

intervals. Resources on new varieties/landraces and feedback to enhance the usability of the web interface are welcome. Resources and suggestions received through e-mail shall be reviewed and considered in the update process.

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## Mobile-based agro-advisory for tribals of Meghalaya, India

The source of livelihood and income of the North Eastern Hill Region (NEHR) is largely rural and principally agrarian. Likewise, economy of Meghalaya is also agrarian as 81% of its population depends on agriculture<sup>1</sup>. The state is not self-sufficient in food grains. It shows a deficit of 1.22 lakh tonnes per year to feed a population of 2.3 million<sup>2</sup>. The climate of the state is favourable to grow all types of the crops, viz. rice, maize, pulses, oilseeds, spices and fruits. Meghalaya is well-known for its pineapple, turmeric, ginger, black pepper, areca nut, betel vine and tapioca. The state also has ample potential to earn livelihood and income from minor forest produce. Hence, agriculture and animal husbandry are complementary in the region and do not compete with each other. Farmers grow crops and rear animals, thus ensuring economic advantages. Cattle and pigs are the major livestock. Cattle constitute 905,753 and pigs add up to 569,301 out of the total livestock population<sup>3</sup>. Meghalaya is predominantly a tribal state. The present functional literacy rate is 74.43, with males accounting for 75.95% and females 72.89% (ref 4). Exhibited backwardness of Meghalaya is coupled with inadequate information support and huge technological gap.

Hence application of Information Technology and Communications (ITCs) in the state may benefit the tribal farming community. Various programmes on Information Technology (IT) have been launched in Meghalaya. An agro-advisory system under m4agriNEI is an innovative initiative launched in order to make available right advisory as and when required by the tribal farmers of the state. The agro-advisory was launched in June 2012 and started functioning in 2013 at the Central Agricultural University at Umiam. The Agro-advisory system is an application that is designed to run on a mobile, web and toll-free IVRS. The farmers need to register under the advisory laboratory with their complete profile, including details of fields and households. The beneficiary must have a mobile phone and good connectivity. The advisory laboratory is equipped with trained agricultural experts (level-I) who can provide information to the farmers according to their requirements. Level-II experts are scientists in respective fields who provide answers to queries beyond the capacity of level-I experts. The system also allows dissemination of information through voice, text and images between the farmers and the experts. The advisory has an automatic information

repository system which stores all the necessary information like date, image and reply to a query; this can be accessed as and when needed for authentication.

A farmer/livestock rearer who lives in remote area with mobile connectivity is registered under the initiative (Table 1).

The registered farmers used their mobile phone to raise queries related to agriculture, animal husbandry, fisheries schemes, etc. using a toll-free number. A total of 5825 queries had been received and accordingly agro-advisory was provided to the registered farmers (Table 2). The queries made were about improved crop cultivation, diseases and pest management of different crops, source of seeds, livestock management, etc. The data revealed that the highest number of queries was about the project, followed

**Table 1.** Number of registered farmers under the agro-advisory

District	No. of registered farmers
Ri-Bhoi	4217
East Khasi Hills	1193
West Jaintia Hills	915
West Garo Hills	504
Total	6829

## SCIENTIFIC CORRESPONDENCE

**Table 2.** Domain-wise number of solutions provided by the agro-advisory

Domain	No. of solutions	Percentage share of total query
Enquired about the project	1805	30.98
Source of seeds	1005	17.25
Livestock management	675	11.58
Crop cultivation and improvement	635	10.90
Crop disease and pest management	633	10.86
Training	447	7.67
Scheme	404	6.93
Marketing	47	0.80
Fish cultivation	34	0.58
Nutrients and their maintenance	14	0.24
Total	5825	100

**Table 3.** Perceived accrual of benefits from the agro-advisory

Sector	Percentage
Animal husbandry	19.72
Progress in crops	18.80

by queries on the seed and its source, and livestock management. The apparent reason might be that such type of innovation is new to this region and hence farmers' curiosity about the agro-advisory was high. The mainstay for the rural population is rice, as it is only the major food-grain crop of the region. Farmers were keen to know about improved package of practices of rice cultivation for its commercial production and household food security. Likewise, livestock acts as the alternative to crops and daily source of

livelihood; as a result, farmers raised queries on livestock management.

Further, a study was conducted to assess the impact of the project on farmers. The study revealed that 19.72% and 18.80% farmers had benefited with the information provided on animal husbandry and agriculture respectively (Table 3).

Mobile based agro-advisory has helped improve livelihood and income of tribals by providing need-based information. Now farmers can easily gather information without visiting agricultural and block offices, in turn saving time and cost. The farmers getting information on various aspects of crop cultivation and animal husbandry. Thus, the free-of-cost mobile-based advisory has great scope to provide agro-advisory for improving the livelihood, food and nutritional security of tribal farmers.

Again financial sustainability is a major issue in extension. Hence linking this initiative with international and national organization is a better solution of sustainable agro-advisory for the end-users.

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