



Utilization of Live Localized Weather Information for Sustainable Agriculture

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Localized, real-time weather information is vital for day-to-day agronomic management of all crops. The challenge for agriculture is twofold in that local and timely weather data is not often available for producers and farmers, and it is not integrated into decision-support tools they require.

Many of the traditional sources of weather information are not sufficient for agricultural applications because of the long distances between weather stations, meaning the data is not always applicable for on-farm decision making processes. The second constraint with traditional weather information is the timeliness of the data. Most delivery systems are designed on a one-hour time step, whereas many decisions in agriculture are based on minute-by-minute weather conditions. This is especially true for decisions surrounding chemical and fertilizer application and frost events.

This presentation will outline how the creation of an agricultural mesonet (weather network) can enable producers and farmers with live, local weather information from weather stations installed in farm/field locations. The live weather information collected from each weather station is integrated into a web-enabled decision support tool, supporting numerous on-farm agronomic activities such as pest management, or dealing with heavy rainfall and frost events. Agronomic models can be used to assess the potential of disease pressure, enhance the farmer's abilities to time pesticide applications, or assess conditions contributing to yield and quality fluctuations. Farmers and industry stakeholders may also view quality-assured historical weather variables at any location. This serves as a record-management tool for viewing previously uncharted agronomic weather events in graph or table form. This set of weather tools is unique and provides a significant enhancement to the agronomic decision-support process.

Direct benefits to growers can take the form of increased yield and grade potential, as well as savings in money and time. Pest management strategies become more efficient due to timely and localized disease and pest modelling, and increased efficacy of pest and weed control. Examples from the Canadian Wheat Board (CWB) WeatherFarm weather network will be utilized to illustrate the processes, decision tools and benefits to producers and farmers.