

A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. In the foreground, several ripe, bright orange fruits are visible on the branches.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

PRESENTATIONS

**Buena Vista Palace Resort
Lake Buena Vista, FL**



A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. In the foreground, several ripe, bright orange fruits are visible on the branches, surrounded by green leaves.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

360 Yield Center

**Buena Vista Palace Resort
Lake Buena Vista, FL**



In-Season Nitrogen, Nutrition and Plant Health Management

Abstract

Ron Lloyd

360 Yield Center, 300 W. Queenwood Rd., Morton, IL 61550

Evolving Technology

Better nitrogen management recognizes that corn uses 75% of its nitrogen after V10. 360 Yield Center believes in a base-plus approach: apply a base rate, then measure the nitrate available in the soil and apply only enough nitrogen to finish the crop and reach yield goals. 360 SOILSCAN is the in-field, real-time nitrate tester that provides lab-quality results for more speedily available information for your clients. Combine this with exclusive late-season application and plant-health tools from 360 Yield Center for a complete nutrient management system. Please stop by our booth for a hands-on demonstration.

360 Yield Center

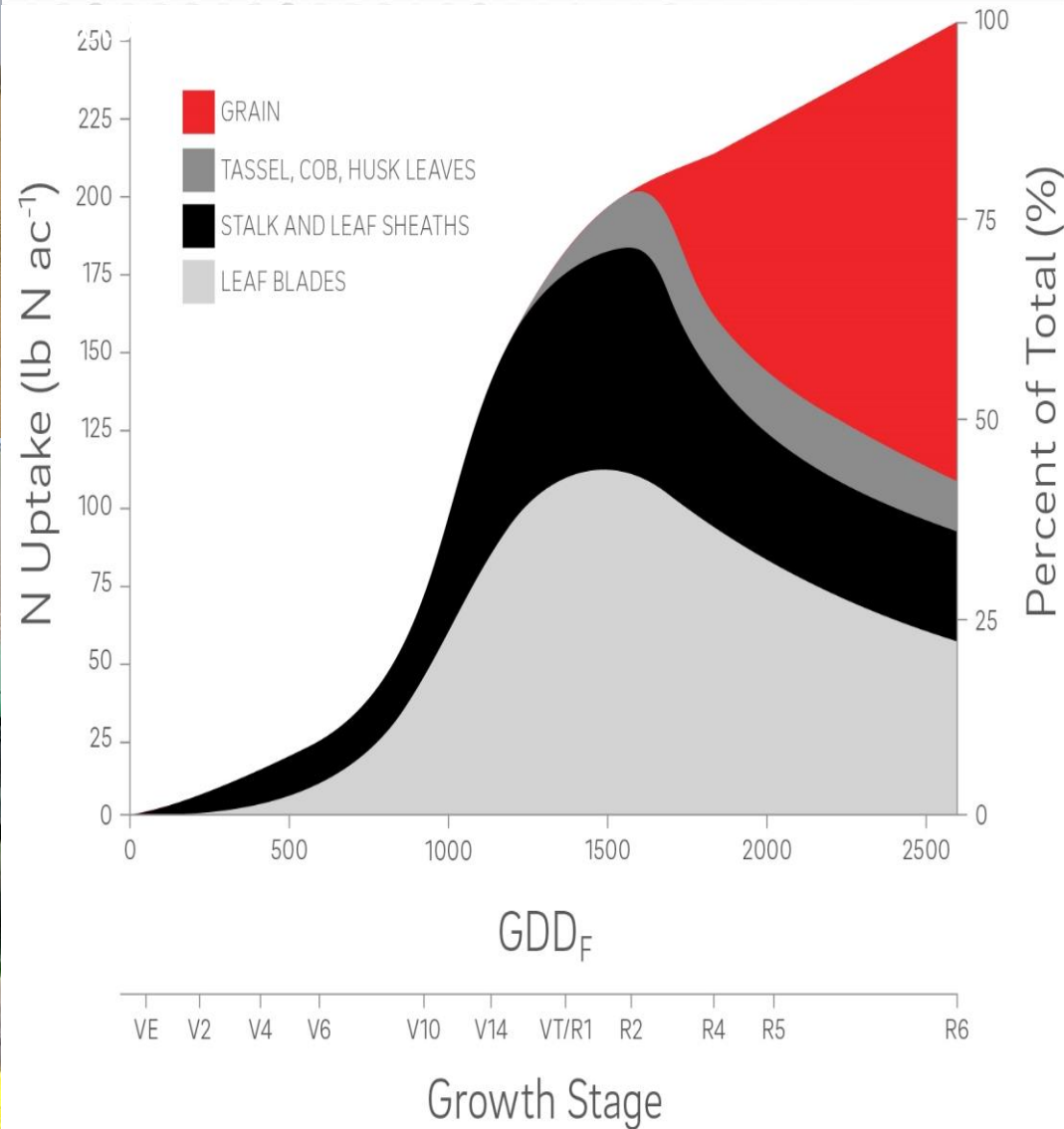
**Buena Vista Palace Resort
Lake Buena Vista, FL**





360 Yield Center Overview

Ron Lloyd



SYSTEMS APPROACH ELEVATES THE VALLEYS!!



**Spring Preplant N fb 360
Y-DROP**

Corn on Beans

**Fall NH3 fb 360 Y-
DROP**

Corn on Corn

**Spring Preplant N fb
360 Y-DROP**

Corn on Beans

**Spring
Preplant N
Corn on
Beans**

Measure with 360 SOILSCAN







A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. In the foreground, several ripe, bright orange fruits are visible on the branches, surrounded by green leaves.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Bayer CropScience

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Usage of Sivanto™ Insecticide in Sustainable Pest Management Programs for the Control of Invasive Aphid Pests in Sorghum and Alfalfa

Abstract

Frank Ritemann

Bayer CropScience, 2 TW Alexander Drive, Research Triangle Park, NC 27709

EMERGING Technology

Sivanto™ insecticide achieved U.S. federal registration in the beginning of 2015. It is currently the only federally registered pest management solution with a full section 3 label to effectively control the sugarcane aphid that has recently spread across sorghum acres all over the U.S. Additionally Sivanto is proving to be an important tool for alfalfa growers to manage different aphid species, most notably the difficult to control blue alfalfa aphid. Sivanto provides long-lasting control (up to 3 weeks) from these damaging pests while helping preserve beneficial insects thereby minimizing economic losses for sorghum and alfalfa growers.

Bayer CropScience

**Buena Vista Palace Resort
Lake Buena Vista, FL**





Science For A Better Life

Product Introduction

Frank Ritemann



Orlando, FL | January 28, 2016

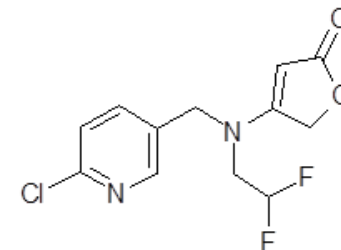


Product Overview



- ▶ Active Ingredient: Flupyradifurone
- ▶ Chemical class: **Butenolide**
- ▶ Registration Status: EPA registered since Jan 15th, 2015
- ▶ Mode of action: Nicotinic acetylcholine receptor (nAChR) agonist
(IRAC Group 4D)
- ▶ Pest Spectrum: **Aphids**, Leafhoppers, Whiteflies, Scales, Psyllids, *Scirtothrips*
- ▶ Key Crops: Tree Fruit, Nut & Vine, Vegetables, **Sorghum**, Cotton, **Alfalfa**
- ▶ Application Methods: Foliar and Soil

- ▶ Biological Characteristics:
 - ▶ Rapid and strong **feeding cessation** effect
 - ▶ Excellent **honey bee safety profile**
 - ▶ **Reduced risk** to many beneficial arthropods





Aphid control in Alfalfa



SIVANTO™

Untreated



Common aphids:

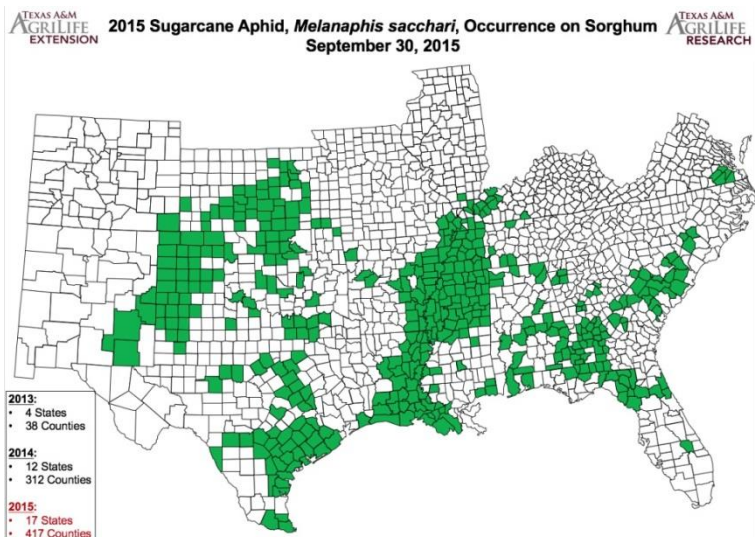
- **Blue Alfalfa Aphid**
- Cowpea Aphid
- Pea Aphid
- Spotted Alfalfa Aphid

Aphid management toolbox:

- **Biological controls**
- Cultural controls
- Host plant resistance
- **Insecticides**



Sugarcane aphid in sorghum



Best Management Practices:

- Active scouting
- Local economic thresholds
- Spray coverage
- Beneficial insects



Untreated



SIVANTO™





**Join us for more
information**

#303

A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. Several ripe, yellow-orange fruits are visible on the branches in the foreground.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

EAG

**Buena Vista Palace Resort
Lake Buena Vista, FL**



In Vitro Simulated Gastric Fluid Digestibility Assay for Recombinant Proteins to Support Global Regulatory Submissions

Abstract

Elizabeth Butala, Ph.D., Melissa Taylor, Ph.D., and LaHoma Easterwood, Ph.D.
ABC Laboratories (subsidiary of Evans Analytical Group)
4720 Discovery Drive, Columbia MO 65201
Evolving Technology

As part of the regulatory requirements for testing novel transgenic food proteins for allergenic potential, a digestion assay in simulated gastric fluid (SGF) is typically required. ABC Laboratories and Dow AgroSciences have demonstrated that the current methodology is transferable among laboratories. ABC performs this assay and can quickly and reliably test the digestibility of recombinant proteins for regulatory submission dossiers, presenting a unique opportunity to combine the SGF assay with other assays in a controlled and regulated environment.

EAG

**Buena Vista Palace Resort
Lake Buena Vista, FL**



In Vitro Simulated Gastric Fluid Digestibility Assay for Recombinant Proteins to Support Global Regulatory Submissions

Elizabeth Butala, Ph.D.^{1,2}, Melissa Taylor, Ph.D.^{1,2}, Barry
Schafer³, Shawna Embrey³, and LaHoma Easterwood²

²ABC Laboratories, Inc. & ³Dow AgroSciences

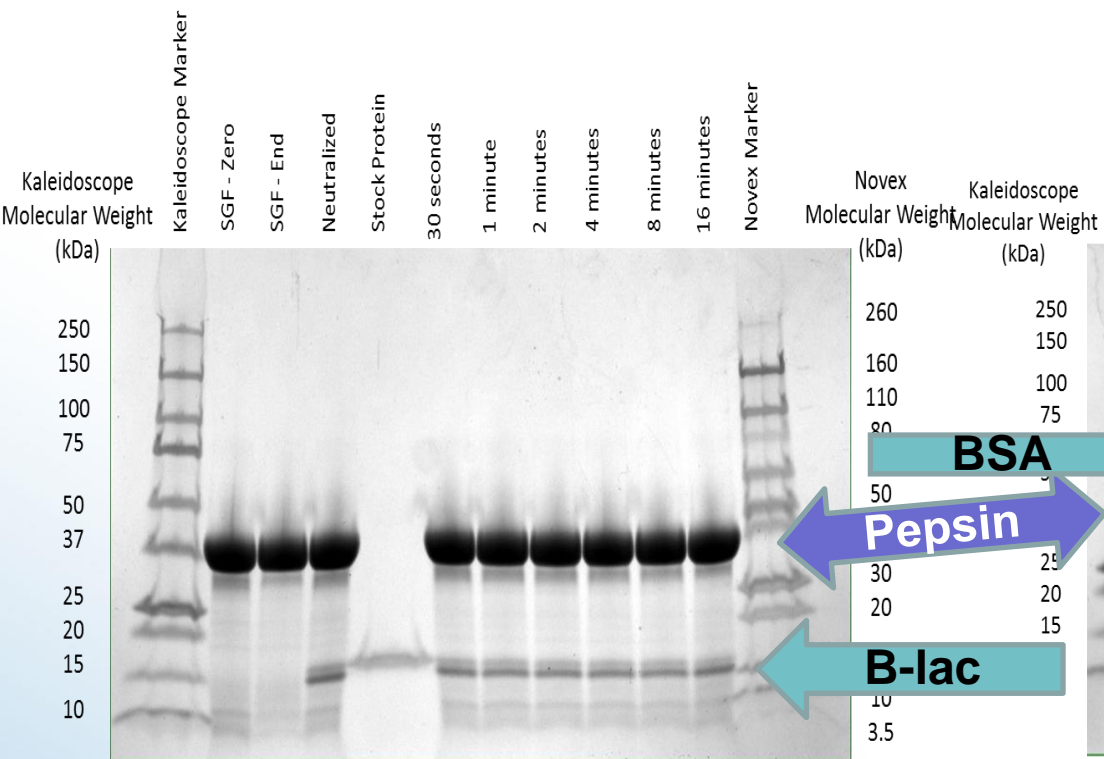
¹ Both authors contributed equally to this work.

