



Applying Research Solutions to Agriculture and the Environment

Press Release

Plant Root Simulator (PRSTTM) Technology recognized by Natural Science and Engineering Research Council (NSERC):

November 15, 2004

On October 28, 2004 in Waterloo, ON, the University of Saskatchewan and Western Ag Innovations Inc. were presented with the NSERC Synergy Award for developing and commercializing a new way of measuring the soil nutrients crops need. The Plant Root SimulatorTM, or PRSTTM - probe for short, was developed and patented by the University of Saskatchewan in 1992. The key to this probe is a special plastic membrane that can adsorb the nutrients directly from the soil in much the same way as plant roots do. Consequently, “seeing what the plant sees” gives this method of soil testing a much-improved basis to manage fertilizer requirements and crop yields.

Western Ag Innovations Inc., recognizing the potential in this new soil test, licensed the technology from the U of S and built a computer model to help farmers interpret the test results. This computer model, called the PRSTTM Nutrient Forecaster, can calculate fertilizer requirements and best economic returns to applied fertilizer for any given combination of crop type, rainfall, heat condition, and soil texture.

In 1997 a new company, Western Ag Labs, was started to deliver the PRSTTM technology to farmers in western Canada. Business partners Dale and Leslie Hicks of Outlook, SK took on the formidable task of informing farmers that a new soil testing technology was available. Historically, soil testing has had poor adoption by farmers. Conventional chemical extraction methods of soil testing, first developed in the 1960's, are used on only seven percent of farm fields each year. The single biggest reason for this low adoption was the fact that these chemically-based soil tests were insensitive to annual changes in soil nutrient supply. Thus, a grower who tested the same field on repeating years would see little or no difference in test levels or recommended fertilizer rates. Overcoming this perception that “soil testing was only a guideline and didn't really work” was slow. Many growers needed to see the PRSTTM technology work in their own fields before they would trust this new technology. To address this need for on-farm validation of the PRSTTM technology a new service delivery method using Field Service Representatives was initiated.

A University of Saskatchewan study showed that 15% of the College of Agriculture grads return to operate their own farms. Like most other farm enterprises, these growers often were taking off-farm jobs in the fall and winter months. Western Ag Labs developed training materials to enable this labour pool to assist other farmers in utilizing the PRSTTM technology to plan crop nutrient needs. The blend of ongoing training, time after harvest to get soil samples, and access to fellow growers over the winter months to plan crop nutrition, were key ingredients in this delivery model. As well, the 26 commissioned Field Service Representatives had their own farms as a proving ground for the PRSTTM technology. The success of this innovative service



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delivery method is indicated by the growth in acres tested with the PRS™ technology annually. This spring an estimated 1.5 million acres will be fertilized based on the knowledge delivered by these Field Service Representatives. The service costs \$1.50/acre with a minimum farm booking of 300 acres. This cost of assessing the soil nutrient supply and planning the best crop type to grow is relatively small compared with the cost of fertilizer input.

Like any technology development story, there are numerous individuals that have had an impact on the development and application of the PRS™ technology. It is impossible to name each. However, the institutions that were key contributors should be recognized by name. Thanks goes to: the University of Saskatchewan, Saskatchewan Agriculture Food and Rural Revitalization, Saskatchewan Research Council, Potash and Phosphate Institute of Canada, Western Diversification, Innovation Place and the Saskatchewan Advanced Technology Association.

For more information on the NSERC Synergy award see:

<http://www.nserc.gc.ca/news/2004/p041028bio.htm#saskatchewan>

For more information on the PRS™ technology and service delivery to farmers see:

<http://www.westernaglabs.com>

For more information on the history of the PRS™ technology for Soil Research and Western Ag Innovations Inc. see:

<http://www.westernag.ca/innov/about.html>

For more information on the University of Saskatchewan's involvement and comments on the award see:

<http://www.usask.ca/events/news/articles/20041028-1.html>

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