Plant pest and disease forecasting for early warning in crop protection

Climate factors play a major role in determining the impact of several pests and diseases on rice crop yields. Based on this rationale, the ClimaRice II project has identified a potential for further use of existing weather data as input to a computerised system for plant pest and disease forecasting.

30.11.10 Trond Rafoss

The existing weather data that will be used as input to the system for plant pest and disease forecasting is from the Tamil Nadu Agricultural University (TNAU), which has under the National Agricultural Development Programme (NADP) established a network of 224 Automatic Weather Stations (AWS) throughout Tamil Nadu state. The primary use of the data from the AWS has until now been used as input to a weather forecasting model, which output weather forecasts along with the past measured weather data and are being disseminated to farmers and to the public on the web page http://www.tawn.tnau.ac.in/.

Initially, the focus will be on paddy blast disease, caused by the fungal pathogen *Magnaporthe grisea*, and insect pest paddy leaf mite *Oligonychus oryzae*. The assumption is that farmers access to pest and disease warnings, either directly by mobile internet/SMS, or through advisory service officers, enables improved targeting of crop protection measures which both can give increased crop yield and quality, as well as reduced pesticide use/or timely use and less production costs to farmers. The benefits for the public of a working system are reduced risks from pesticides in food and environment. Moreover, such a system is also implicitly addressing the climate change impacts on the pest and disease situation in rice. Currently, the scientific literature is reviewed for availability of forecasting models and climate response information for the selected pests. The next steps of development in the project will be to implement selected models to operate against all weather stations of TNAU and put the dissemination service online.

Using mobile technologies for plant pest risk management

Bioforsk researchers recently published a paper in the journal Computers and Electronics in Agriculture reporting from use of new mobile technologies for plant pest risk management.

A central topic in this work was the use of open information technology standards, which significantly reduced the implementation and operation costs. The potentials in this technology are now being assessed for use in the Climarice II project. This technology should have a great potential for any needs involving location-based remote-central information exchange.