

# BMP update and strawberry irrigation app

Kelly T. Morgan

University of Florida

Soil and Water Science

Southwest Florida Research and Education Center

Immokalee

[conserv@ufl.edu](mailto:conserv@ufl.edu)

239 658 3400



# BMP Update

- Water Bill passed
- 4Rs Nutrient Management
- SP500 Vegetable and Agronomic Crop Handbook
- SmartIrrigation – smartphone irrigation scheduling apps

## Nutrient Management of Vegetable and Row Crops Handbook

February 2015



# Water Bill

- Improved springs protection and completion of TMDLs and BMAPs
- Collaborative effort in water supply planning between FDACS, FDEP, and water management districts
- FDACS to develop Implementation Assurance Program (confirming NOI and record keeping)
- Develop Agricultural water use demand projections

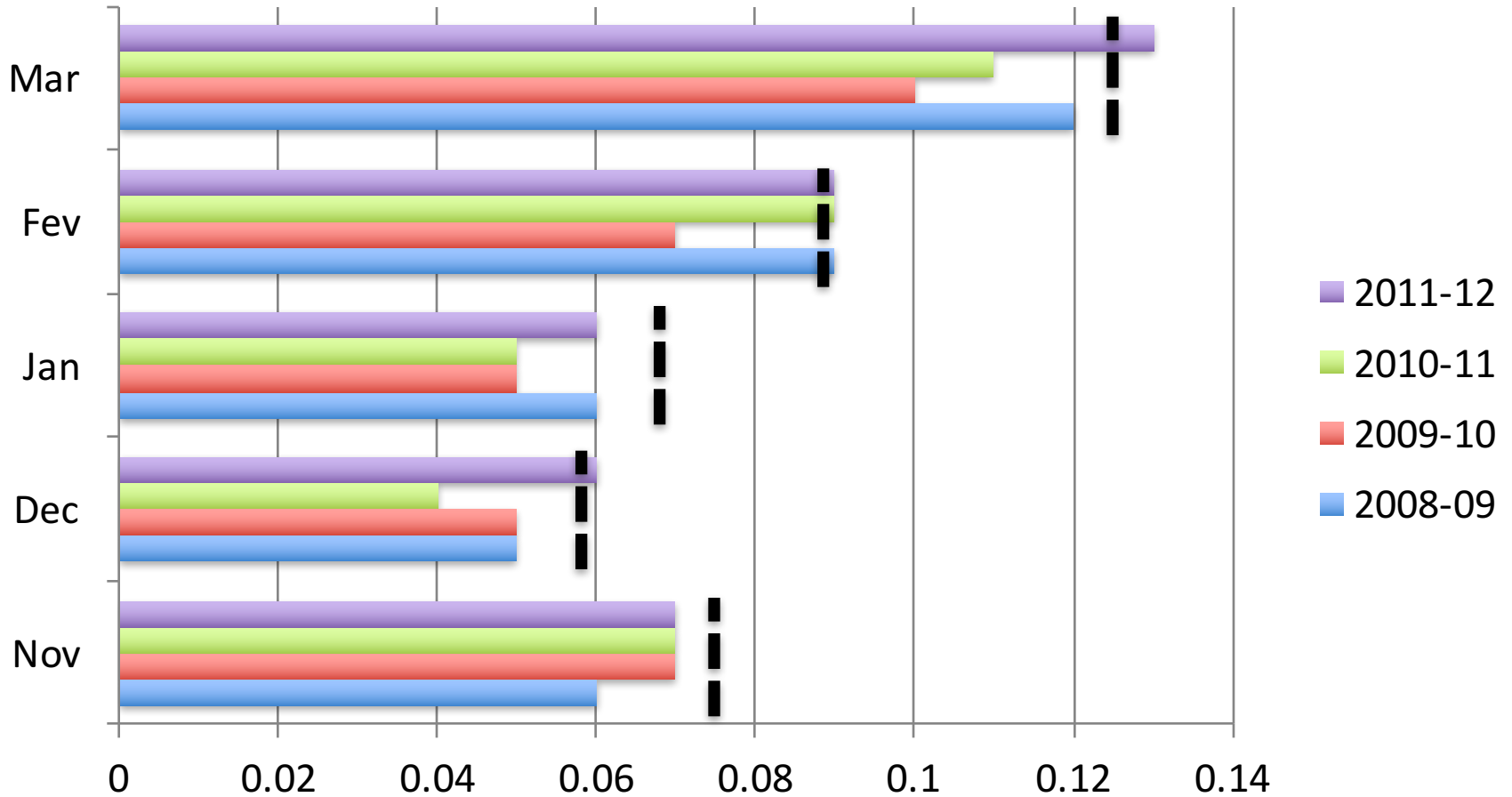
# Irrigation Management

- Irrigation management requires information about water needs of the crop and water-holding characteristics of the soil
- Reference ET ( $E_{To}$ ) refers to the expected water use for a uniform green cover crop such as grass
- Actual crop ET is estimated based on reference ET and crop development stage  
 $ET_{crop} = K_c * E_{To}$