Evolution of SGF Assay

- Regulatory agencies request several tests to assess safety of transgenic crop
- SGF Assay one component of allergenicity assessment
- Assay tests digestion of protein in simulated gastric fluid

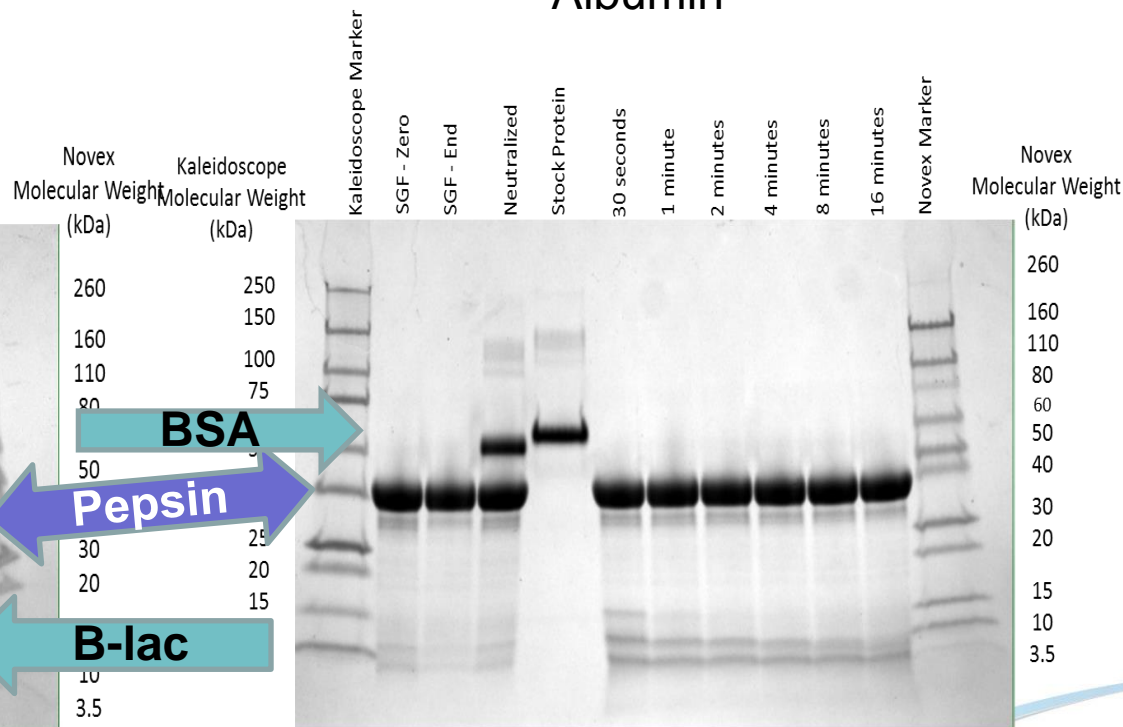
Proof of Concept – Negative and Positive Controls

Negative Control - β -lactoglobulin A



Stable throughout all time points of assay

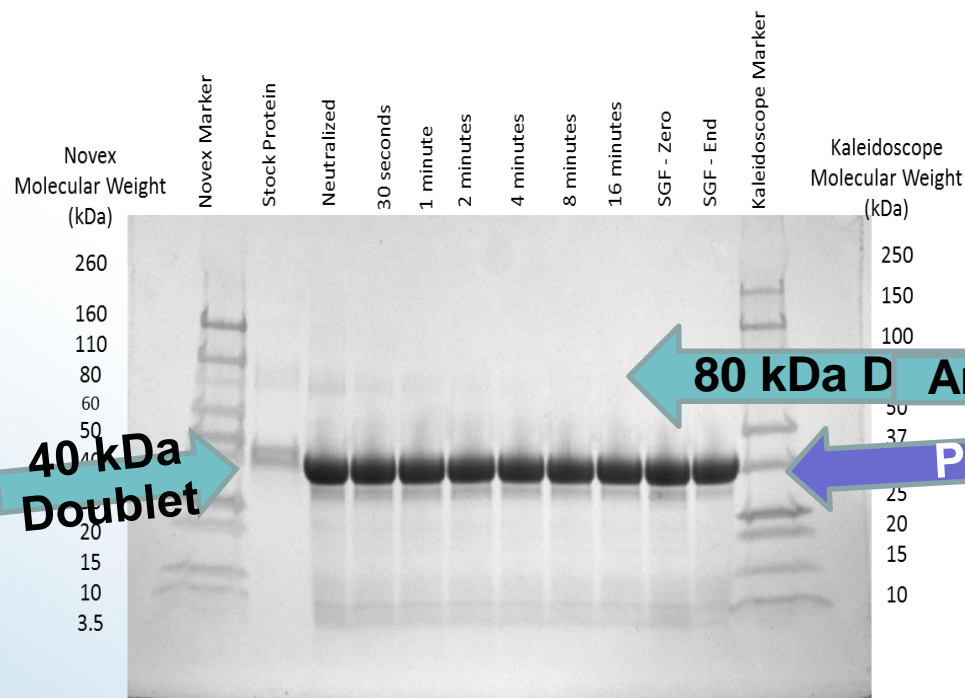
Positive Control - Bovine Serum Albumin



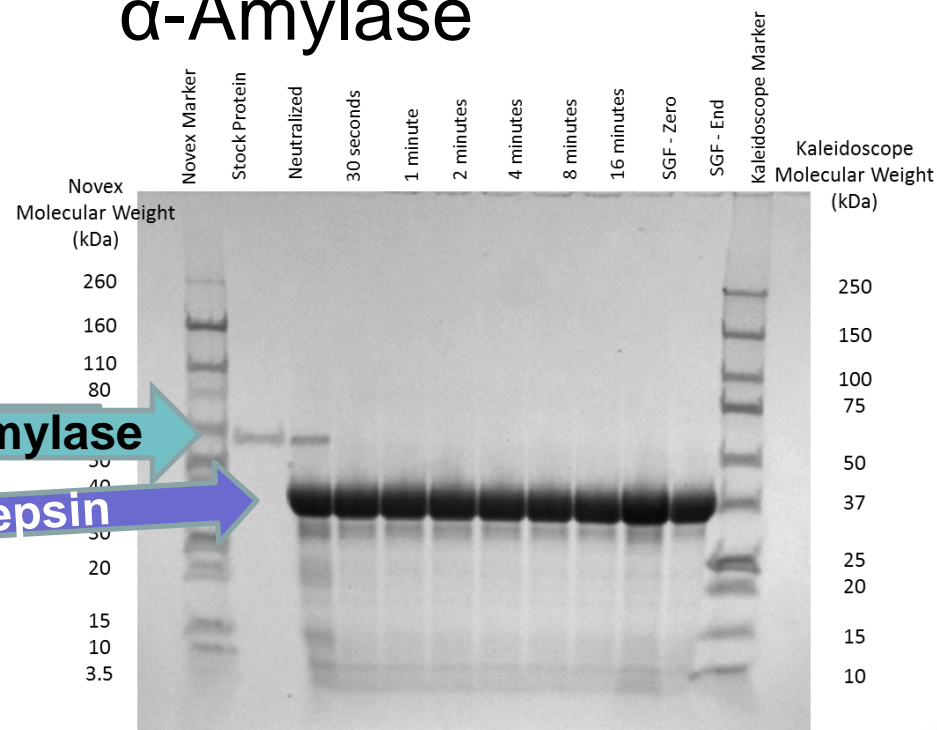
Degrades before first time point of assay

Proof of Concept – Ovalbumin and α -Amylase

Ovalbumin



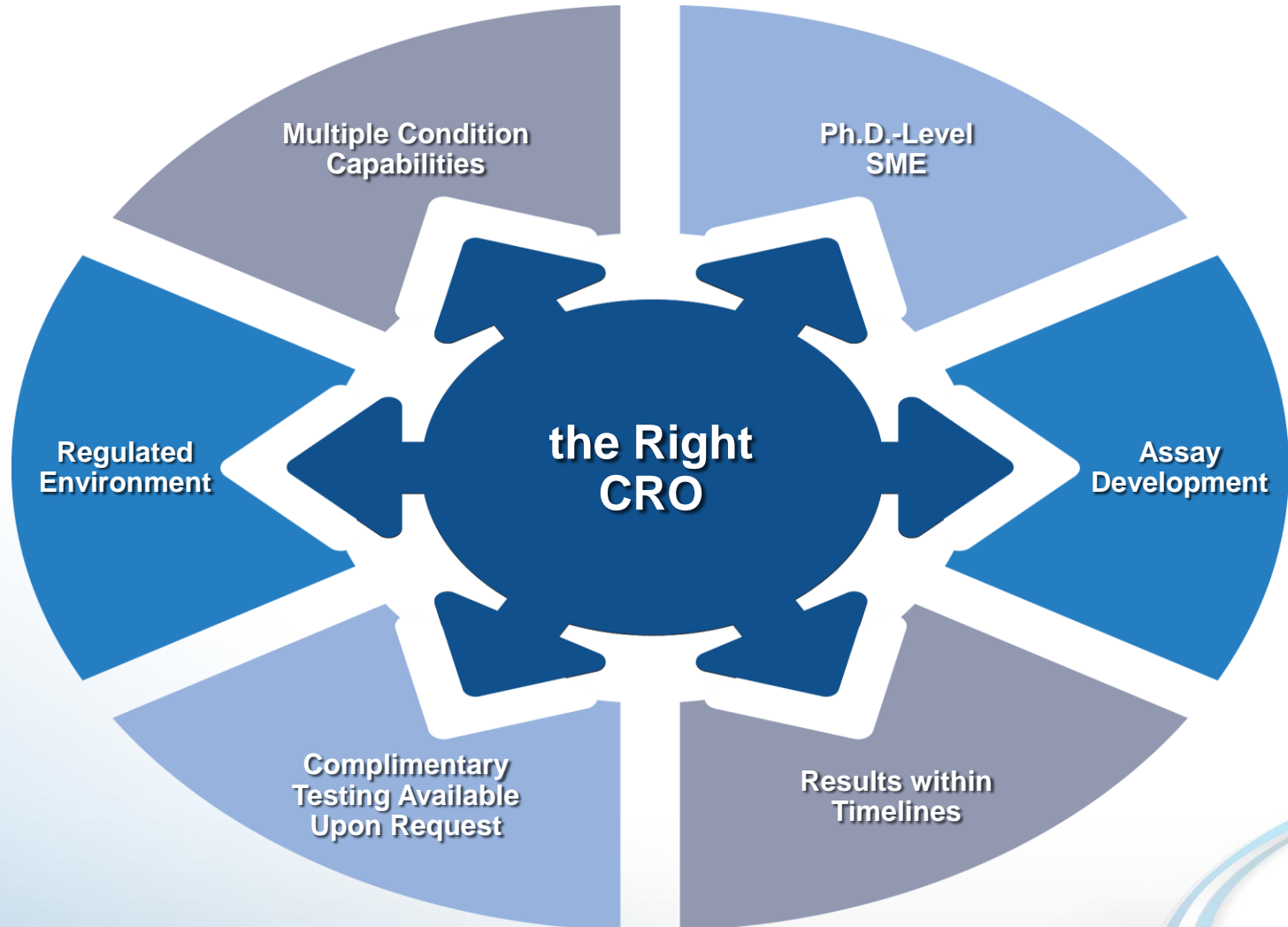
α -Amylase



Early child-hood allergen
80 kDa Doublet persists 2 min

Enzyme in saliva
Protein disappears within 30 seconds

Transgenic Crops: Benefits of Outsourcing



A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. In the foreground, several ripe, bright orange fruits are visible on the branches.

