EVOLUTIONARY APPS IN AGRICULTURE

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Abstract

The farming and ranching industries are undergoing a transformation, with innovative technologies being developed to improve the way agricultural enterprises are managed. Over the course of the last two years, a number of agriculture apps have been introduced with features like field mapping, planting calculations, spray logs and soil sampling tools.Precision Agriculture has evolved from a concept a half a decade ago into an emerging technology today.With an ever growing world population subject to famine, natural disasters, disease and conflict, changes must be made in agriculture to meet world concerns while remaining committed to sustaining the natural resources need for future production. Precision Agriculture is often described as the next great evolution in agriculture.

Key words:agriculture apps, evolution, field mapping, technologies, transformation.

INTRODUCTION

The purpose of this paper is to determine what precision agriculture is to offer ideas on expanding the concept to a more useful solution, to describe how Global Positioning System (GPS) and mobile mapping are integral components of decision-based precision agriculture and provide sources for additional information.

MATERIALS AND METHODS

Most management strategies for precision agriculture match resource applications and agronomic practices with soil properties and crop requirements as they vary across a site. Sometimes referred to as site-specific or prescription application and generally includes:
Soil sampling - the ability to determine the physical characteristics and the variability of the soil in the field.
Variable rate application - the ability to precisely apply the required type and quantity of nutrient of chemical needed to specific areas of the field.
Yield monitoring - the ability to accurately measure the yield and simultaneously record the location in the field.
Each of these components is necessary, but alone or together does not constitute precision agriculture.

RESULTS AND DISCUSSIONS

Simplot Spray Guidefrom Plant Health Technologies, is designed to assist agricultural applicators, crop advisers and growers with the proper tank mixing sequence of crop protection products. Spray Guide also captures product use rates and application information and conveniently maintains comprehensive, accurate Spray Logs for easy record keeping. Following the proper mixing sequence helps users prevent product incompatibilities and can save applicators time and money by avoiding product loss and sprayer clean-out problems. Spray Guide provides the tank mixing sequence for over

1,300 common active ingredients and their tank mix partners.

Included is a database of over 1.300 crop protection products from over 17 manufacturers.Mixing orders can contain up to 19 products from the following categories:Herbicides (includes PGRs and Defoliants), Fungicides (includes Bactericides),Insecticides (includes Miticides and IGRs),Adjuvants, Foliar Nutrition.
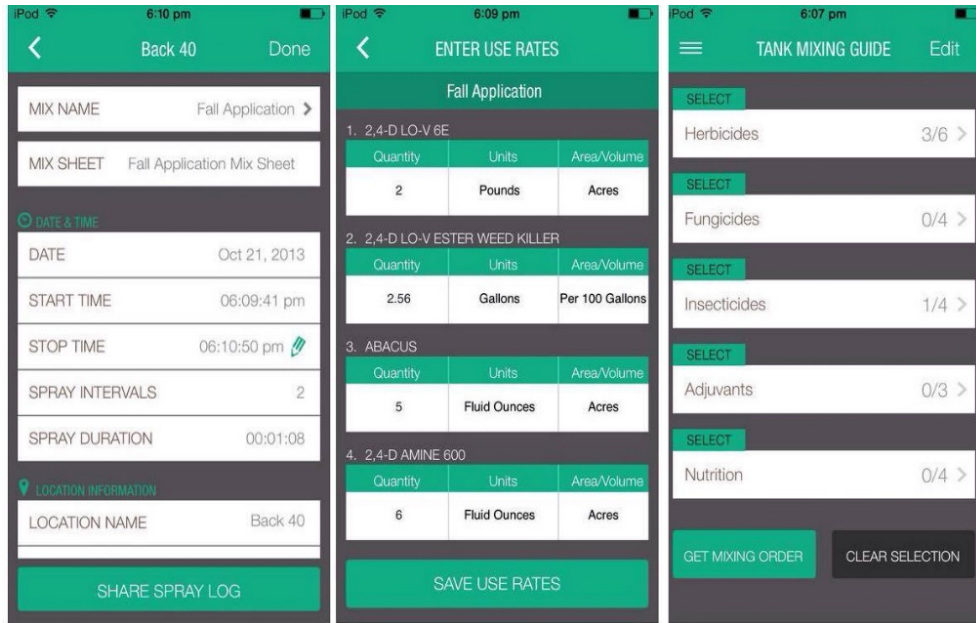