# Average $ET_0$ (inches/day)

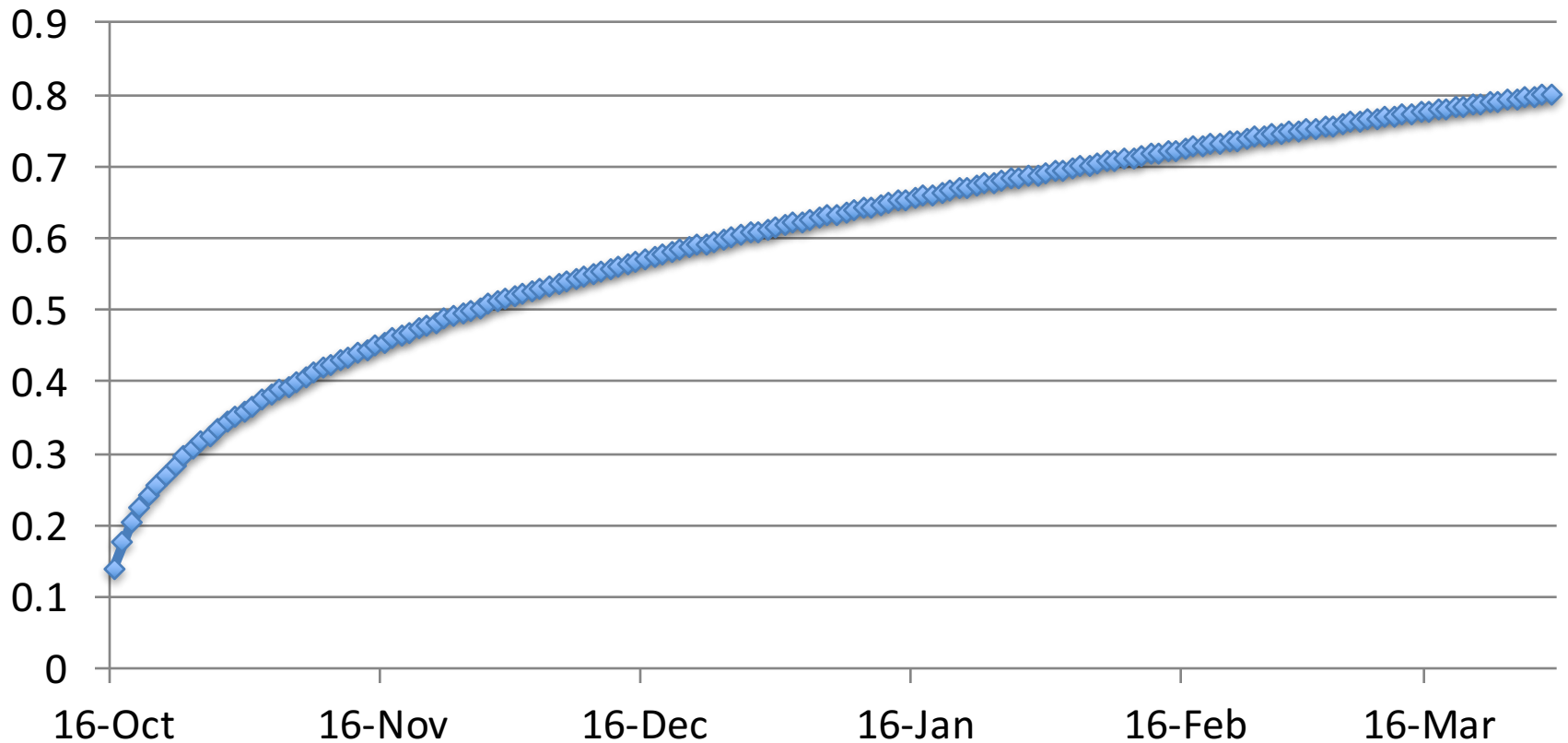
## Dover, FL



Long-term average based on NWS station in Plant City, FL

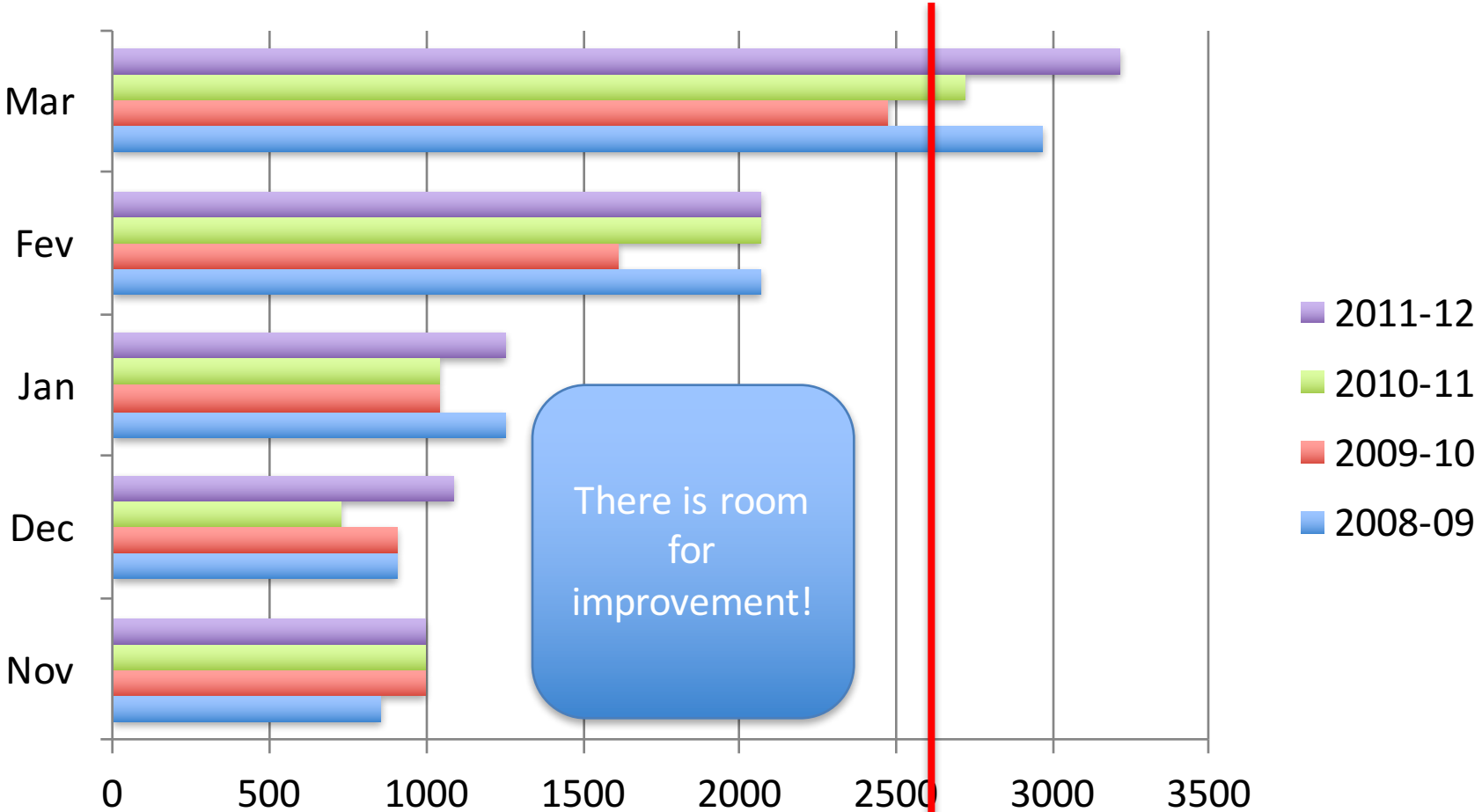
$$ET_{\text{crop}} = K_c \cdot ET_o$$

