Indigenous weather and forecast practices of Coimbatore district farmers of Tamil Nadu

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Traditional beliefs are abundant particularly among the rural community. In many cases, traditional beliefs are existing in the form of well defined indigenous technologies which are valued much and followed in their farming system. Indigenous knowledge includes both technical and non-technical fields covering various social and religious taboos, beliefs and customs, communication patterns, music, ecology, vegetation, climate and so on. A study was conducted at Coimbatore district, Tamil Nadu of identifying the various indigenous/traditional weather forecasting methods known/practiced by the farmers. The study contained three categories of sample with a sample size of 30 each, namely Seasonal climate forecast farmers (SCF), Medium Range Weather Forecast Farmers (MRF) and Non-informed (NI) farmers. The farmers were selected using simple random sampling. The data was collected through a well structured and pre-tested interview schedule by employing personal interview technique and percentage analysis was used to analyze the data. Fifteen indigenous/traditional weather and climate related practices were identified. Among different indigenous practices, eleven practices related to rainfall, two practices related to pest and disease incidence and one each for drought and almanac has been delineated.

Keywords: Indigenous forecasting, Almanac, Traditional knowledge, Weather forecasting, Coimbatore, Tamil Nadu

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Indigenous knowledge is systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments and intimate understanding of the environment in a given culture. Indigenous knowledge systems are dynamic, changing through indigenous mechanisms of creativity and innovativeness as well as through contact with other local and international knowledge systems. Indian rural society has its own complicated structure, belief systems and functional mechanisms. Before attempting to formulate and finalize an effective strategy for transfer of technology, the extension personnel have to thoroughly understand the rural society and its functions. When technologies are transferred, all the members of the society do not uniformly accept them. In making decisions on adoption of innovations, individuals evaluate them with their own environment and compatibility with existing beliefs, norms, and the like. Traditional beliefs are abundant particularly among the rural community. Traditional agriculture is nothing but indigenous knowledge that can only serve as an alternative to modern agriculture. Tamil Nadu is a treasure land of indigenous knowledge in agriculture and allied areas. Scientists throughout the world have started identifying, documenting and analyzing indigenous technologies in an effort to recommend them to farmers. Indigenous technologies are plenty on various aspects like season and climate, rainfall, land preparation, crop varieties, manures and manuring, water management, plant protection and post harvest operations including storage and processing of farm produces. Keeping these in mind, a study was conducted to identify the various indigenous/traditional weather forecasting methods known/practiced by the farmers.

Methodology

The research study was conducted in Coimbatore district of Tamil Nadu. Weather forecasts are generally divided into three categories according to their period of validity. They are: short range (two
days); medium range (3-10 days); and long range or seasonal climate (more than 10 days). The study involved three categories of farmers, viz. Seasonal Climate Forecast information receivers (SCF), Medium Range Weather Forecast information receivers (MRF) and Non-Informed farmers (NI) who are dwelling nearer to the SCF and MRF. Considering the time limit, 30 farmers each were selected from each of the above-mentioned category. Reason for carrying out the micro-level study was to ascertain farmer’s utility of TNAU recommended weather forecast information for their agricultural operations and their knowledge on indigenous weather forecast sources. In the study, interview schedule was prepared to collect information from 90 sample respondents by employing personal interview scalable techniques. The data were collected through a well-structured and pre-tested interview scalable by employing personal interview technique. Percentage analysis was used to analyze the data.

Results and discussion

Fifteen indigenous practices/beliefs related to weather and climate forecast information were identified (Table 1). The respondents had known all the indigenous weather and climate forecast practices by their own experiences. Three-fifths (60%) of SCF, little less than one-third (30%) of MRF and little more than half (53%) of NI are aware of when dragon flies fly low, it may rain. Termites flying in the evening indicate rain was reported by little less than half (46.67%) of SCF, little more than two-fifths (43.37%) of MRF and little less than two-thirds (63.33%) of NI respondents. Termites constructing a new mound also indicate the occurrence of rainfall. Frogs crocking in chorus is followed by a shower was reported by little more than one-third (36.67%) of SCF, about half (53.33%) of MRF and more than half (56.67%) of NI respondents. Well or tank frog making an alarming sound during the night times clearly indicates the heavy shower ahead. Dense fog in early morning indicates no rain was reported by two-fifths (40%) of SCF, little more than two-fifths (43.33%) of MRF and again two-fifths (40%) of NI respondents. Severe fog will also affect the vegetable crop by its scorching effect. Among the vegetables, onion and chillies were adversely affected by the fog. A ring around the moon may be followed by rain was reported by half (50%) of SCF, three-tenths (30%) of MRF and little more than two-fifths (43.33%) of NI respondents. Smaller circle around the moon indicates immediate rainfall. Wider circle clearly shows the no rain short period. Three-tenths (30%) of SCF, two-fifths (40%) of MRF and 46.67% of NI had expressed “ants shifting their eggs to safer places tells rainfall”. Ants relocating the food grains from one mound are