2016 Emerging and Evolving Technology Session

**National Alliance of
Independent Crop Consultants**

Critical Path Services

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Analysis of Proteins by LC-MS/MS: Uni- and Multi-plex Analysis

Abstract

Julie E. Eble, Ph.D.

Critical Path Services, LLC, Garnet Valley, PA 19060

EVOLVING Technology

For certain studies in support of registration of genetically modified crops, the proteins expressed in those plants must be quantified. Historically, this is done by ELISA but in situations where a protein cannot be suitably extracted, this approach is not feasible. In these cases, researchers are moving to LC-MS/MS. And, to improve the speed and cost, new technology, Plextein™, has recently been patented by Dow to analyze for multiple proteins in the same chromatographic run.

The concepts of LC-MS/MS for analysis of both individual proteins and multiple proteins using will be presented.

Critical Path Services

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Analysis of Proteins by LC-MS/MS

Uni- and Multi-plex Analysis

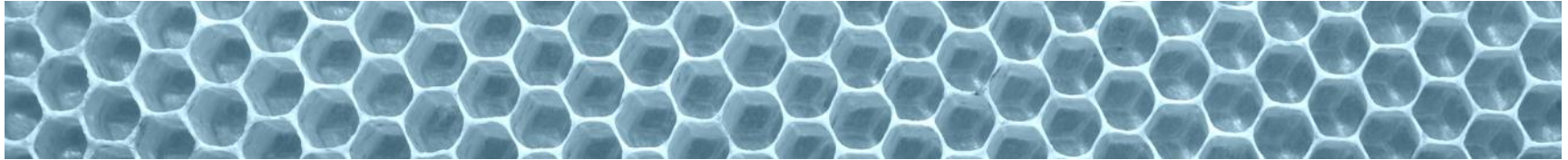


Comparing ELISA and LC-MS/MS



- ▶ For Allergens and proteins expressed by genetically modified crops
- ▶ ELISA quantitates only those molecules which have and retain the correct conformation for the antibody used – **specificity can be a concern due to endogenous components**
- ▶ **LC-MS/MS** quantitates the representative peptide(s) regardless of confirmation
- ▶ So, results obtained by the two methods may differ
- ▶ Both techniques have been used for determining multiple proteins simultaneously (**although incredibly challenging for antibody based approaches... allergens, high sequence homology GM proteins, etc.**)
- ▶ Plextein^(TM) is a Dow-patented approach to determining multiple proteins in genetically modified crops and related substances

Quantitative Analysis of Proteins

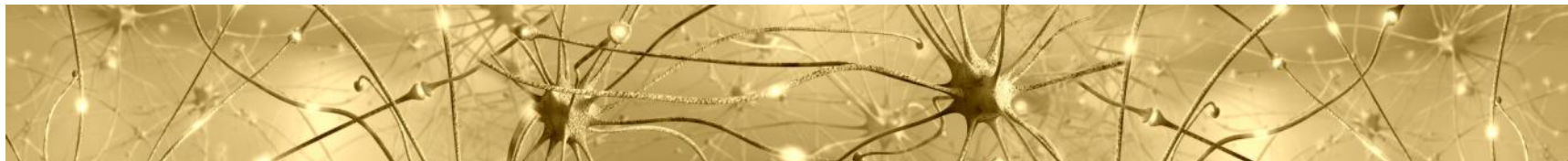


- ▶ Routine approach has been ELISA
 - ▶ Requires antibody
 - ▶ Can require significant method development with high cost
 - ▶ Generally only uniplex analysis
 - ▶ Once developed is rapid and inexpensive; excellent for high throughput analysis
 - ▶ Occasional false positives and negatives
 - ▶ Requires the protein to retain its conformation at the site of the antibody-antigen complex



- ▶ Used to quantitate proteins with known structures
- ▶ Method development relatively rapid, accurate, and cost effective; can be with clean-up and /or with isotopically labelled peptides
- ▶ Protein is cleaved by an enzyme and the resulting peptide fragments determined by *in silico* digest
- ▶ Select peptides which are uniquely representative of the protein
- ▶ Analyzed for one or more of those peptides

Applications for **LC-MS/MS** of Proteins



- ▶ When method development with ELISA is difficult or impossible
 - ▶ When the protein cannot be extracted intact (due to harsh extraction conditions which may affect protein confirmation)
 - ▶ When the number of samples to be analyzed does not justify the expense of ELISA development
 - ▶ When false positives and/or false negatives are not acceptable
- ▶ Note: A recent round-robin determined the utility and reliability of LC-MS/MS for analysis of multiple proteins.(8-12 proteins in a single analysis to be exact!)

A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. Several ripe, bright orange fruits are visible in the foreground, hanging from the branches.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Advanced Reconnaissance Corp.

**Buena Vista Palace Resort
Lake Buena Vista, FL**



The Use of Hyperspectral Imagery for Improved Crop Management and Decision Making

Abstract

There have been major technological advancements in production agriculture over the last decade. From GPS to auto steer to variable rate applications growers are able to do more with less all the while increasing productivity. One technology, remote sensing, is being adopted on an increasing scale. The science in analyzing hyperspectral and thermal imagery has now advanced and can be used in production agriculture to determine nitrogen requirements, crop health and yield predictions. This presentation will provide an overview on the many uses of this exciting data layer.

Advanced Reconnaissance Corp.

**Buena Vista Palace Resort
Lake Buena Vista, FL**



A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. Several ripe, bright orange fruits are visible on the branches in the foreground.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Dow AgroSciences

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Surveil® Herbicide for Managing High-Anxiety Weeds in Soybeans

Abstract

Bobby Haygood, Dow AgroSciences, Collierville, TN

The new formulation of Surveil® herbicide, applied preemergence to soybeans, puts a useful new soil residual weed control tool in the hands of growers to protect crop yields and combat herbicide resistance. Surveil is an exclusive premix formulation of cloransulam-methyl plus flumioxazin with excellent handling characteristics, making it easy for growers and custom applicators to use. This herbicide provides preemergence residual control via two modes of action, offering a double layer of protection from a broad spectrum of weeds. Plant-back intervals are short, providing growers with favorable crop rotation intervals for corn, cotton, rice or sorghum.

®Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow. Surveil is not registered for sale or use in all states. Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state. Always read and follow label directions.

Dow AgroSciences

**Buena Vista Palace Resort
Lake Buena Vista, FL**



A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. In the foreground, several ripe, bright orange fruits are visible on the branches, surrounded by green leaves.

2016 Emerging and Evolving Technology Session

**National Alliance of
Independent Crop Consultants**

Ag Leader Technology

**Buena Vista Palace Resort
Lake Buena Vista, FL**



AgFiniti Cloud Based Platform

Abstract

Kaleb Lindquist

Ag Leader Technology/2202 South Riverside Dr. Ames, IA

EVOLVING

Ag Leader Technology, is proud to announce new additions to our industry proven AgFiniti Cloud Based Platform. AgFiniti Mobile is a companion app to our new InCommand display line. This free app allows maps and reports to seamlessly sync between InCommand displays and the grower's iPad. No wires, no internet, and no confusing download/upload options. Soon, growers will be able to purchase licensing that allows them to move their data between AgFiniti Mobile, AgFiniti Cloud and our SMS Software. As well as processing data right in AgFiniti, allowing growers to view their data without having to use SMS.

Ag Leader Technology

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Ag Leader®

InCommand/AgFiniti

Kaleb Lindquist

InCommand 1200 & 800/AgFiniti Mobile



InCommand™



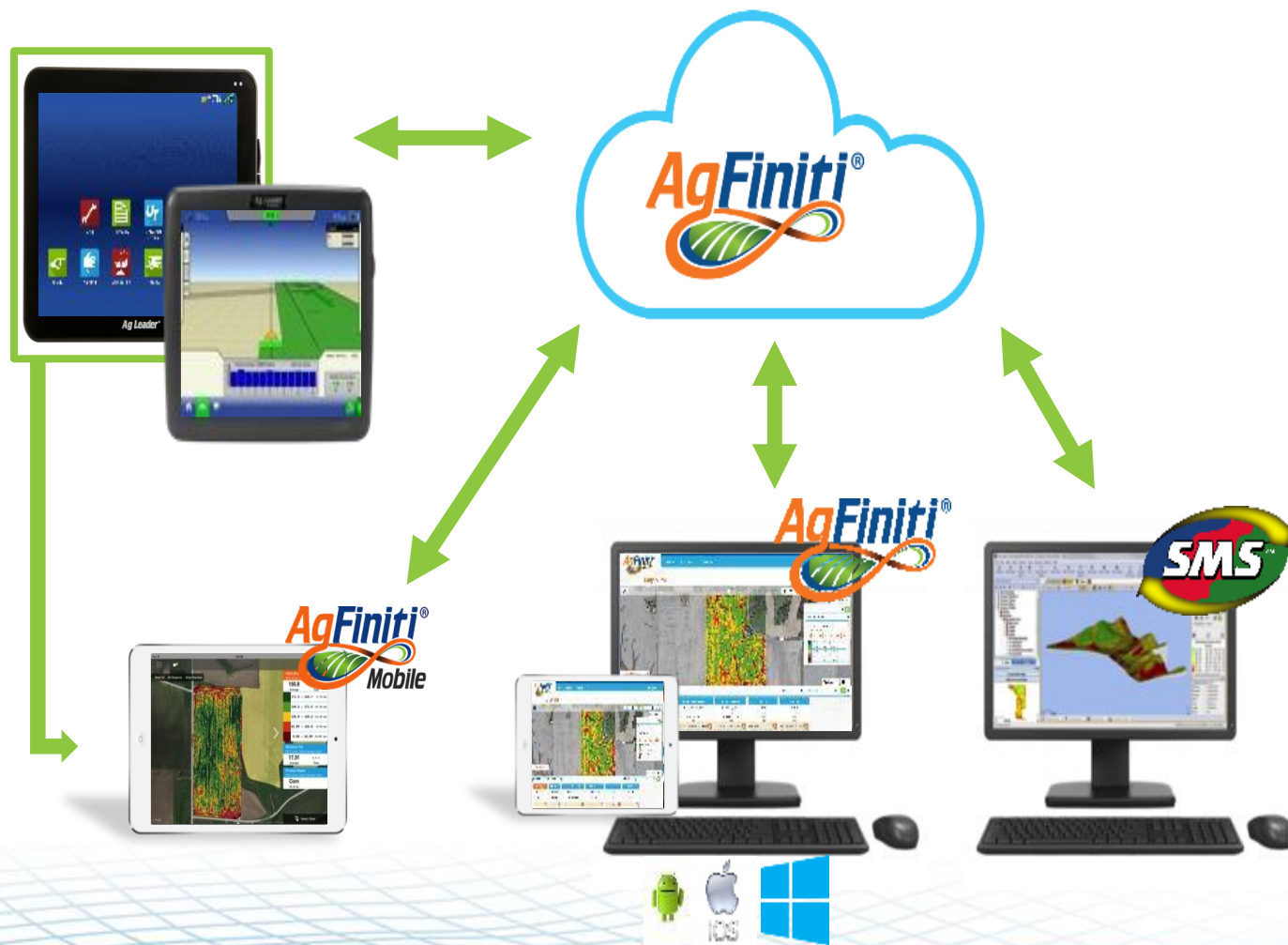
AgFiniti®
Mobile

Ag Leader®

2016 AgFiniti® Product Family



AgFiniti® Essentials License



A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. The trees are covered in green leaves and ripe, yellow-orange fruit.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

AgEagle Aerial Systems

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Using Unmanned Aerial Systems in Agriculture

Abstract

Kyle Miller

AgEagle Aerial Systems, 117 S 4th Street Neodesha, KS 66757

Emerging Technology

Unmanned Aerial Systems (drones) have been a hot button topic in agriculture in the past few years. Being able to fly a drone is simple now, and many agronomists are starting to use the technology to fly over fields. But how are they actually using the technology to change the way we farm? This seminar will explain the process of getting back useful data from a drone and how to make management decisions from that information. The drone industry is starting to boom in agriculture, and finding the usefulness for the industry is the first step.

