forecast is very important for the farmers in present scenario of changing climatic conditions. It is needful that the weather forecasts often should correct, so that the farmers can make agricultural decisions based on the weather forecasts. Information regarding weather forecast are supposed to directly associate with the measures taken by the respondents to combat with the adverse effect of instant climatic variability. These information sources provide regular and timely information to the respondents regarding favorableness and un-favorableness of weather for agriculture and allied activities.

Methodology

Timely and accurate information about weather forecast is prime requisite to combat with adverse impact of climatic variability. In this regard the present study was conducted with 240 respondents of Plain Zone of Chhattisgarh state during the years 2016. Chhattisgarh state is divided in to 27 districts and 3 agro climatic zones namely Bastar Plateau, Chhattisgarh Plains and Northern Hills in which four districts of Chhattisgarh Plains namely Raipur, Durg, Balodabazar-Bhatapara and Bemetara were selected for present study.

To determining the extent of utilization of various information sources, different 7 communication mass media like Radio, National TV Channel, Regional TV, Channel, News paper, Extension functionaries, Friends/Relatives/etc. and Mobile were selected and respondents were asked about their frequency of use and utility of information. Furthermore, the respondents were categorized as Nil, Low, Medium and High as per scores obtained out of 24. Total number of information sources used by each respondent for collecting weather related information was considered for analysis of the data.

Utilization pattern of information sources for weather forecast

The utilization pattern of information sources for seeking weather related information by respondents were determined by finding the credibility of information sources, extent of use of information sources and extent of utility of information sources. For determining utilization pattern of each information sources by respondents, the three indexes were worked out as follows:

Credibility Index

Respondents were asked about the credibility of information sources being utilized by them on four point continuum scale *viz.* fully credible, medium credible, partial credible and not credible by assigning scores 3, 2, 1 & 0, respectively. Further, an index was worked out as below:

$$Crli = \frac{Oi}{S} \times 100$$

Where

$Crli$ = Credibility index of i^{th} information source

O_i = Sum of credibility score obtained by respondents for i^{th} information source

S = Maximum obtainable credibility score

Usage Index

Respondents were asked about frequency of use of various information sources for getting weather information on three point scale *viz.* regular, occasional and never and index was worked out as follows:

$$Usli = \frac{Oi}{S} \times 100$$

Where

$Usli$ = Usage index of i^{th} information source

O_i = Sum of usage score obtained by respondents for i^{th} information source

S = Maximum obtainable usage score

Utility Index

Respondents were asked about the utility of information sources being utilized by them on four point continuum scale *viz.* fully, medium, partial and nil by assigning scores 3, 2, 1 & 0, respectively. Further, an index was worked out as below:

$$Utli = \frac{Oi}{S} \times 100$$

Where

$Utli$ = Utility index of i^{th} information source

O_i = Sum of utility score obtained by respondents for i^{th} information source

S = Maximum obtainable utility score

Access to weather forecast

A weather forecast is important for the farmers to be able to plan what to do on the field. Each respondents were asked about whether they acquired weather forecast or not and measured on two point scale providing scores as 0 and 1 for Not acquired and Acquired weather forecast by the respondents.

Result and Discussion

Exposure to mass media

The respondents were asked about the mass media sources used by them and compiled results are presented in Fig. 1. Majority of the respondents (52.92%) regularly watched television, whereas, 42.92 per cent came under occasional users of television. About 43 per cent of the respondents were regular readers of news paper and more than 31 per cent of them were occasional readers. Among the respondents regular listeners of radio were very less (3.75%), while, nearly 9 per cent were occasionally listened radio. Hardly 12.08 per cent of the respondents read agriculture articles in agricultural magazine, whereas, about 24 per cent of them read occasionally.

The overall extents of use of mass media sources of respondents was determined and given in Table 1. Almost half of respondents were having low level of use of mass media sources, whereas, 46.25 per cent had medium level of use. Nearly 2 per cent were having high level of use, while, about 3 per cent of them had never used any kind of mass media. Shashidhar (2003) [7], Kumar (2004) [3] and Nirban (2006) [6] were also reported similar findings.

