

Editorial

Weather and climate based farm advisory services

The management of weather and climate risks in agriculture has become an important issue due to climate change. The Intergovernmental Panel on Climate Change (IPCC) has highlighted multiple climate risks for agriculture and food security as well as the potential of improved weather and climate early warning systems to assist farmers. Wise use of weather and climate information can help to make better-informed policy, institutional and community decisions that reduce related risks and enhance opportunities, improve the efficient use of limited resources and increase crop, livestock and fisheries production. National Meteorological and Hydrological Services (NMHSs) have an important role to play in providing this weather and climate information to farmers, big and small. NMHSs need realignment, new resources and training in order to provide location and crop specific actionable weather and climate services and products that link in available technologies, best practices and go the last mile to reach all farmers

The sources of weather and climate-related risks in agriculture are numerous and diverse: limited water resources, drought, desertification, land degradation, erosion, hail, flooding, early frosts and many more. Effective weather and climate information and advisory services can inform the decision-making of farmers and improve their management of related agricultural risks. Such services can help develop sustainable and economically viable agricultural systems, improve production and quality, reduce losses and risks, decrease costs, increase efficiency in the use of water, labour and energy, conserve natural resources, and decrease pollution by agricultural chemicals or other agents that contribute to the degradation of the environment.

Weather and Climate based Farm Advisory Services meet the real-time needs of farmers and contribute to weather-based crop/livestock management strategies and operations dedicated to enhancing crop production and food security. They can make a tremendous difference in agricultural production by assisting farmers in taking the advantage of benevolent weather and in minimizing the adverse impact of malevolent weather.

The application of weather forecasts to generate crop advisories requires the definition of a spatial domain of validity and a temporal range as well as accuracy. Such are prepared containing past weather, forecast for 5-10 days ahead and a weather-based agrometeorological advisory that includes pest and disease information. The phenological stages of plant development are included in crop specific advisories to offer farmers guidance on cultural practices. All of the information is geared to help farmers maximize output and avert crop damage or loss. The Agromet Advisory Services also has an end-user group feedback mechanism to help the district/block level forecasters to tailor their services further.

The analysis and decision support information, for example, include information on how to manage pests when the forecast is for relative humidity, rising or falling temperatures or high or low winds; on how to manage irrigation through rainfall and various temperature forecasts; on how to protect crop from thermal stress when the forecast is for extreme temperature conditions, etc. It also helps farmers anticipate and plan for chemical applications, irrigation scheduling, disease and pest outbreaks and many more weather-related agriculture-specific operations from cultivar selection to dates of sowing, planting, transplanting, intercultural operations, harvesting and post-harvest operations. Survey conducted on the weather forecast used in Agromet Advisory Services in India, a large number of farmers of farmers responding agreed that numerical weather prediction was reliable, and asserting that they used the information in making decisions during different farming stages, from

sowing to harvesting. Such actionable weather information is consistently being delivered to farmers and productivity reports have shown significant increases in yields and with-it food availability and incomes.

Agromet Advisory Services use multi dissemination channels like mass media, group awareness campaigns and individual contacts etc. in order to reach more farmers. There is still a need for greater dissemination and to convince farmers of the sustainability of the positive impacts observed in the longterm. The group awareness campaigns are strengthening use of the services in farming communities and helping farmers to be more self-reliant in dealing with weather and climate issues that affect agricultural production. They are also permitting farmers to adapt better by improving their planning skills and management decision-making. A participatory, cross-disciplinary approach is required to deliver climate and weather information and enhance awareness in these user groups.

There is still a long way to go. Agricultural production and farmers' incomes can be further increased by reducing their losses and distress. It is challenging task for government, NMHSs as well as all the other stakeholders. NMHSs have great challenge of further enhancing the accuracy of weather forecasts and to make the Agromet Advisory Services more useful and demand driven by farmers. It may also venture into generating high-resolution medium range weather forecast and advisories that address livestock, poultry and fisheries issues. A priority for NMHSs and World Meteorological Organisation (WMO) is to continue to promote Agromet Advisory Services in South Asia countries. The benefits to farmers and the contribution to food security and national economic development are measurable. The return on investment is manyfold for governments that can put effective, tailored agrometeorological services in places.

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