AgEagle Aerial Systems

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Using Unmanned Aerial Systems in Agriculture

Kyle Miller

Drones in Agriculture

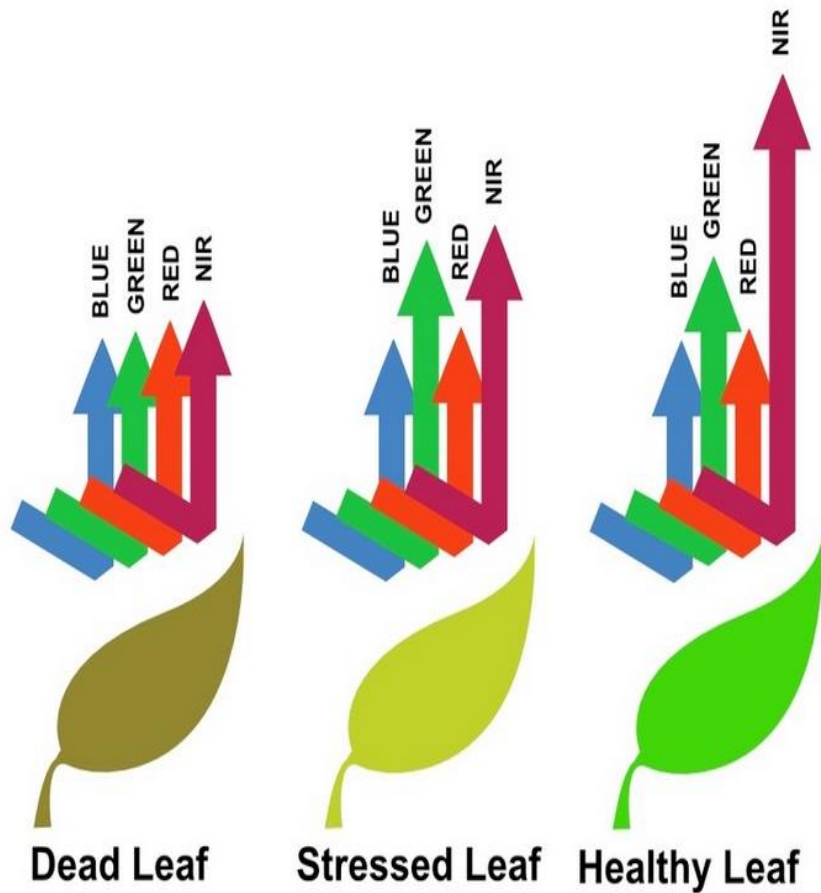


Why Drones?

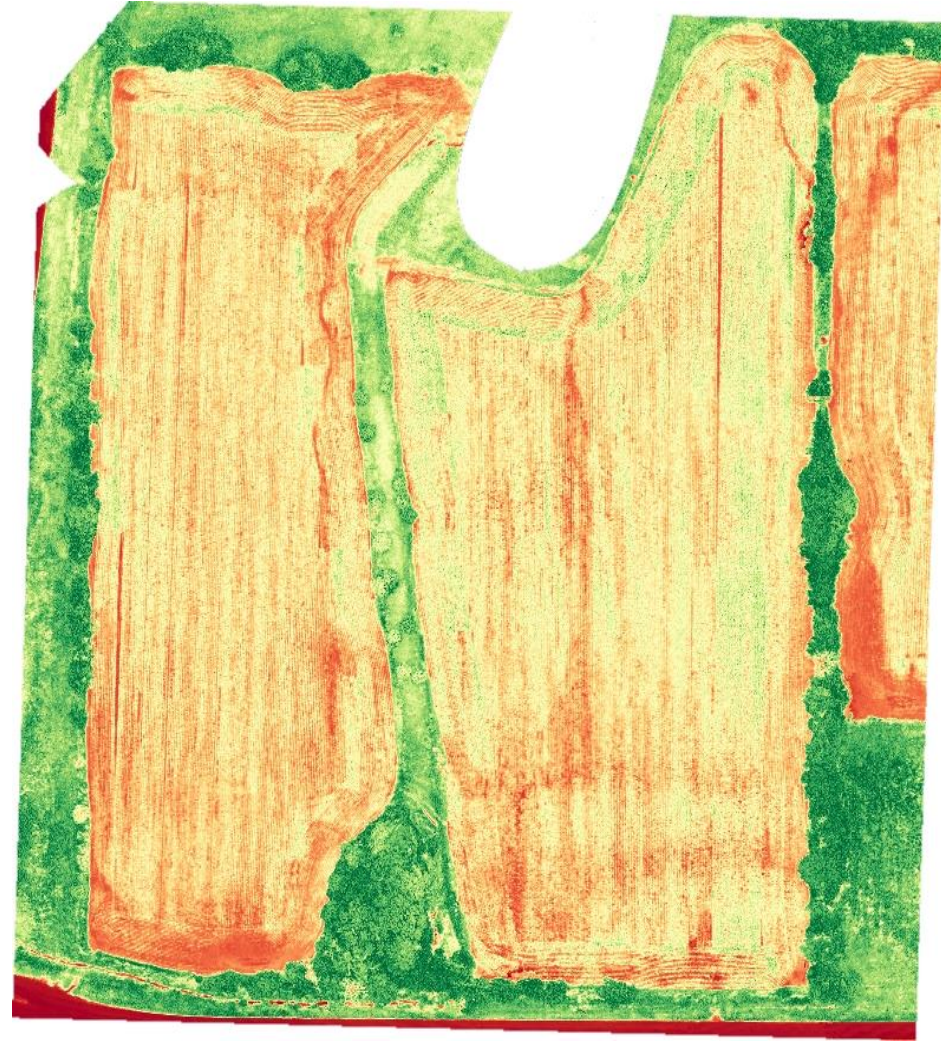
Remote Sensing Comparison

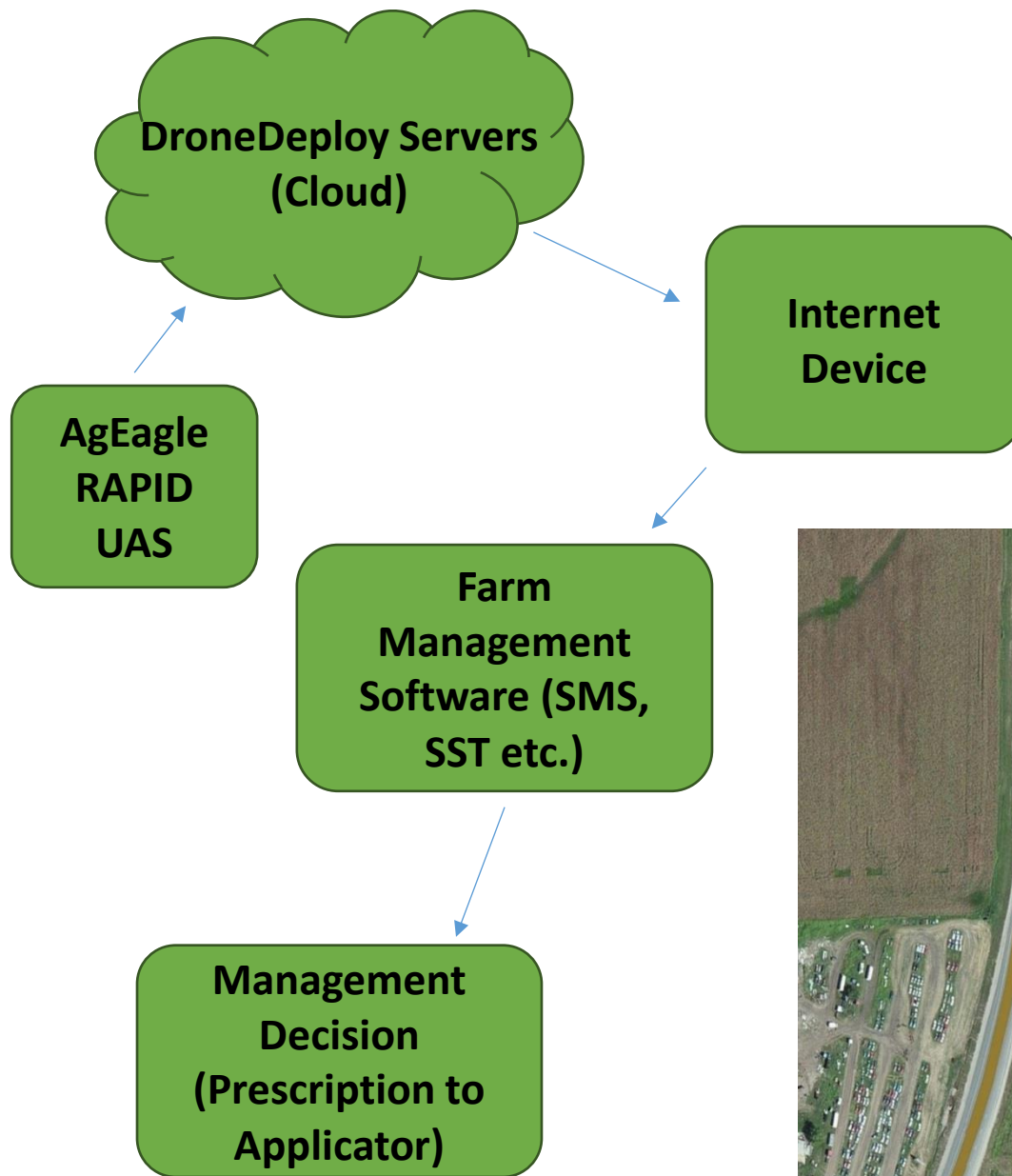
	EO / IR / MS / HS	Ultra High-Resolution (cm)	Low Cost & Frequency	Acres Covered/Day
Satellite Imagery	✓			Hundreds of Thousands
Aerial Photography	✓			Tens of Thousands
UAS	✓	✓	✓	Thousands

How Does it Work?



The basic principle of NDVI relies on the fact that, due to their spongy layers found on their backsides, leaves reflect a lot of light in the near infrared, in stark contrast with most non-plant object. When the plant becomes dehydrated or stressed, the spongy layer collapses and the leaves reflect less NIR light, but the same amount in the visible range. Thus, mathematically combining these two signals can help differentiate plant from non-plant and healthy plant from sickly plant.





2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

IRAC-USA

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Update on Bt Resistance in Corn Rootworm and Proposed EPA Stewardship Measures

Abstract

Sean Whipple, ISK Biosciences Corporation, representing IRAC-USA

The 2009 discovery of resistance to Bt corn rootworm traits in corn prompted EPA to convene a Scientific Advisory Panel to assess this problem and propose several Stewardship measures to preserve Bt CRW technology. A 2015 Stakeholder Comment Period resulted in responses critical of limitations on use of soil insecticides with Bt CRW corn and other measures to be implemented at the grower level. EPA has proposed several revisions to the original proposal and intends to release a final directive in January 2016. The status of the EPA proposal and the impact on crop production and pest management in corn be reviewed.

