

FARMING WITH VERIS DATA
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Soil type diversity within cotton fields mandates that some type of site-specific management (SSM) be used to enhance profitability. The use of variable rate technology, especially in the application of fertilizer and lime, is the simplest and most cost-effective way to begin with SSM.

Zone management of inputs is the most efficacious way to approach SSM. A management zone is a portion of a field that expresses a homogeneous combination of yield influencing factors for which a single rate of specific crop input is appropriate.

To determine these zones, consultants and producers can use USDA soils maps, yield maps, satellite or aerial imagery, Veris data, etc. Veris is a tool for measuring the electrical conductivity of the soil at various depths. The unit consists of six coulters, two for sending out electrical or electromagnetic pulses and four for collecting the voltage drop from the source. Two of the receiving coulters are placed close to the source coulters for collecting topsoil data and two are further away for collecting data from 1 – 3 ft deep. Electrical conductivity has long been used to identify contrasting soil properties for environmental and geologic purposes. It often correlates to soil properties affecting productivity – clay content, texture, CEC, subsoil characteristics, etc.

Veris has certain advantages over imagery. Veris can measure depths up to three feet, while imagery can only capture what is seen above. Topsoils are not always the same depth. And subsoils are not always the same types. Nematodes and nutrients vary below the soil surface. Cloudy weather can affect imagery. Imagery has certain advantages over Veris. Veris data cannot be collected from wet soils, extremely dry soils, or when the existing crop is present. And the amount of acreage that Veris can cover is limited. Imagery can be done on thousands of acres with one picture. Both are very useful tools for a basis of SSM.

Harold Lambert, an independent agricultural consultant from Innis, Louisiana, first introduced me to the Veris rig. We leased the unit from Harold in 2000 and “Verised” our first 750 acres. We collected the data and utilized the services of Maurice Wolcott, LSU expert on precision agriculture, to write prescription applications for nitrogen for the 2001 crop.

We purchased an IPAQ handheld computer (\$400), Navman antenna (\$300), and TeeJet radar controlled spray monitor (\$2200). We downloaded the prescription application into the IPAQ and made our first variable rate application. The results were astounding. We reduced Pix applications by 75% and appeared to enhance yields by 10 – 20%. We did, however, have to “ground truth” or observe on a zone by zone basis the effects of our application rates. There is little or no data available for determining exactly how much of any input may be needed based on Veris data. Adjustments were made in the prescriptions that were written for the 2002 and 2003 crops.

We have currently “Verised” over 2500 acres for five different customers and expect that the need for more Veris rigs will increase as the technology is understood.

We expect future savings through more precise applications of nitrogen, potash, phosphate, lime, growth regulators, nematocides, harvest aids, and perhaps insecticides and fungicides. Variable rate seeding rates is currently available, and variable rate seeding depth coming. All will play an integral part in making the Veris data we collected a major factor our overall economic viability.