

# "PRE-EMPTIVE FARMING"

## with field-specific weather

**W**eather is 80% of farming. And plant physiology is 100% of how crops respond to that 80%. In the first few years of the 2000 decade, more and more crop, pest and disease models will combine with field-specific weather to open new possibilities for "pre-emptive farming," says Scott Charbo, President of *mPower*<sup>3</sup> Inc.

"Pre-emptive farming is where you use ag Information Technology (IT) to monitor the field-specific weather on the crop and also what is happening in the development of the crop as a result," Charbo explains. "With this knowledge you can take action early enough to alter negative outcomes and stimulate positive outcomes. This is possible because you're using IT to perceive what is happening within the crop even before many scouts detect a change. Pre-emptive farming is already happening, but we're just at the beginning."

The new ag IT has brought weather monitoring, forecasting and data collection down to the field level. The *mPower*<sup>3</sup>™ weather is provided by WSI Corporation, the nation's leader in weather information. WSI collects, processes and enhances the data collected from radar stations, satellites, and more than 1,500 weather stations across the United States. This network of weather data collection provides very detailed weather conditions pinpointed to the exact field, not just in large regions or entire states.

"No ag product matches the quality and depth of the weather provided by WSI to growers with *mPower*<sup>3</sup> and *nAble*™, which is our weather package without the full database and spatial analysis," says Charbo.

The present *mPower*<sup>3</sup> weather feature includes field-specific information on more than a dozen weather variables, including precipitation, growing degree days, evapotranspiration, humidity, hourly forecasts for wind speed and thunderstorms. This information is available in tabular and chart formats. Regional weather includes NOWrad and NEXRAD radar, storm and inversion forecasts, longer term precipitation and temperature forecasts. The weather package also includes field alerts regarding forecasts for severe weather, plus Crop Moisture Index, Drought Index and average frost dates. The site-specific weather enables the use of the *mPower*<sup>3</sup> Irrigation Worksheet to coordinate crop needs and weather so just the right amount of irrigation goes on.

As a result of the WSI weather, *mPower*<sup>3</sup> is able to run crop production models, and also models for diseases, pests and weather extremes. These automated systems monitor what is happening in each enrolled field. When conditions begin to develop for emergence of an insect, fungus, weed or other negative event, an alert is posted

to the subscriber's web site tagged to that field. When conditions ripen further, the alert becomes a warning. Charbo cites two examples.

■ Seed company production managers in Illinois received warning of a black cutworm flight two days earlier with *mPower*<sup>3</sup> than with their own systems.

■ Similarly, *mPower*<sup>3</sup> alerts were triggered in a Michigan grower's computer saying apple scab and fire blight onset was imminent in his orchard. Wetness meters also were in the field and similarly sounded an alarm. The difference: with those meters you must be in the field on the right day at the right time and have your computer along to download the information. With *mPower*<sup>3</sup> or *nAble*, you just turn on your computer at home.

*mPower*<sup>3</sup> also has advantages over traditional in-field weather stations: no capital investment, no maintenance, no fiddling with calibrations.

*mPower*<sup>3</sup> now has activated more than 80 pest/disease alerts and warnings that are crop and geography specific to help the grower time scouting for maximum effectiveness, and launch preventive control measures to minimize crop damage, says Charbo.



### Production Models

The field-specific crop weather in ag IT also allows crop production models developed by commodity organizations, universities and the USDA to run at their most effective levels.

Models use the *mPower*<sup>3</sup> information about the field, crop, inputs, and historical and current weather data, and combine that with scientific data and inferences. This information predicts such variables as yield, pest and disease thresholds, optimum harvest, and other critical management options.

*mPower*<sup>3</sup> already offers crop production models for corn, soybeans, seed corn and wheat (spring and winter, red and white, hard and soft, and durum).

The first year of the New Century is expected to see production models added for rice and potato crops, Charbo says. A new cotton production model is in development as well, as are models for citrus, tree fruit, and major vegetable crops.

### Field-level warnings

Ag IT makes weather alerts and warnings possible at the field level. In *mPower*<sup>3</sup> and *nAble*, growers receive alerts in advance regarding temperatures below



*Regardless of where you live, mPower*<sup>3</sup>™ delivers the most accurate, advanced regional and field-specific weather data and forecasts.