IRAC-USA

**Buena Vista Palace Resort
Lake Buena Vista, FL**



A photograph of an orange orchard with rows of trees and ripe oranges hanging from the branches under a clear blue sky.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Gylling Data Management

**Buena Vista Palace Resort
Lake Buena Vista, FL**



What's New in ARM Tablet Data Collector

Abstract

Steven R Gylling

Gylling Data Management, Inc. 405 Martin Blvd. Brookings, SD 57006

EVOLVING Technology

The ARM Tablet Data Collector version for 2016 includes several major new features to improve data collection and trial documentation. Some highlights are: GPS enhancements, new hardware platforms, and the often-requested pinch-to-zoom capability.

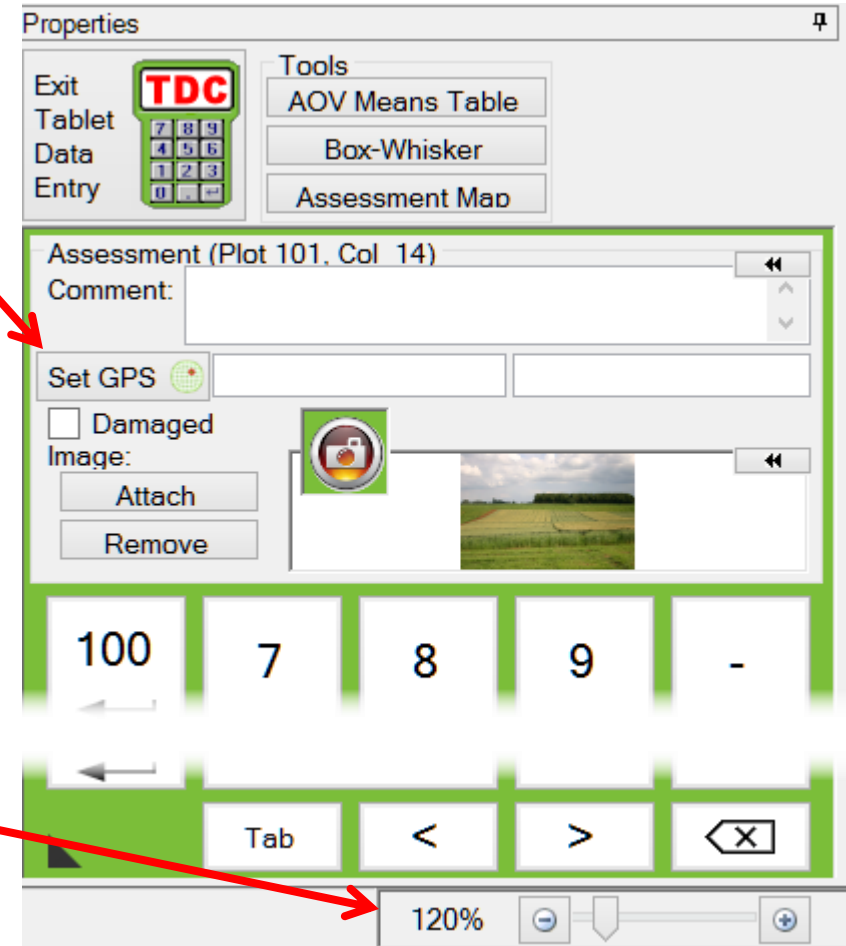
Gylling Data Management

**Buena Vista Palace
Lake Buena Vista, FL**



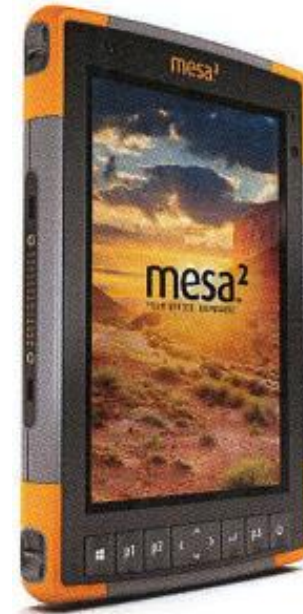
What's New in ARM Tablet Data Collector

- Assessment editor button to record GPS on-demand
- Added second method to zoom-in or zoom-out:
 - Pinch-to-zoom grids - **new**
 - Click-to-zoom tool on all editors



New Tablet Hardware

- HarvestMaster Mesa 2
 - 7 inch Windows 8.1/10 tablet
 - Waterproof, dustproof
 - Planned for release in 2Q2106
- Motion Computing CL920
 - 10 inch Windows 8.1 tablet
 - Rain resistant, dustproof
 - Available 1Q2016



GDM and HarvestMaster

ARM Connect to
HarvestMaster
Mirus Software:



- ARM pushes field or trial map to Mirus
- Mirus uses with:
 - HarvestMaster Harvest Data Systems
 - Research sprayers
 - Other research equipment
- Mirus pushes harvest results to ARM

Details at GDM and HarvestMaster booths in exhibit hall



A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. Several ripe, yellow-orange fruits are visible on the branches in the foreground.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

AgSmarts

**Buena Vista Palace Resort
Lake Buena Vista, FL**



AgSmarts: Smarter Fields. Stronger Yields

Abstract

Brett Norman, CEO

AgSmarts, Inc. 7777 Walnut Grove Rd, Memphis TN, 38120

Emerging Technology

Based in Memphis, TN, AgSmarts is an emerging Precision Ag technology provider that offers wireless sensing technology, predictive irrigation and crop management analytics, and equipment automation that collectively represent a revolution in data-driven agriculture. AgSmarts features highly flexible environmental sensing stations for in-field data with advanced telemetry options, accessible via an intuitive platform for advanced reporting and on 3rd party scouting/Precision Ag software via an API. AgSmarts' platform combines hardware and software solutions into a versatile, powerful and cost effective suite of tools that producers, researchers and agronomic consultants can use today in the struggle to conserve natural resources, control operational costs and maximize crop yields.

AgSmarts

**Buena Vista Palace Resort
Lake Buena Vista, FL**





Technology Overview

brett.norman@AgSmarts.com

901.207.6931

www.AgSmarts.com

@AgSmarts

Solution

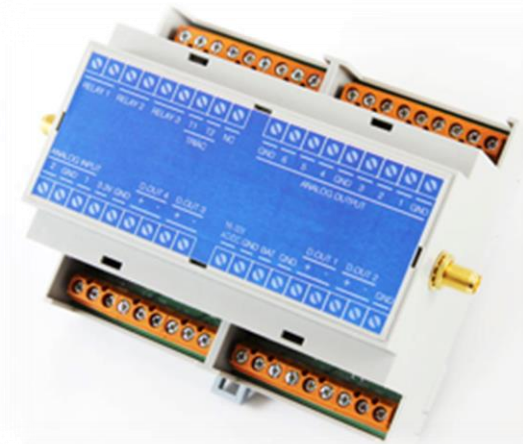
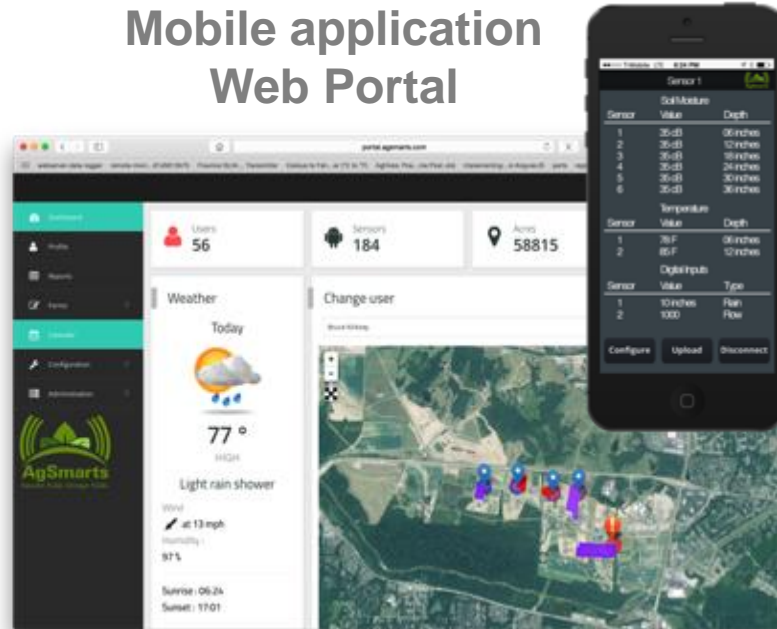
Agnostic and Flexible HW/SW Platform

Embedded Intelligence for Agricultural Production



Field Node
Stations
(FNS)

Mobile application
Web Portal



Intelligent Agriculture
Controller

Predictive, Crop-specific Recommendations

Hardware



Rugged,
reliable
hardware
for life in
the “wild”



Flexible Telemetry Options

- Bluetooth (BLE)
- Mesh networking
- Cellular (CDMA/GSM)
- Wi-Fi
- Ethernet (Controllers)

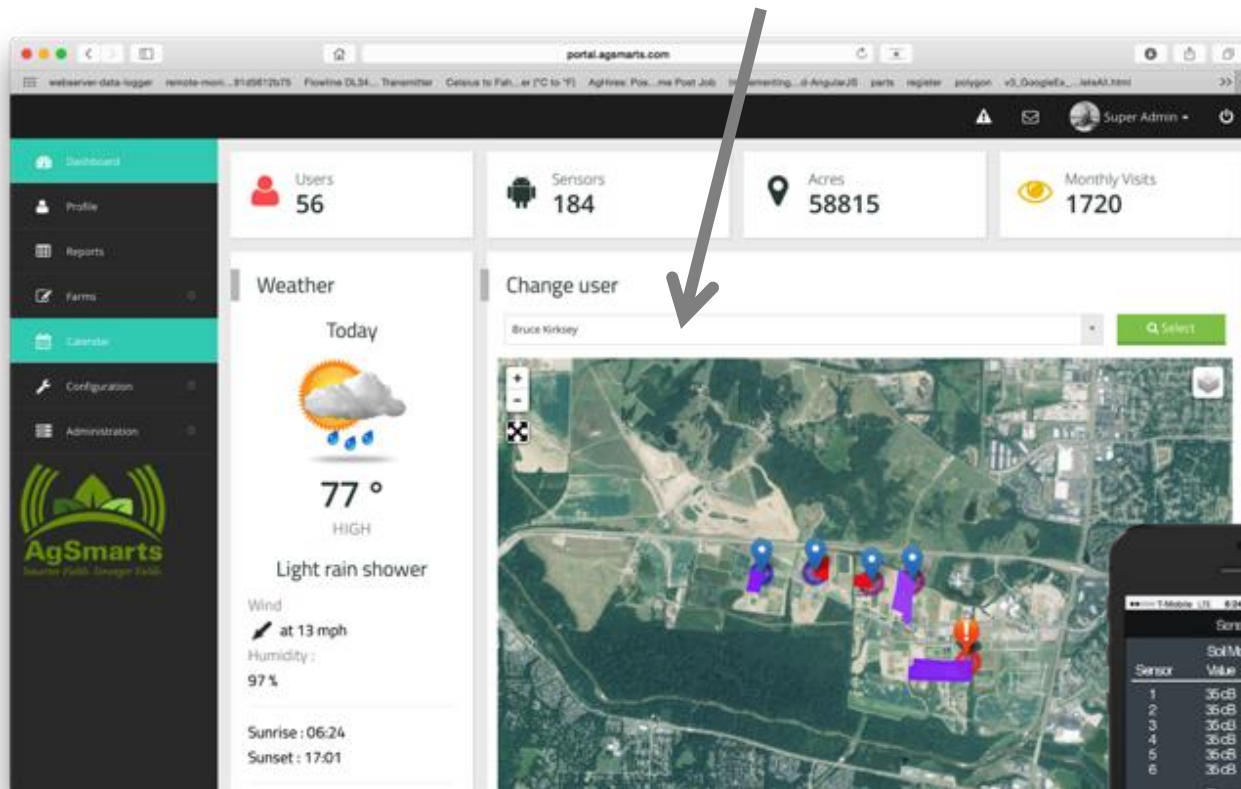


Highly configurable sensing input
selection allows customer to
choose exactly what they need

Software Layers



Web Portal for analytics, alerts and reporting



Android and iOS apps (BLE connectivity) for hardware configuration, data viewing, capture and transfer