Figure 1. Simplot Spray Guide

Figure 2. Connected Farm

Connected Farmchange the way you use GPS for field mapping and scouting applications in agriculture. Trimble's Connected Farm scout app uses your smartphone or tablet for mapping field boundaries, locate irrigation pivots, marking flags and entering scouting information for points, lines and polygon areas. Scouting attributes include an extensive list of weeds, insects and diseases, and allows you to log the severity of a problem, crop conditions and more. Photos can be captured and integrated with your scouting attributes. The Connected Farm scout app is also compatible with Trimble's GreenSeeker handheld crop sensor. Start by entering NDVI (Normalized Difference Vegetation Index) readings from the handheld so that the app can automatically calculate the rate of Nitrogen. The geo-referenced location of the NDVI point is also saved in the app. The app is flexible to use with any crop such as corn, wheat, beans, cotton, vegetables and more. All data is sent via the cell of WI-FI connection to Connected Farm (www.connectedfarm.com) where you can view, sort and print data online. The app is also compatible with Farm Works Software. Onsite is a cloud-based, mobile and desktop app for the agricultural industry that assists with file management and communications to and from the field by socially connecting people. Onsite is not intended to replace your current precision as software systems, but to complement and improve the efficiency of these solutions. In fact, we are already connecting into many of the agronomic and precision as software packages available today.When enabled, this app will utilize your GPS in the background. Continued use of GPS running in the background can dramatically decrease battery life. You can disable this option within the application.

AgFleet, developed by ZedX Inc., is a powerful decision-support system used to manage the productivity of more than 15 millions acres of agricultural land in North America and continues to meet the ever-changing needs of growers, dealers and other professionals in the precision agriculture space.

AgFleet facilitates multiple processes for generating effective soil treatment plans. Each module within the framework is specifically designed to processinformation and data such as importing soil characteristics (Field Sampler), verifying irrigation needs (Irrigation Scheduler), managing costs associated to applying fertilizer and pesticide treatments (Record Keeper) and evaluating outcomes and recommendations for soil treatment (Field Sampler/Zone Maker).

JDLink™ is John Deere's telematics system designed for customers and managers who desire to take their operation to the next level of productivity and efficiency without leaving the office! Using JDLink™ information to optimize a machine is no different than pulling a soil sample to identify what nutrients are needed to produce a high yield. Using the power of JDLink™ can optimize productivity, increase uptime, and boost profits with JDLink™ information all from a laptop, desktop, or mobile device.

Keeping the overview over your fleet has never been easier and faster with this brand new app in your pocket! Monitoring and managing your machines outside the office within a couple of seconds is simple as never before!

Agrivi mobile application lets farmers get fast insight into their farming activities and register key activities right from the field. It is used as an extension and supporting feature to our fully featured web farm management solution. New mobile application users should setup their farms through our web application to get insight into their farming via mobile app. Agrivi farm management software helps farmers to take control over their plantations, improve productivity and increase profitability. Based on agricultural knowledge base of best-practice

