

# GIS Opportunities: Successes and challenges in adopting ArcGIS Online

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# Outline

- **Introduction**
- **Objectives**
- **Methodology**
- **Results**
- **Future Work**
- **Conclusions**
- **Comments/Questions**

# Introduction

- **Prairie View, Texas exists at the ecotone of three ecological zones (Gulf Prairie and Marshes, Pineywoods, and Post Oak Savannah)**
- **Prairie A&M University has a university research farm that is 778 acres**
- **Rainfall is one of the critical factors in land management and when planning agricultural programs such as crop and water management, erosion control, and flood control**

# Objectives

- Utilize the ArcGIS platform to develop a rainfall data collection system for use on mobile devices
- Provide timely information to enhance decision-making for land management and agriculture related operations
- Support farm manager and other decision makers with a tool to visualize rainfall data
- Lay the groundwork for centralized data storage and access

# Horse Pasture Rain Gauge



© 2008 04/03/08  
0.010" 05' 06.88"



# PVAMU Farm Landuse Map



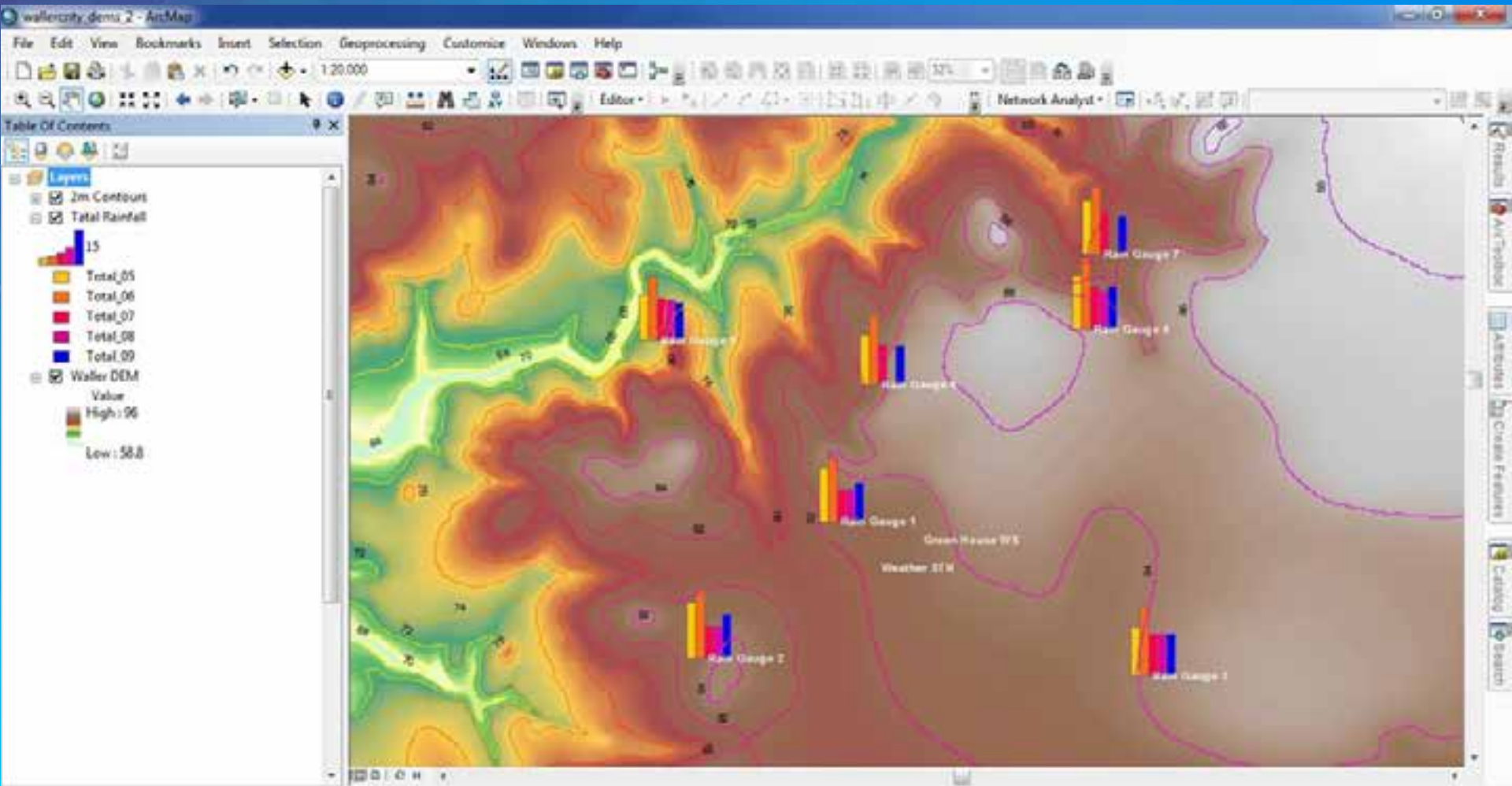