API

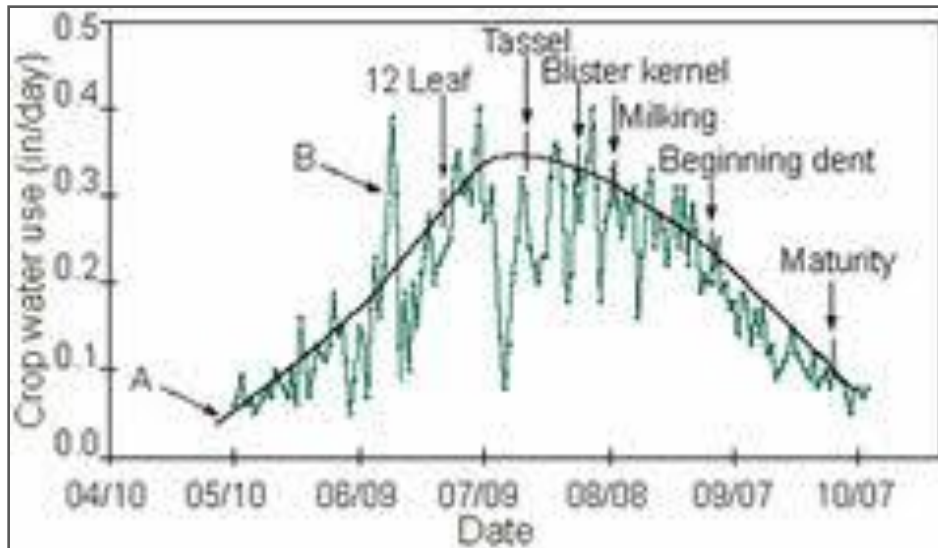
Automated integration of data into broader 3rd party Precision Ag platforms

Future in action



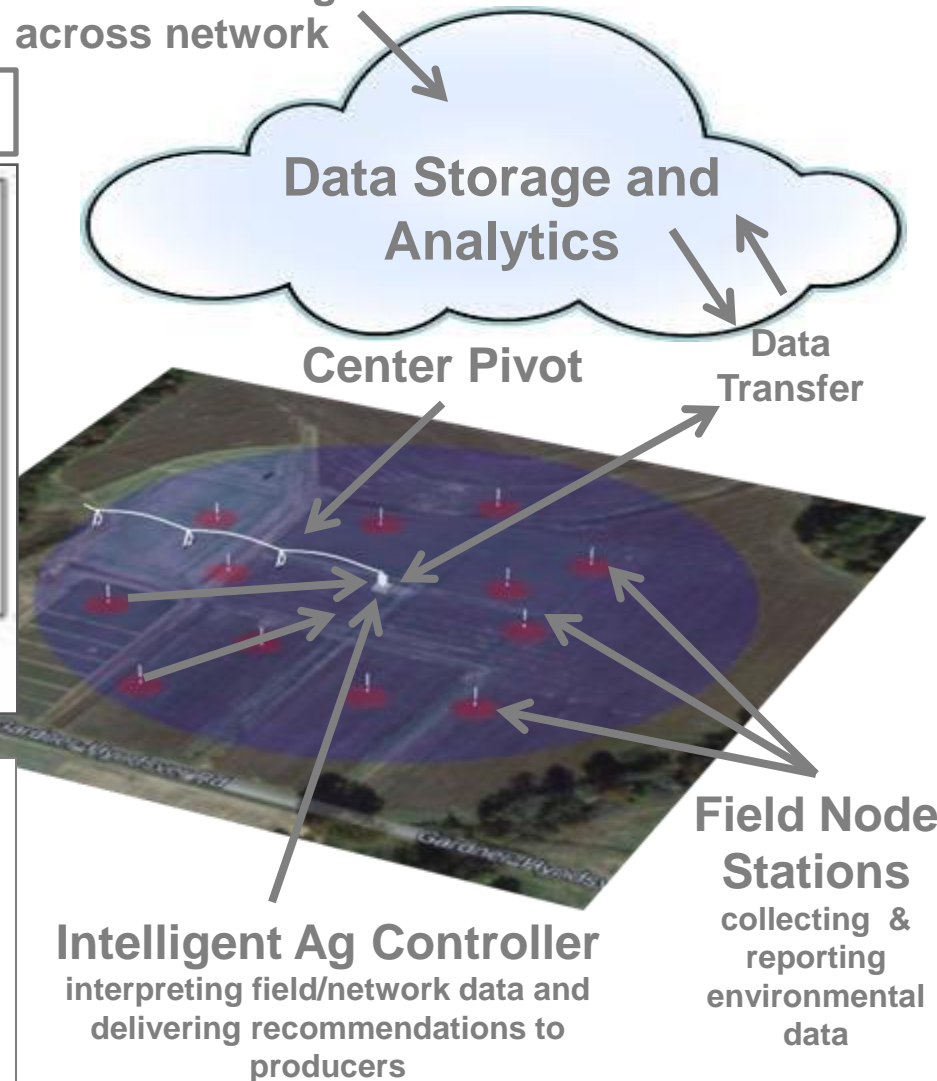
Cloud data leveraged
across network

Corn Soil Moisture (ET) Curve



Site Characteristics

Soil textures
Irrigation Water Salinity
Field Topography
Weather Forecasts



2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Winfield Solutions

**Buena Vista Palace Resort
Lake Buena Vista, FL**



Class Act® Ridion®: A Novel Non-AMS Water Conditioner

Abstract

Jo Gillilan, Ph.D., Winfield Research Manager
Winfield Solutions, 2777 Prairie Drive, River Falls, WI 54022
Emerging Technology

Winfield has developed Class Act® Ridion® adjuvant, which contains CornSorb™ technology and a new water conditioner. Class Act® Ridion® was designed for use with new herbicide technologies that will not allow the use of ammonium sulfate in the tank mix. This product is specifically formulated for compatibility with those herbicides to prevent antagonism from hard water. Herbicide performance is further optimized with the CornSorb™ technology by enhancing coverage and uptake. Three years of testing has proven that Class Act® Ridion® will provide excellent performance at use rates of 0.5 – 2% v/v.

Winfield Solutions

**Buena Vista Palace Resort
Lake Buena Vista, FL**



CLASS ACT® RIDION®: A NOVEL NON-AMS WATER CONDITIONER

Jo Gillilan, G. Dahl, J. Gednalske, L. Henneman, L. Magidow, E. Spandl*
Winfield Solutions, LLC

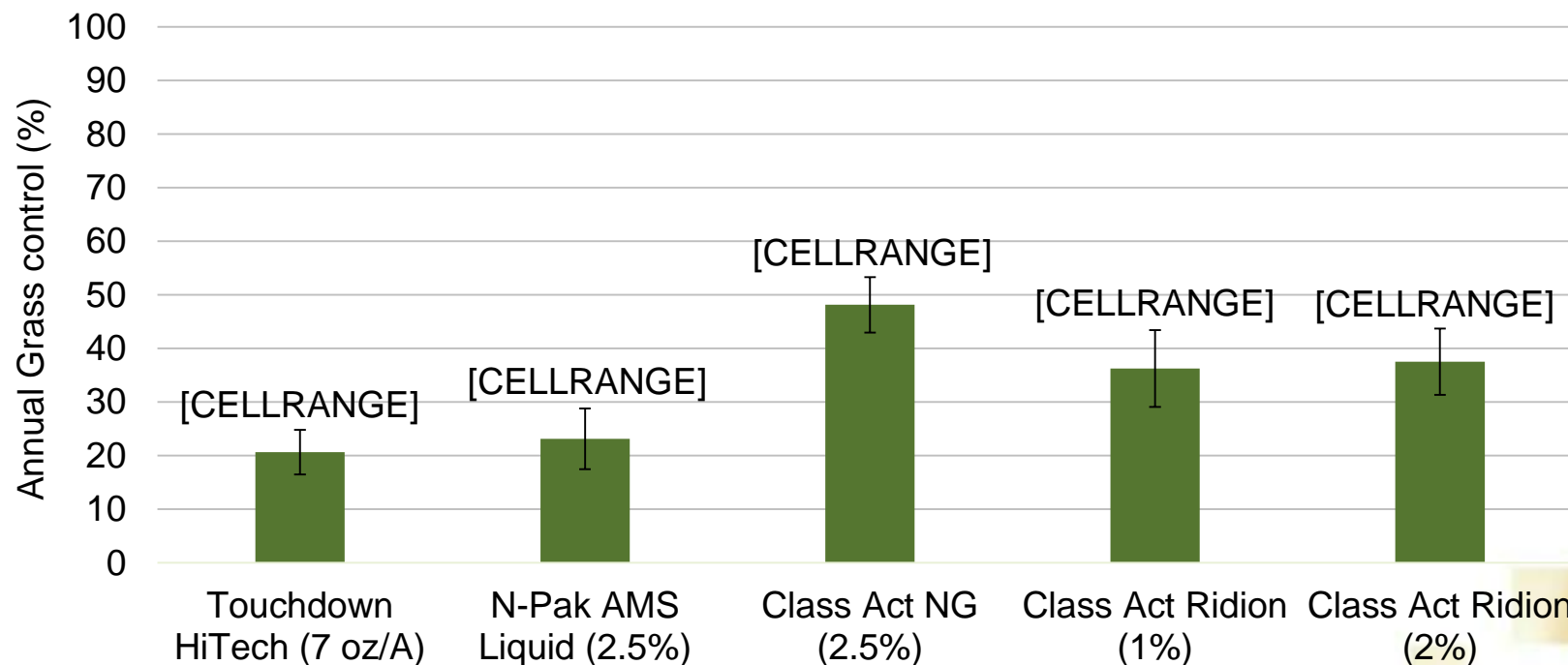
NAICC Emerging Technologies Session, Orlando, FL
January 28, 2016

CLASS ACT ® RIDION® IS A NOVEL NON-AMS WATER CONDITIONER

- A new water conditioner, compatible with new herbicide technologies that don't allow AMS in tank mix
- Product available in 2016
 - Non-AMS
 - Prevents herbicide antagonism caused from hard water by chelating cations that can bind to some herbicide molecules such as glyphosate
 - Contains CornSorb® to enhance herbicide coverage and uptake
 - Lower rate than AMS products will achieve equal results
 - 3 years of research trials across the country have proven the efficacy of Class Act® Ridion®