production processes for over 60 crops, Agrivi guides farmers, improuves their productivity and increases productivity.
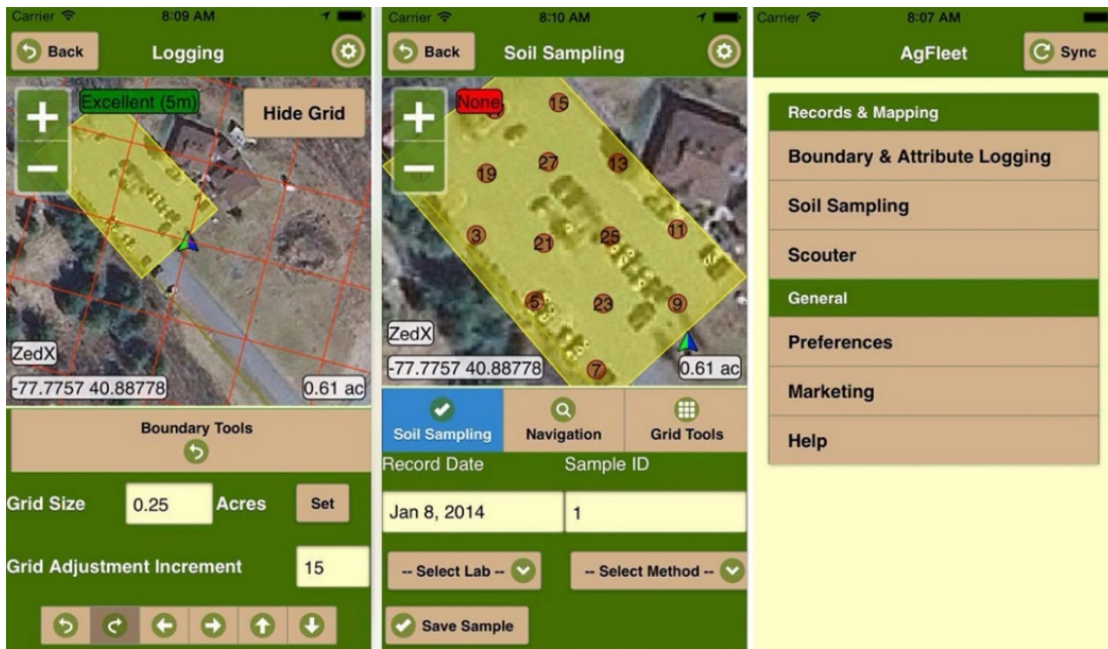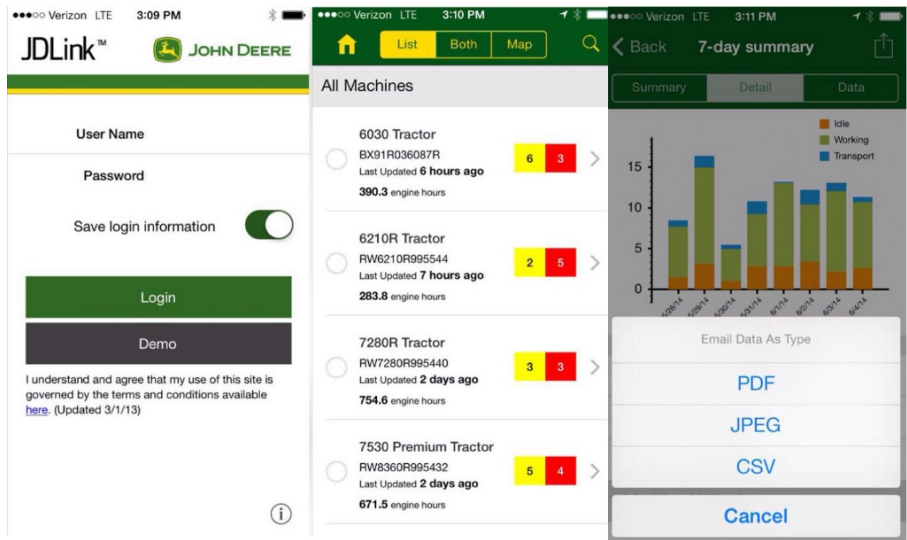

Figure 3. Onsite

Figure 4. AgFleet

Figure 5. JDLink

Figure 6. Agrivi

CONCLUSIONS

Precision agriculture is an agricultural system that has the potential of dramatically changing agriculture in this 21st century. Precision agriculture lends to most agricultural applications and can be implemented at whatever levels are required. Precision agriculture is based on information technology, which enables the producer to collect information and data for better decision making. Precision agriculture is a pro-active approach that reduces some of the risk and variables common to agriculture. Precision agriculture is moreenvironmentally sound and is an integral part in sustaining natural resources.

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