## Legend

- BeefCowPasture
- Corn
- Garden
- GoatPasture
- GrassPlot
- Hay Fields

0 950 1,900 3,800 Feet

Prepared By: N. M. Estwick, CARC  
October 2010

# Elevation & Precipitation



# Rain Gauge Coverage and Landuse by Acre

<b>Rain gauge (RG)</b>	<b>Acres</b>	<b>Landuse(s)</b>
<b>RG1</b>	<b>273.13</b>	<b>Beef cow pasture, hay, gardens, grass plot and corn</b>
<b>RG2</b>	<b>224.70</b>	<b>Hay</b>
<b>RG3</b>	<b>105.39</b>	<b>Corn and beef cow pasture</b>
<b>RG4</b>	<b>225.36</b>	<b>Hay, corn and goat pasture</b>
<b>RG5</b>	<b>243.07</b>	<b>Hay and beef cow pasture</b>
<b>RG6</b>	<b>193.89</b>	<b>Beef cow pasture, goat pasture and corn</b>
<b>RG7</b>	<b>214.76</b>	<b>Not designated at the time of study</b>



# Challenges

- **Previously relied on a paper-based data collection method**
- **System did not facilitate visualization of data in a timely manner**



# Methodology

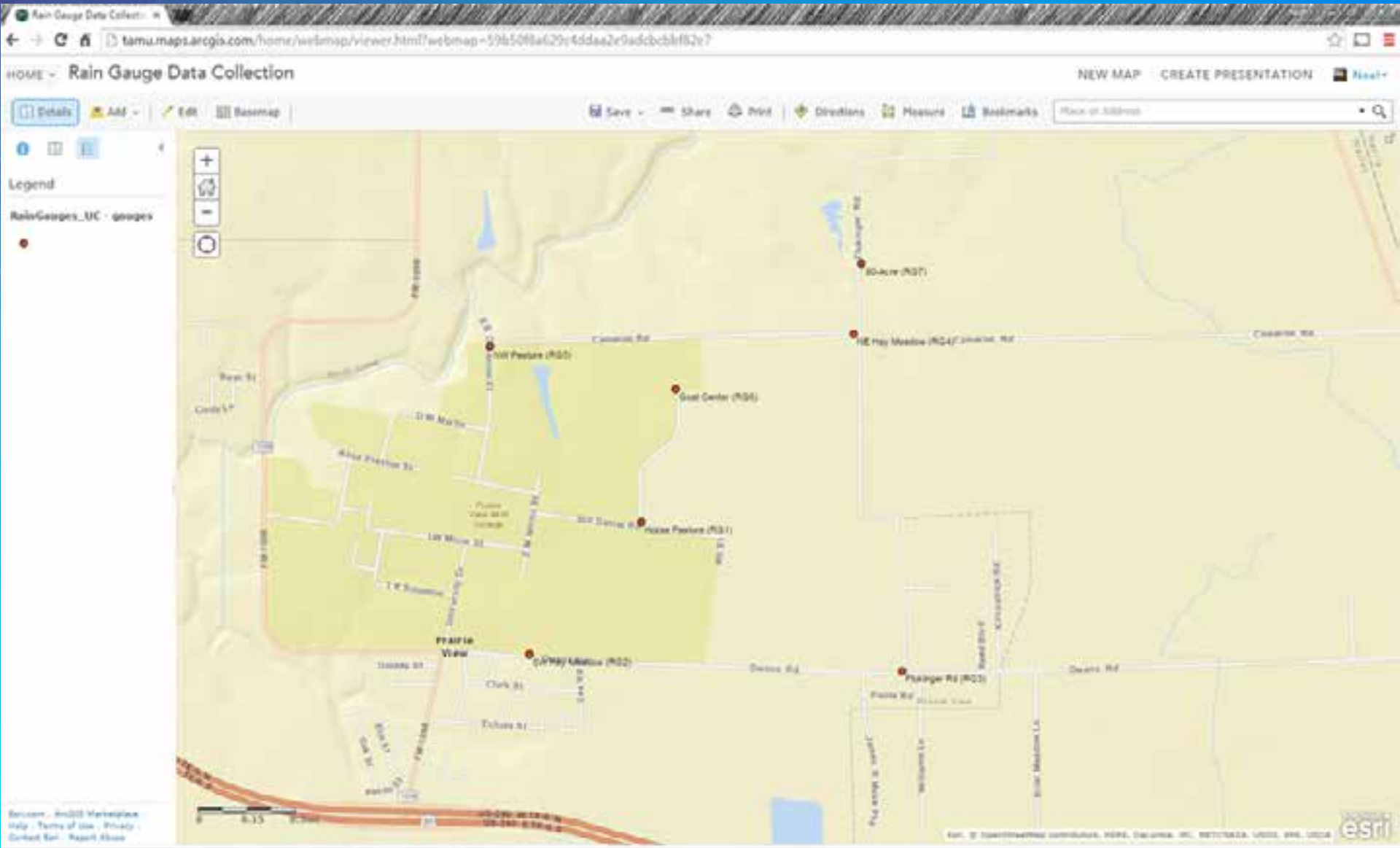
- **Utilize ArcGIS Collector to create a mobile data entry system to replace paper-based method**
- **Utilize Operations Dashboard for ArcGIS to create a common view of rain gauge data collection operations**