$K_c$



Regression of measured crop coefficient ( $K_c$ ) from Clark et al. (1992) as a function of percentage of season (drip-irrigated strawberries on plastic mulch beds)

# Average Daily ET<sub>crop</sub> (gallons/acre) Dover, FL



System efficiency = 90%

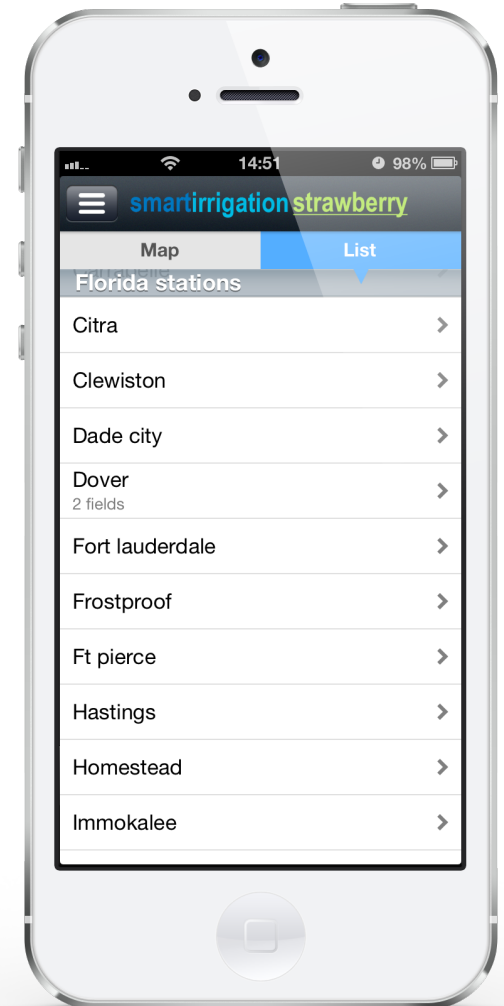
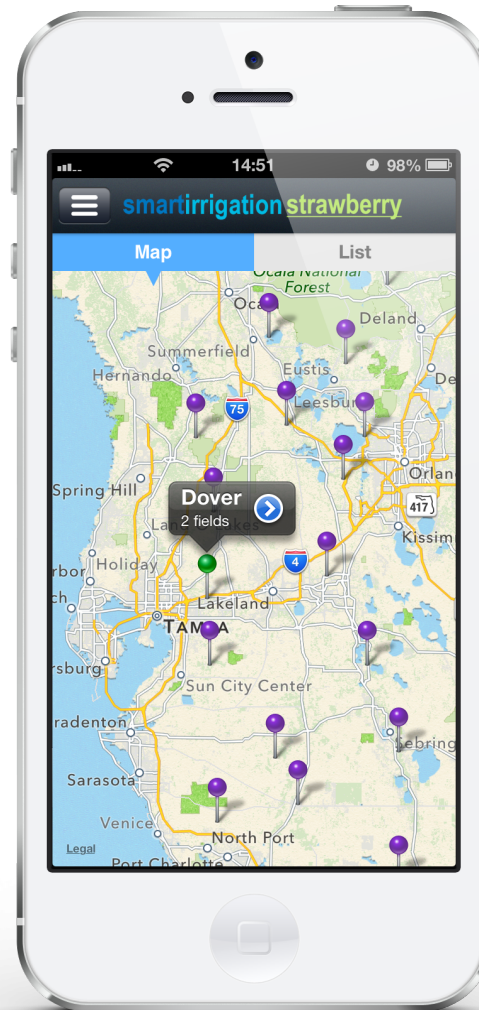
1 Hour - typical system 4 ft bed spacing , 25 gal/100ft