Access to weather forecast

The respondents were asked about sources utilized by them for gathering information on weather forecast and results are

depicted in Table 2 and Fig. 2. The summation of scores obtained by respondents for frequency of use and utility of information sources were considered to determine the extent of utilization of information sources. It is apparent from Table 2 that majority (55.83%) of the respondents were having low level of utilization of information sources for collecting weather information followed by 33.75 per cent of them had reported medium level of utilization. The information sources were utilized highly by very little (2.50%) number of respondents to collect weather information.

Table 1: Distribution of respondents according to their extent of use of mass media

Extent of use of mass media	Frequency	Percentage
Nil	07	2.92
Low (1-3 score)	117	48.75
Medium (4-6 score)	111	46.25
High (More than 6 score)	05	2.08

Table 2: Extent of utilization of information sources for weather forecast

Extent of utilization	Frequency	Percentage
Nil	19	7.92
Low (1-12 score)	134	55.83
Medium (13-24 score)	81	33.75
High (More than 24 score)	06	2.50

Utilization pattern of information sources for weather forecast

Various sources of information are being utilized by the respondents but it cannot be necessarily say that they are getting relevant information timely. Weather related information are gathering by most of the farmers by different sources but how much of them are applying it in actual practice is a question. For the purpose utilization pattern of respondents for gathering information related to weather forecast was worked out and presented in Fig. 2. This can be discussed on following heads:

Credibility of information sources

Information related to weather forecast was being collected by respondents using different information sources. To know the credibility of those sources data were recorded from the respondents and credibility index were worked out (Fig. 2). The results revealed that among the respondents

friends/relatives/etc., newspaper, mobile and national TV channel were most credible sources of information to collect weather related information with credibility index of 76.54, 69.24, 65.48 and 60.54 per cent, respectively. The credibility of other sources like radio, regional TV channel and extension functionaries were 57.36, 51.52 and 47.52 per cent, respectively. The overall credibility index value of all the information sources was 61.18 per cent.

Extent of use of information sources

Data regarding frequency of use of information sources for collecting weather related information were recorded and worked out an index. The results presented in Fig. 2 indicate that national TV channel, friends/relatives/etc., newspaper and regional TV channel were most frequently used information sources for gathering weather related information with the extent of 61.46, 52.50, 49.17 and 28.13 per cent, respectively. Whereas, extension functionaries (11.67%), radio (5.63%) and mobile (0.83%) were the information sources used with less extent. The overall extent of use information sources was 29.91 per cent.

Extent of utility of information sources

All the information gathered from various information sources were not utilized by the respondents. The data on utility of information provided by information sources were recorded and the results are presented in Fig. 2. It indicates that according to respondents the utility of information related to weather forecast were 39.30, 35.55 and 31.80 per cent for national TV channel, friends/relatives/etc. and news paper, respectively. The utility of information were 19.30 and 8.47 per cent in case of regional TV channel and extension functionaries. However, 19.80 per cent utility of information was reported by the respondents with regards to overall utility.

Hence, it can conclusively say that friends/relatives/etc. and newspaper were more credible among the respondents. More than half of them were using those sources for gathering information but most of the respondents were not applying it in their actual practice due to irrelevancy of weather related information. Therefore, relevant and timely weather forecast is needed to build trust among the respondents so that they can change their cultivation practices according to changing climatic condition. Similar finding were also reported by Athimuthu (1982)^[1], Jyothi (2000)^[2] and Luni *et al.* (2012)^[4].