Adjuvants

CLASS ACT® RIDION® PROVIDES SIMILAR WEED CONTROL TO CLASS ACT® NG FOR GRASSES



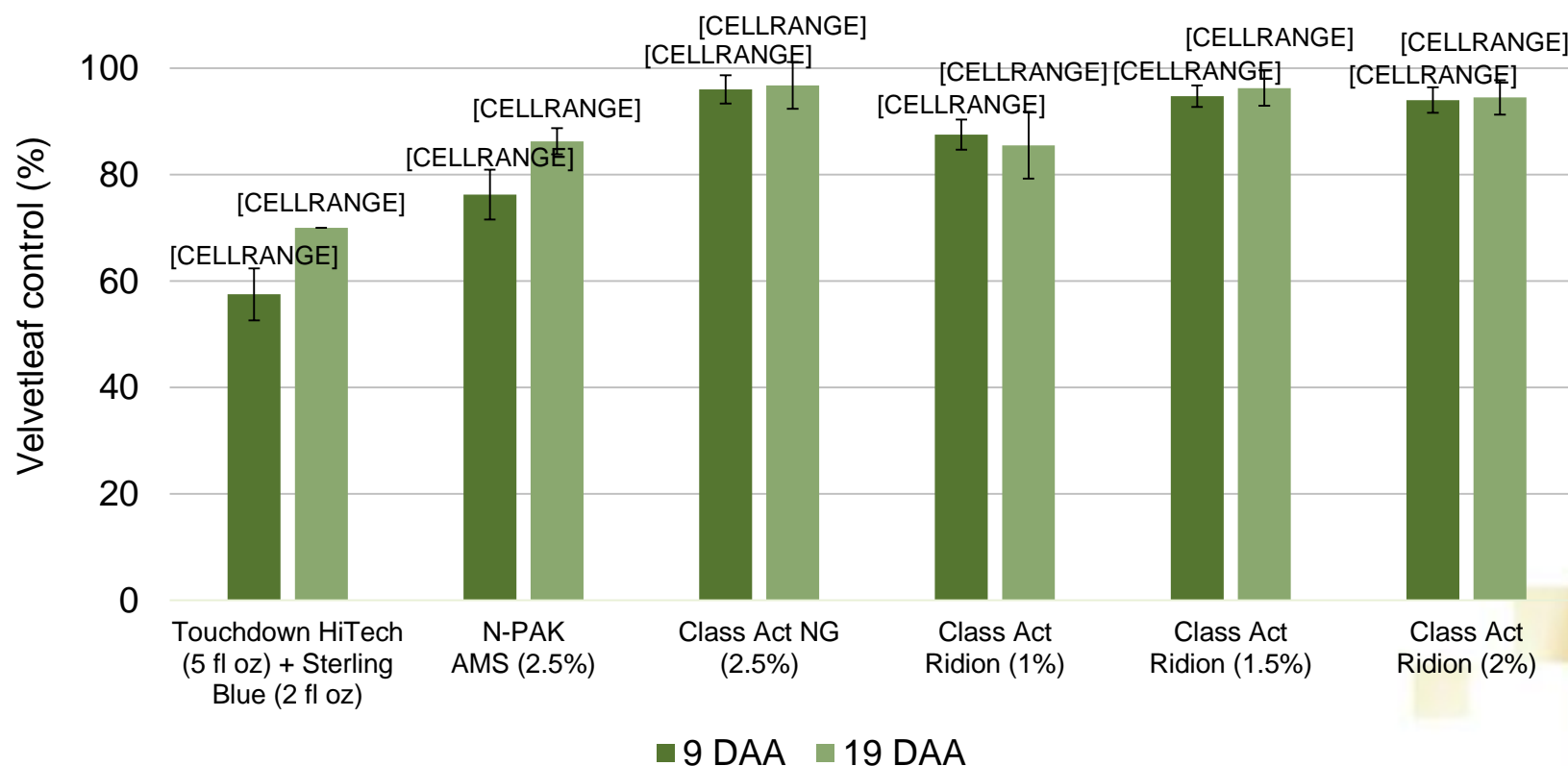
■ 8 DAA

CV= 20.0%

P= <0.0001

Adjuvants

CLASS ACT® RIDION® (1.5%) CONTROLS VELVETLEAF AS WELL AS CLASS ACT® NG (2.5%)

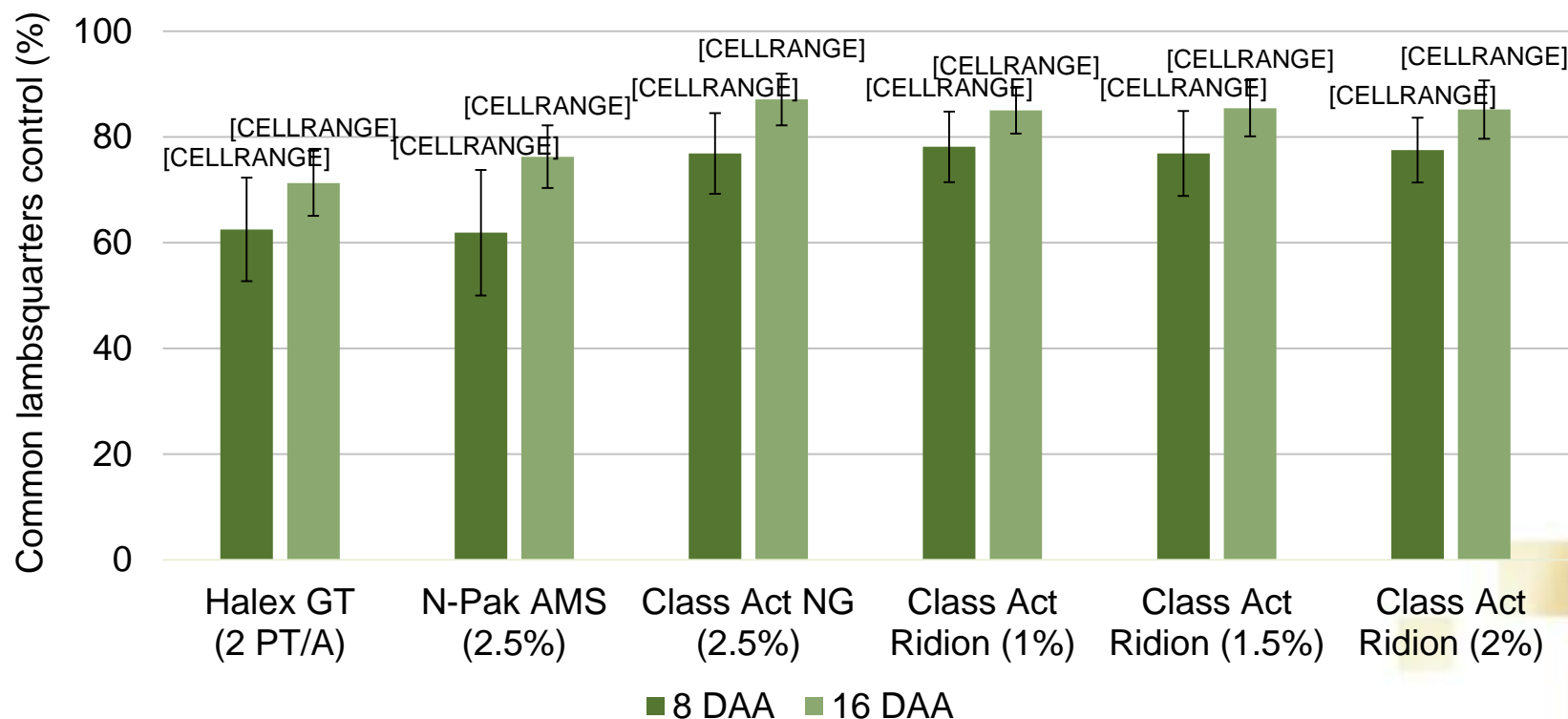


CV=4.1%
p-value<0.0001

CV=6.6%
p-value<0.0001

Adjuvants

CLASS ACT® RIDION® (1%) CONTROLS COMMON LAMBSQUARTERS AS WELL AS CLASS ACT® NG (2.5%)



CV=7.6%
p-value=0.001

CV=6.3%
p-value=0.001

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

HarvestMaster

**Buena Vista Palace Resort
Lake Buena Vista, FL**



HarvestMaster Introduces the Field Applicator Plugin for Mirus

Abstract

Ryan Moses

HarvestMaster 1132 W 1700 N Logan, UT 84321

Evolving Technology

HarvestMaster's Mirus data collection software has a plugin available to easily control field applicators. Field applicators—or sprayers—allow field researchers to easily and efficiently apply various products to individual plots. Most research sprayers include several booms, each boom connected to a pressurized tank filled with a different formulation. This plugin eliminates the usual bulky and often confusing toggle switch boxes that are typically used to control the field applicator. Simply import a file that specifies which formulation is to be applied to each plot, then choose to control the applicator either manually or through GPS positioning data.

HarvestMaster

**Buena Vista Palace Resort
Lake Buena Vista, FL**





MIRUS™

PLUGINS

Field Applicator



What is a Field Applicator?

Field applicators—or sprayers—allow field researchers to easily and efficiently apply various products to individual plots. Most research sprayers include several booms, each boom connected to a pressurized tank filled with a different formulation.

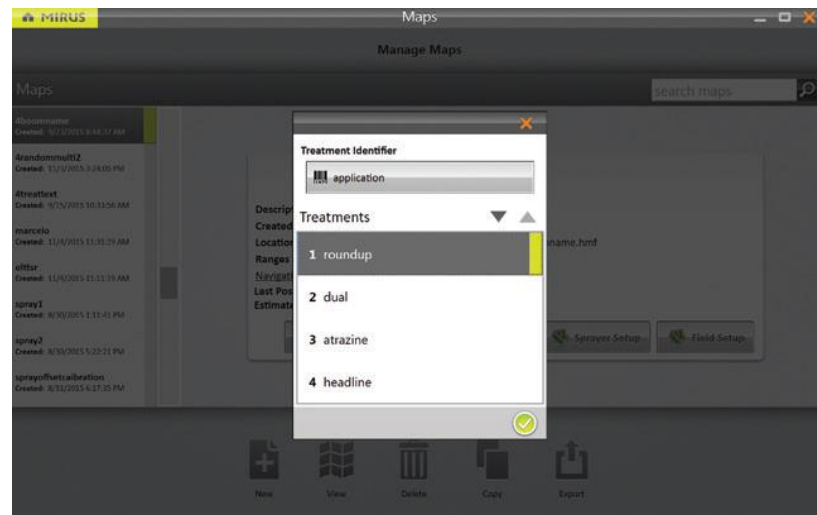
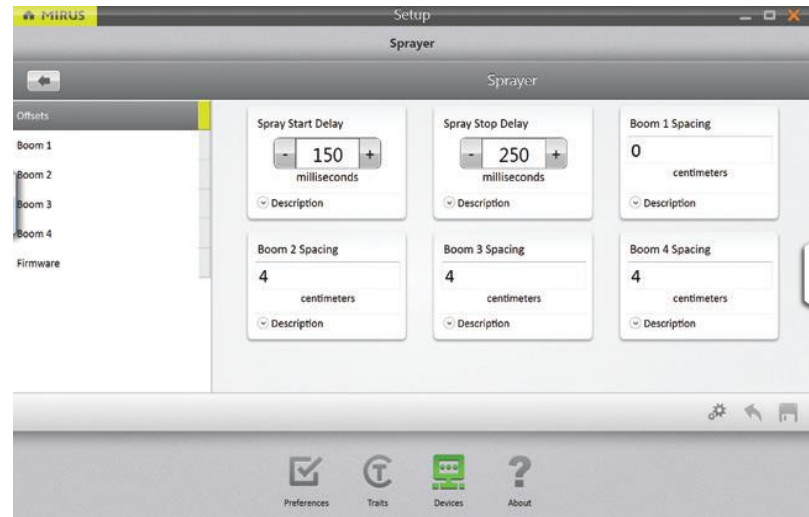


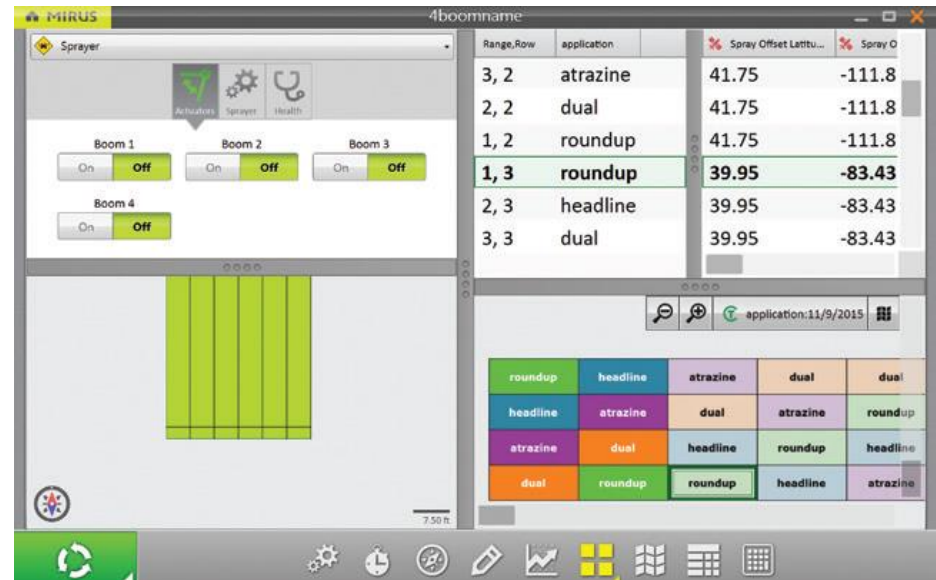
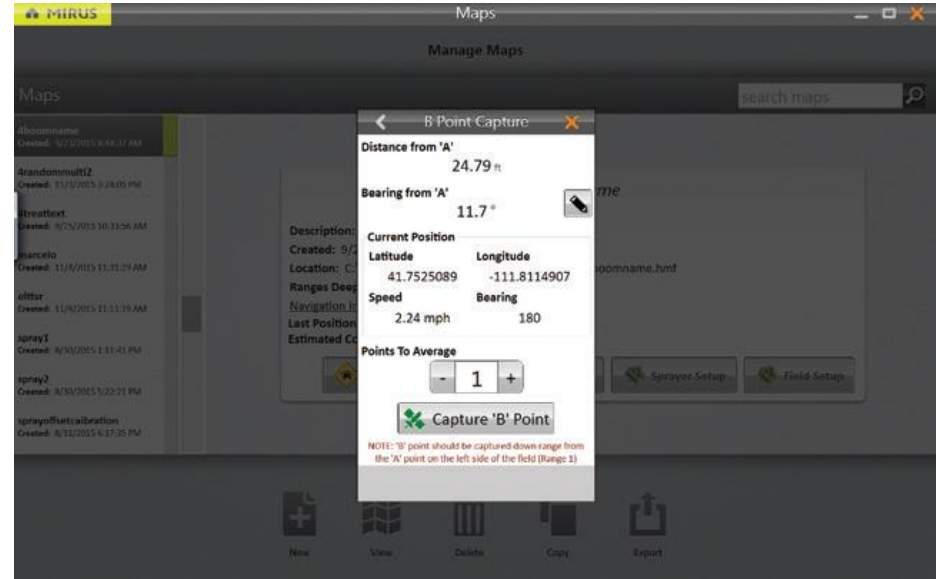
Using a Field Applicator with Mirus

HarvestMaster's Mirus data collection software has a plugin available for field applicators that allows you to easily control the applicator from within the Mirus dashboard. This plugin eliminates the usual bulky and often confusing toggle switch boxes that are typically used to control the field applicator. Simply import a file that specifies which formulation is to be applied to each plot, then choose to control the applicator either manually or through GPS positioning data.