# Smart Irrigation Project: Objectives

- Develop, validate, and execute Smartphone apps (Iphone & Android) for citrus, cotton, strawberry, and urban lawn to provide real-time and forecasting information for more efficient irrigation and water conservation
- Incorporate stakeholders into the development process through app piloting and regular review

1

# Location selection



Access information by selecting a location using a list or map. Only locations with weather stations (FAWN or GAWN) are selectable options.

# 2

## Data Entry

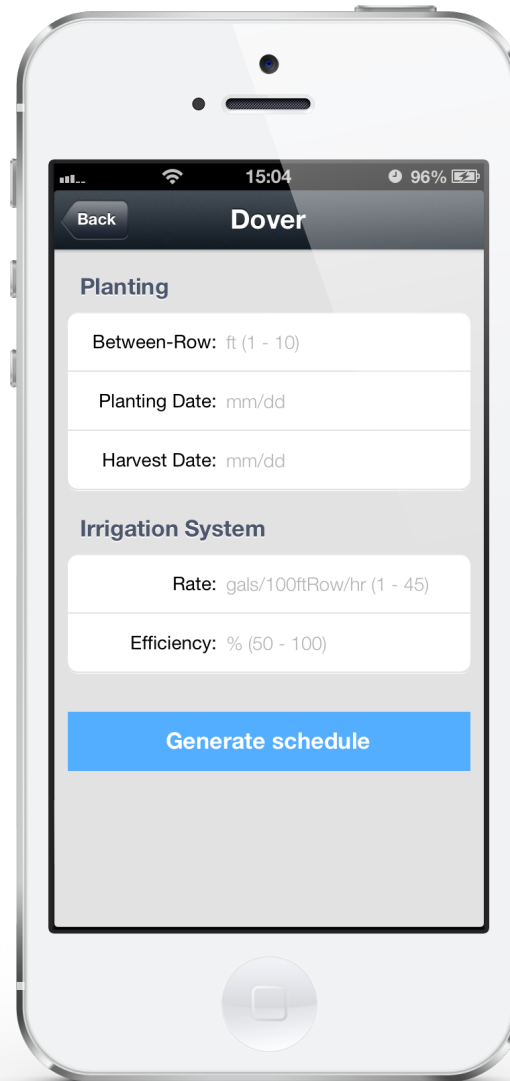
### Planting

- Between Row: ft (1-10)
- Planting Date: mm/dd
- Harvest Date: mm/dd

### Irrigation System

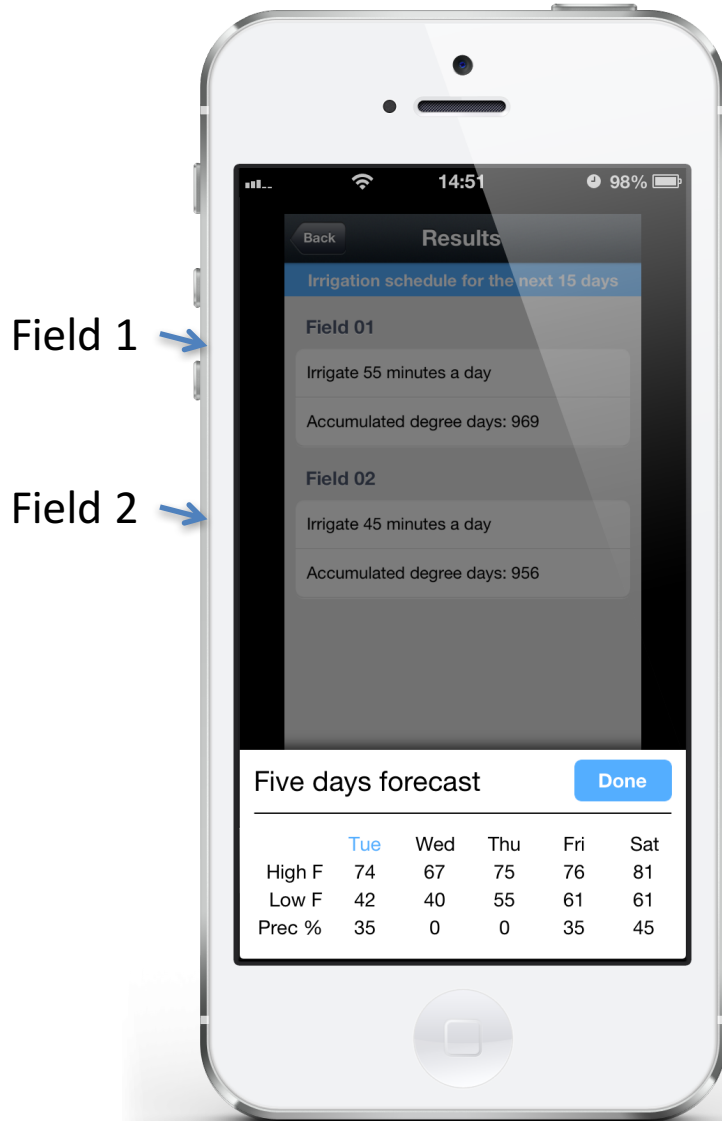
- Rate: gal/100ft
- Efficiency (%)

Generate Schedule



# 3

## App Output



App output provides:

- Irrigation schedule for the next 15 days (minutes per day)
- Accumulated growing degree days (40°F) since planting
- Forecast for the next 5 days (NWS)

# 4

## Tool Selection & Customization

### Tool

- Irrigation scheduler
- ?