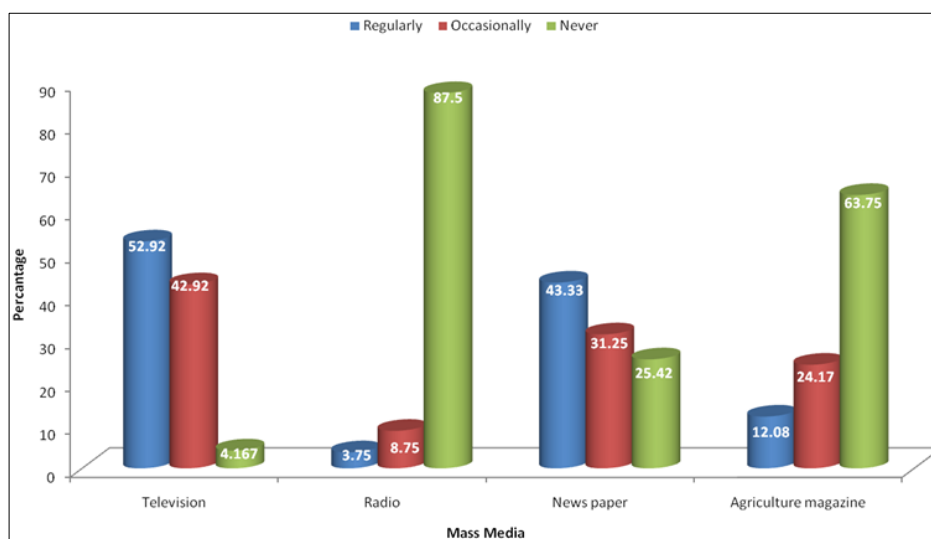


Fig. 1: Distribution of respondents according to their use of mass media

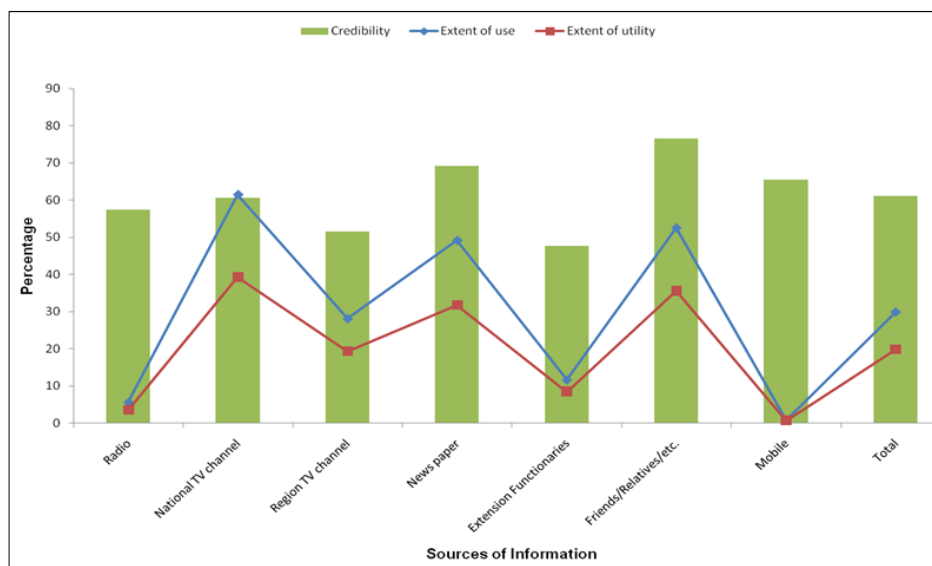


Fig 2: Utilization pattern of information sources for weather forecast

Conclusion

In the study area farmers are unaware and lacking of information about climate change. This study therefore, recommends dissemination of information to be a critical element because farmers are not informed about climate change in the study area. The information on changing climatic conditions and its impact on agriculture and allied activities must be made available to those farmers that are far from weather stations. Extension officers who are already agents of information can be assigned to convey messages about the climate change related weather forecasts to farmers. It further suggests that farmers need accurate weather forecasts and agro-advisory services, to take vital decisions regarding farming practices. However, until date the Indian Meteorological Department extends its agro-advisory services only up to the district level. The information often does not reach the end users. Establishing an efficient service delivery system down to the village level is a daunting task. However, external agencies can play an important role in supporting these services by including them in their area of their operations.

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