# New Approach

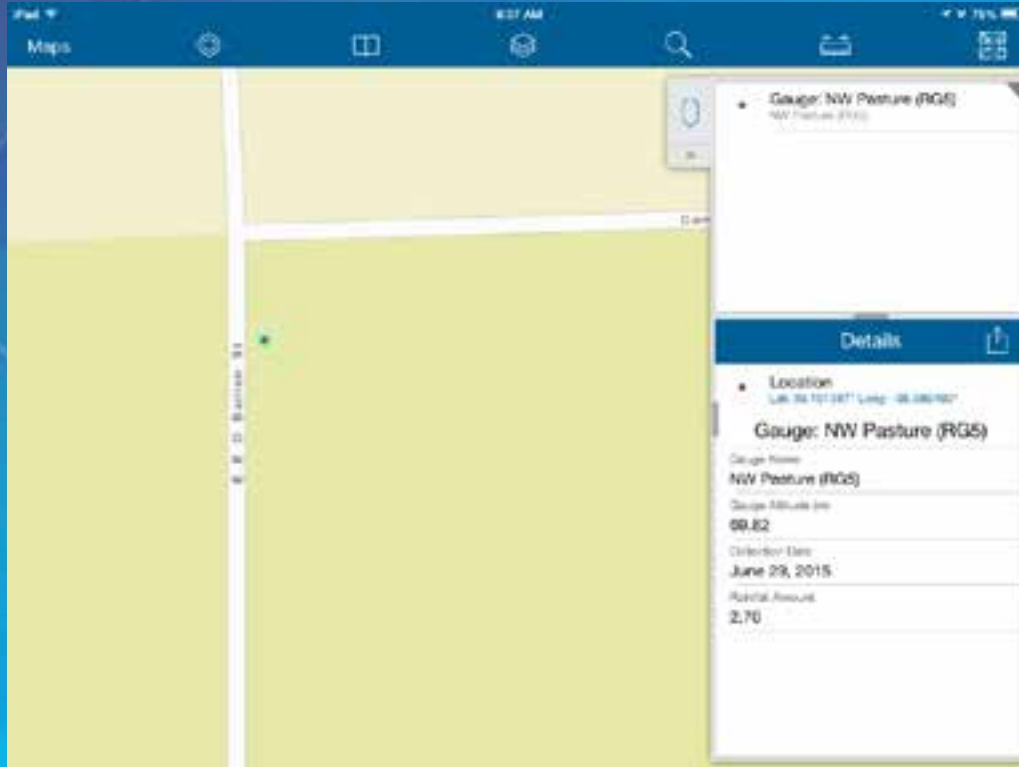
- (Collector and Operations Dashboard) screenshots
- To include description of the data collection layer

