

SPORTS TURF MANAGER

... for safe, natural Sports Turf

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What's on the Horizon?

DR. R.W. SHEARD DISCUSSES NEW GPS TURF TECHNOLOGY

Over the past decade, GPS (Global Positioning System) has been promoted for Variable Rate Application (VRA) of fertilizer on crops, including turf. Based on a large number of soil test data to develop fertility maps, computer-controlled rates of application of N, P and K are applied using GPS to locate the applicator machine relative to the fertility map. This complex technology is reported to reduce fertilizer use, avoid pollution and provide very uniform growth.

The technology for VRA based on GPS is expensive, resulting in the application being conducted primarily by commercial applicators. Continued monitoring of the fertility of the turf area is required to upgrade the fertility maps. The most critical disadvantage, however, is the nitrogen rate. There is no generally accepted nitrogen soil test for turf on which to base the rate. Rather the turf manager has been advised to adjust the fertilizer applications for nitrogen to provide the colour and density that he



Optical sensors assess nitrogen deficiencies and spray fertilizer where needed. *Picture courtesy of NTech Industries, Inc. and Oklahoma State University (published in CAAR Communicator, Dec. 2001, Vol. 22, No. 5).*

desires. In general, if the colour is satisfactory, density will be okay. Therefore if a method of rating the colour is available, VRA systems can be developed for precise application of nitrogen according to the appearance of the growing crop.

A recent article in *CAAR Communicator* (Canadian Association of Agri-Retailers) reports the development of a VRA system based on light reflection or colour

of the plant. From light sensor readings, the amount of nitrogen the applicator should apply is determined as it passes over the plants at speeds up to 25 kph. The equipment, developed by Oklahoma State University, in conjunction with NTech Industries, Inc. is now available and a demonstration unit, known as the GreenSeeker, applied nitrogen to winter wheat this year in the US. Units for the application of nitrogen to cereals are expected to be operating in western Canada in the spring of 2003.

Sensors monitor the colour on a space about two-feet by two-feet. At this stage of the development of the unit, nitrogen is applied as a liquid. Using a three nozzle system, one of seven different rates of nitrogen can be delivered precisely to the plant leaf.

By the end of this decade, you may be calling your fertilizer dealer and saying "Give me Colour 7 application on fields 1 to 4 and a Colour 4 application on fields 5 to 10." ♦

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