Table 1—Indigenous climate and weather forecast practices used by the farmers

<table>
<thead>
<tr>
<th>Indigenous practices/beliefs</th>
<th>SCF (n=30)</th>
<th>MRF (n=30)</th>
<th>Ni (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Termites flying in the evening hrs is an indication that there will be rain</td>
<td>14 46.67</td>
<td>13 43.33</td>
<td>19 63.33</td>
</tr>
<tr>
<td>Frogs crocking in chorus is followed by a shower</td>
<td>11 36.37</td>
<td>16 53.33</td>
<td>17 56.67</td>
</tr>
<tr>
<td>Ants shifting their eggs to safe place, foretells the occurrence of rain</td>
<td>9 30.00</td>
<td>12 40.00</td>
<td>14 46.67</td>
</tr>
<tr>
<td>When dragon flies fly low, it may rain</td>
<td>18 60.00</td>
<td>9 30.00</td>
<td>16 53.33</td>
</tr>
<tr>
<td>During the Agni period (12 days), each day is counted for each Tamil month. If rain in any</td>
<td>7 23.33</td>
<td>11 36.67</td>
<td>14 46.67</td>
</tr>
<tr>
<td>of the day, there will be no rain in that particular month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A ring around the moon is as indication of rain to be followed</td>
<td>15 50.00</td>
<td>9 30.00</td>
<td>13 43.33</td>
</tr>
<tr>
<td>Dense fog in early morning indicates no rain</td>
<td>12 40.00</td>
<td>13 43.33</td>
<td>12 40.00</td>
</tr>
<tr>
<td>More black clouds during the winter season, increases the pest and disease incidence</td>
<td>9 30.00</td>
<td>16 53.33</td>
<td>9 30.00</td>
</tr>
<tr>
<td>Continuous drizzling indicates more pest and disease incidence</td>
<td>8 26.67</td>
<td>5 16.67</td>
<td>11 36.67</td>
</tr>
<tr>
<td>Carrying out sowing and harvesting operations based on almanac</td>
<td>5 16.67</td>
<td>10 33.33</td>
<td>19 63.33</td>
</tr>
<tr>
<td>Praying of goddess Bhagavathi Amman to get an assured rain</td>
<td>6 20.00</td>
<td>16 53.33</td>
<td>17 56.67</td>
</tr>
<tr>
<td>High sweating in day time, foretells rainfall in night</td>
<td>4 13.33</td>
<td>7 23.33</td>
<td>15 50.00</td>
</tr>
<tr>
<td>Morning cloud and evening thunder indicates the occurrence of rain</td>
<td>5 16.67</td>
<td>6 20.00</td>
<td>8 26.67</td>
</tr>
<tr>
<td>Rainbow in east direction indicates absence of rain</td>
<td>11 36.67</td>
<td>13 43.33</td>
<td>15 50.00</td>
</tr>
<tr>
<td>Dried appearance of Neem tree in summer causes heavy drought</td>
<td>6 20.00</td>
<td>4 13.33</td>
<td>14 46.67</td>
</tr>
</tbody>
</table>
another indication of rainfall in short period. Other indigenous weather and climate forecast were reported by SCF, MRF and NI respondents are, more black clouds during the winter season, increases the pest and disease incidents, continuous drizzling indicates more pest and disease incidents. These practices are pertaining to winter season. If the same climate continued for one week, grapevine will be affected by mildew disease, castor and groundnut would be affected by caterpillars, and turmeric would be affect by rotting.

Almanac is used for predicting a good day and time to carry out the sowing and harvesting operations. In villages, almanac plays an important role in deciding when to carry out the agricultural operation such as seed sowing, transplanting, weeding and harvesting, etc. Some of the farmers in study area reported that the sowing or harvesting operations start from the Northeastern corner of the field. No moon days (Ammavasai) is the best day for sowing or harvesting agricultural crops. Next to the no moon days is the bad day to do any agricultural operations. Most of the farmers in the study area reported that they may not start the agricultural operations during this day. The indigenous beliefs namely praying of god Bhagavathi Amman will assure rain, high sweating in day time will bring rain fall in the night, morning cloud and evening thunder, pre tell rain, rainbow in east direction indicates no rain, dried appearance of neem tree in summer causes heavy drought, were the forecast information possessed by majority of NI farmers when compared to SCF and MRF farmers. Among the different indigenous practices, 11 practices related to rainfall followed by two practices related pest and disease incidence and each one for drought and almanac. The farmers believe that these practices have been helping them since long. Most of the NI respondents depended largely on indigenous weather and climate. Among the different practices 63.33% of respondents used almanac for sowing and harvesting operations and termite flying in evening time to predict the rainfall.

A suggested model (Fig. 1) for the transfer of appropriate technologies in agriculture for large scale adoption among farmers is proposed. This may be similar to the seasonal weather calendars, developed over thousand of years by indigenous communities and displayed on this new Bureau of Metrology Indigenous Weather Knowledge website, Australian Government. The model suggests setting up of National level centers for documentation of Indigenous Technical Knowledge (ITK) of farmers located in all the agro-climatic zones of our country. These centers could aim at the collection of indigenous wisdom of farmers pertaining to the crops, enterprises and farming systems of the corresponding agro-climatic zones. These ITKs can be rationalized and test verified by Research system for its worthiness, reliability and validity for adoption by farmers. Based on these processes, appropriate technologies could be designed for particular agro climatic zones by the scientists with the participation of farmers. The developed appropriate technologies can be taken up for multi location trials, adaptive research trials for testing its suitability to local conditions. Those successful technologies could be released for large-scale adoption. The work of dissemination can be done by the extension system for the benefit of the clients.

Fig. 1—Suggested model to establish national level ITK center

Conclusion
A total of 15 indigenous/traditional weather and climate related practices known by farmers were identified. Among the different indigenous practices, 11 practices related to rainfall followed by 2 practices related to pest and disease incidence and each 1 for drought and almanac were documented. Majority of NI respondents were aware of or practiced the indigenous technologies. Some SCF & MRF
respondents were also aware of the use of traditional WFI. All available indigenous & weather forecasting techniques may serve as alternative to modern technologies. So, at national level, an indigenous center should be established and document all the indigenous technologies practiced by the farmers region wise. From the collected document, it should be rationalized and test verified. Finally, the scientist may develop or modify the local technologies, which may suit to the local condition. The extension workers can easily disseminate developed or improved ITK.

References
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