# Data Collection Layer

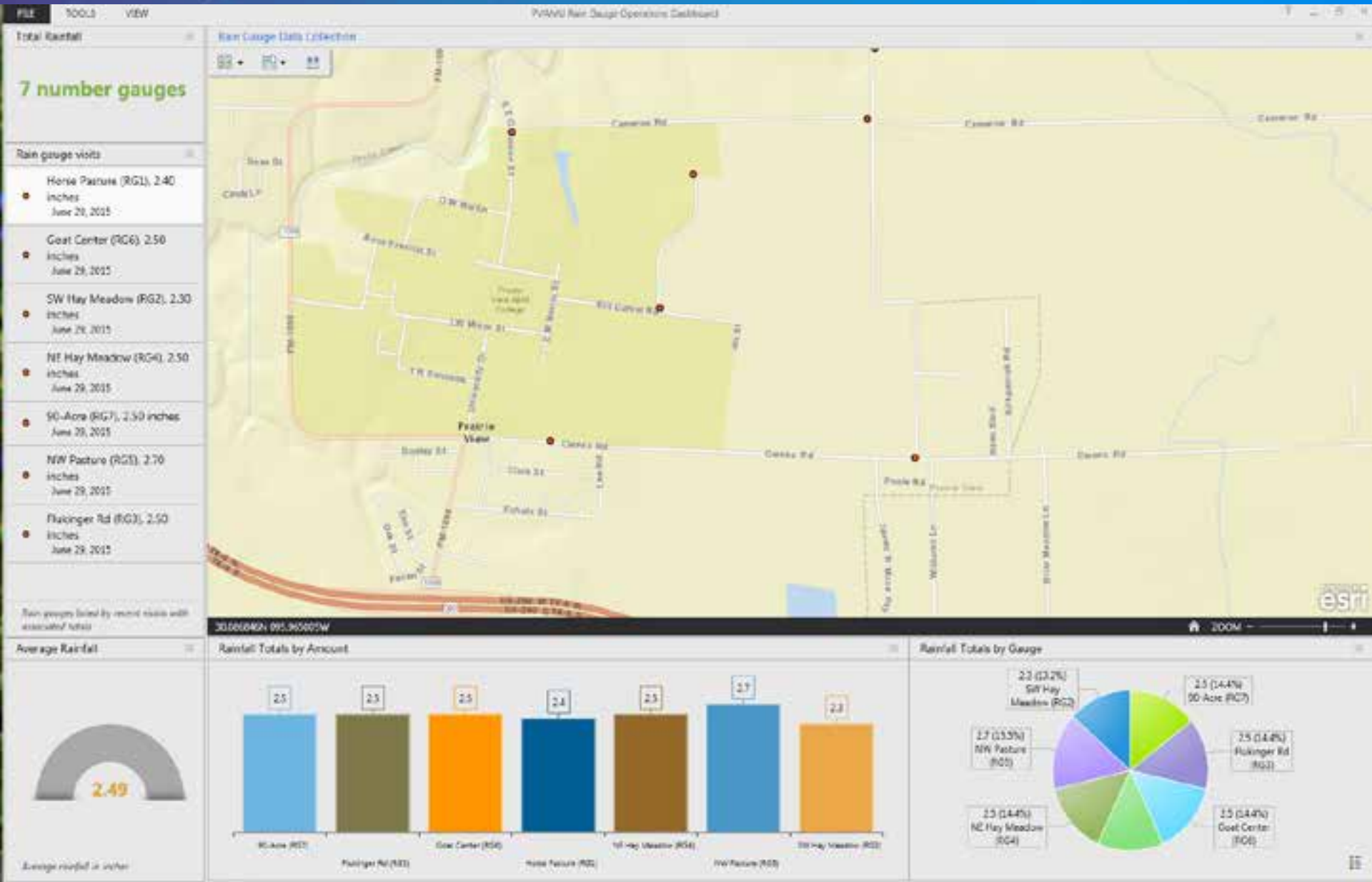
- There are seven rain gauges



# Field Data Collection on iPad



# Rainfall Totals Dashboard



# Agriculture & Planning

- **The importance of agriculture to food systems planning**
  - **Considerations for land use planning based on rainfall distribution**
- **Crop-based agriculture has different rainfall data needs as compared to animal-based agriculture operations**
- **Visual display of rainfall quantity and spatial variability can be used to determine fertilization, irrigation, and rotation of animals in pasture**



# Conclusions

- **Faster data collection**
- **Enhanced user experience**
- **Enhanced decision-making**

## Future Work

- **Enhanced graphical representation of rainfall data**
- **Ability to query archival rainfall data to assess seasonal variability and potential forecasting options for weather futures**
- **Rainfall data warehouse for use by public and private end users**

Questions?