DEMONSTRATION OF ADVANCED CONSERVATION-TILLAGE EQUIPMENT AND TECHNOLOGIES

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ABSTRACT

A number of new types of conservation-tillage equipment will be shown and field demonstrated. These will include:

Automatic guiding systems (Trimble & John Deere)**:** The automatic guidance or automatic steering of tractors will free the operator from the steering task to perform other tractor operations. With this system, a Real Time Kinematics (RTK) GPS-based navigation system automatically steers the tractor along a precise path with centimeter-level precision. An in-cab display/computer lets the driver quickly define implements, set up field patterns, and view operating parameters. The computer stores the information for each field which makes it possible to subsoil in the fall, return in the spring and plant precisely on the subsoil furrow, cultivate or apply pesticides, and harvest in the fall using the same traffic patterns from the previous years. This could eliminate the need for annual deep tillage, increase productivity, save energy and time, increase application accuracy, and enhance safety.

Rolling of cover crops (Dr. Randy Raper): The use of cover crops has contributed to the overall success of conservation tillage systems for many producers. Flattening and crimping cover crops using round drums with attached blunt blades offer multiple benefits. First, the roller is equally effective as chemical herbicides at terminating the cover crop. Second, the energy required for rolling is significantly reduced compared to that of mowing. Third, a flat mat of cover crop is created that lies in the direction of travel. Producers using seeders operating parallel or slightly off parallel to this direction have been very successful in obtaining proper plant establishment.

Veris Mobile Sensor Platform, EC and pH meter: The soil pH typically varies more than a sample taken every 330 ft. (2.5 acre grid) can capture. The Veris Mobile Sensor Platform (MSP) features an on-the-go automated pH sensing system that maps pH variability in a field for precision lime applications. The MSP produces between 5 and 10 pH samples per acre. The Veris MSP is equipped with both the EC meter and the Soil pH Manager which collects soil EC data for management zones and yield goals while mapping soil pH.

Wilkinsons (Rotocult) Horizontal Cultivator: The Horizontal Cultivator is used for soil preparation prior to and after planting. The Horizontal Cultivator uses a revolutionary cutting action to prepare agricultural and horticultural land using minimum tillage techniques. The cutting action is horizontal instead of the vertical action used by most existing agricultural field preparation implements. The result is a one-pass destruction and mulching of old plant material to a maximum depth of 20 in (long blades) leaving prepared ground ready for new plantings. The cultivator also mulches any ground cover, weed and deposits it 6 in below the surface, reducing weed growth during early plant growth.