How Does the Plugin Help Me?

- Ensures that the correct product is applied to each plot
- Minimizes time spent in the field applying products
- Provides accurate records of which product was applied to each plot and at what time
- Reduces stress on operators
- Provides a simple way to turn the applicator on and off using either a manual switch or GPS coordinates
- Is easily installed and customized for a variety of spray rigs and GPS receivers





A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. Several ripe, bright orange fruits are visible in the foreground, hanging from the branches.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Spectrum Technologies

**Buena Vista Palace Resort
Lake Buena Vista, FL**



SpecConnect – Remote Crop Monitoring Using Wireless Sensor Networks

Abstract

Mike Thurow – President & CEO
Spectrum Technologies, Inc., Aurora, Illinois
Emerging Technology

SpecConnect cloud-based system provides the ability to use a PC or mobile device to instantly view and analyze site-specific field data for plant growth modeling, frost alerts, disease pressure, and soil moisture for irrigation scheduling. DataScout cell modems obtain sensor data from remote WatchDog weather stations or the Retriever & Pups wireless sensor network. Numerous reporting capabilities exist, such as maps, graphs, and data tables. With the functional benefit of providing one central point for multiple users to view various reports on different devices, the system offers a tremendous amount of flexibility for consultants, growers and researchers.

Spectrum Technologies

**Buena Vista Palace Resort
Lake Buena Vista, FL**



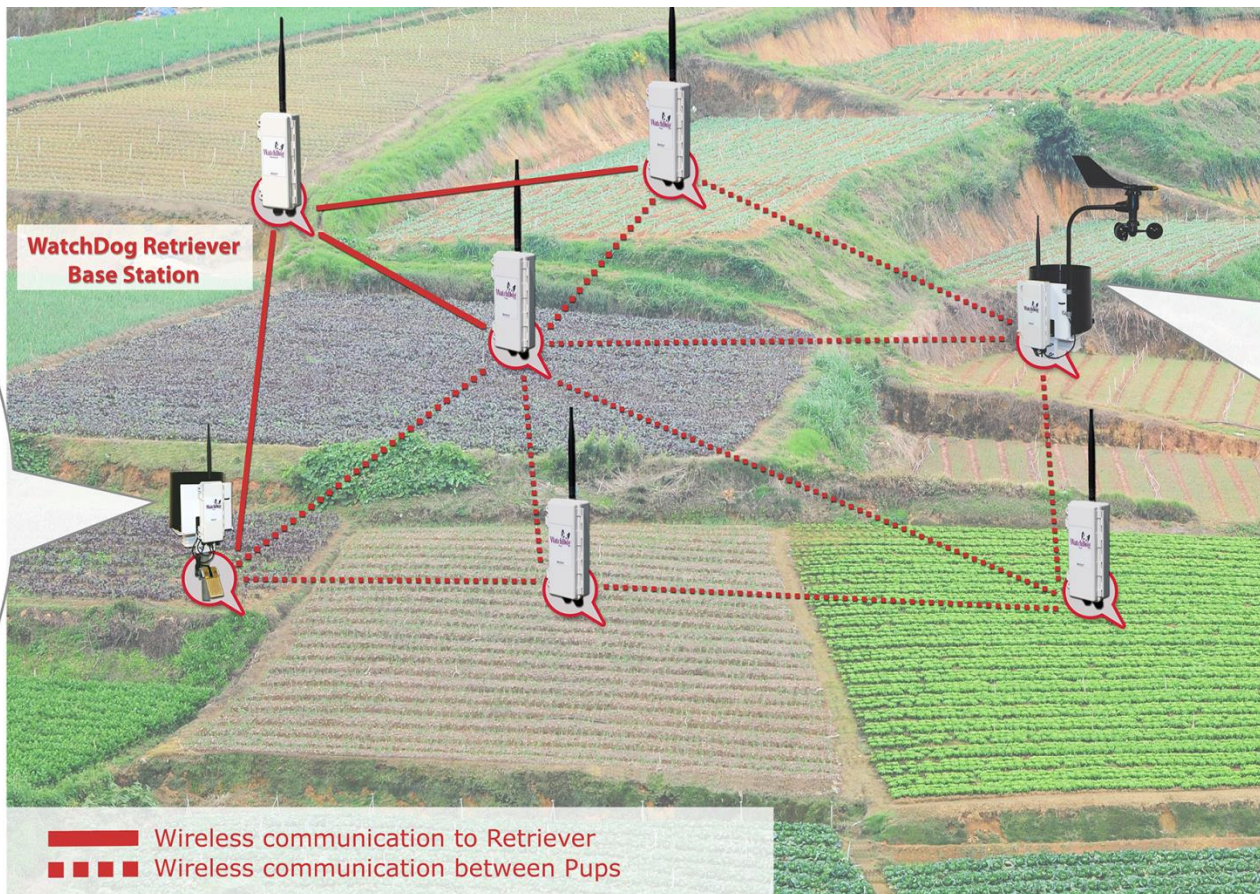


SpecConnect

Your Crops...Your Data...Better Decisions\$

SpecConnect, an advanced web-based agronomic solution for remote crop environmental monitoring using wireless sensor networks

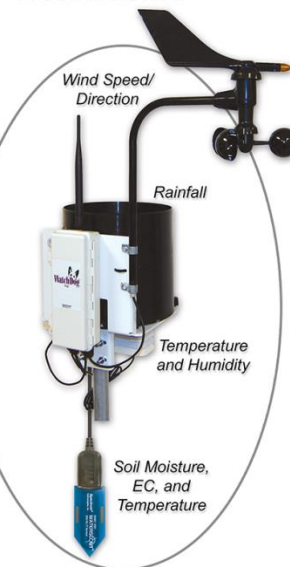
WatchDog Retriever & Pups



Plant Disease Pup Station



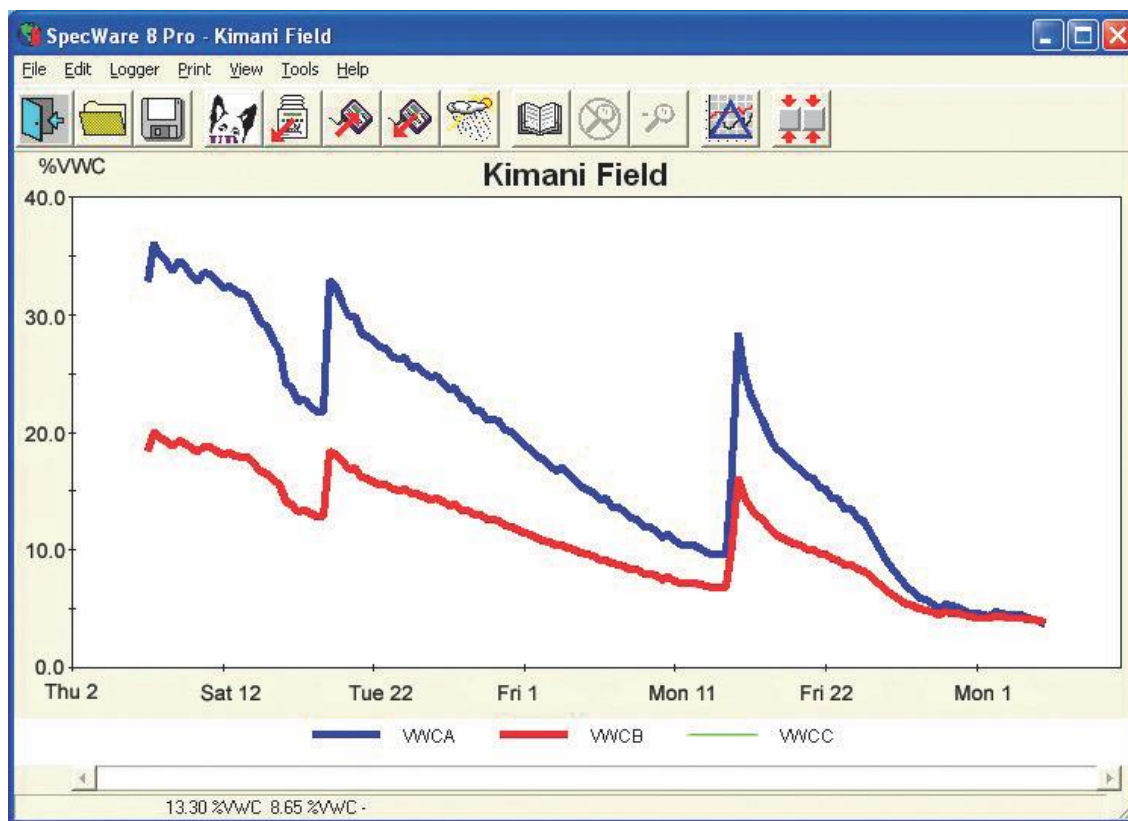
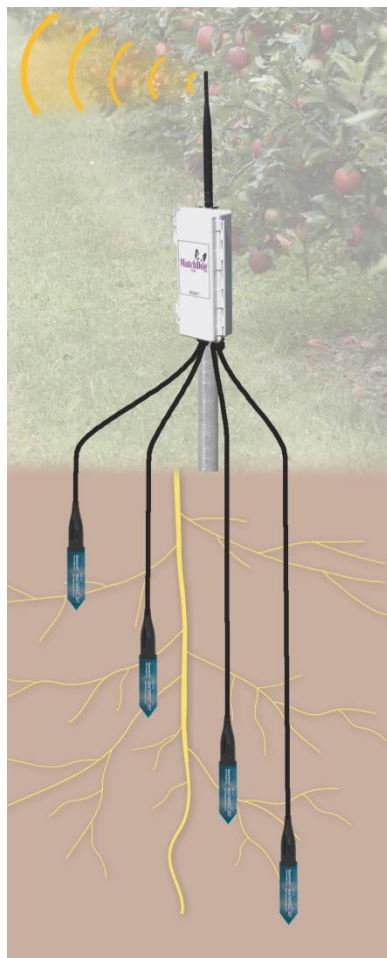
Pup Weather Station w/Soil Moisture



WatchDog Pre-Packaged Pup Systems



Soil Moisture Profile





SpecConnect

Your Crops...Your Data...Better Decisions\$

For more information, see us at
Booth 414

A photograph of an orange orchard with rows of trees stretching into the distance under a clear blue sky. Several ripe, bright orange fruits are visible in the foreground, hanging from the branches.

2016 Emerging and Evolving Technologies Session

**National Alliance of
Independent Crop Consultants**

Thank You! The End!

**Buena Vista Palace Resort
Lake Buena Vista, FL**