### Data

- Fields
- Initial map view
- Notifications

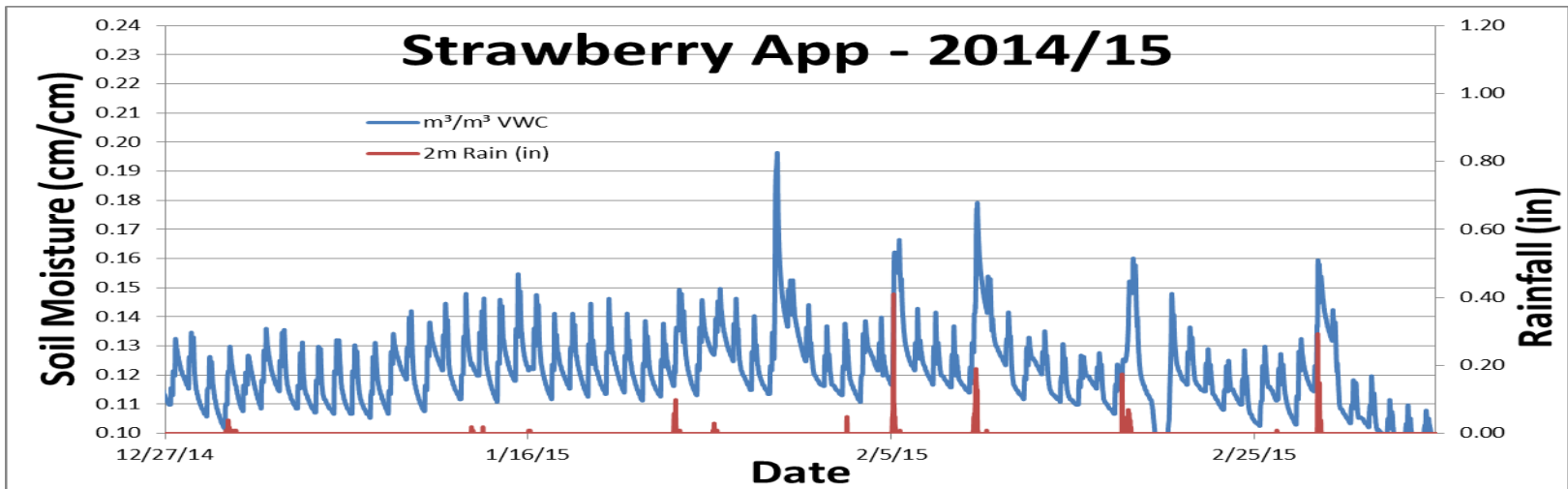
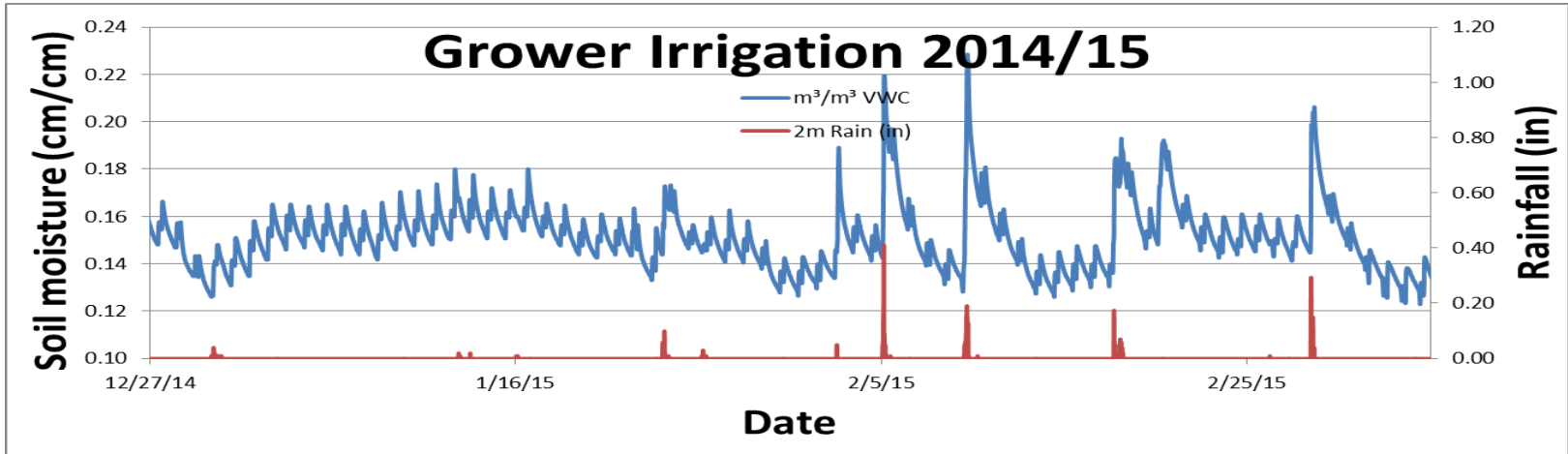
### Information

- Disclaimer
- About

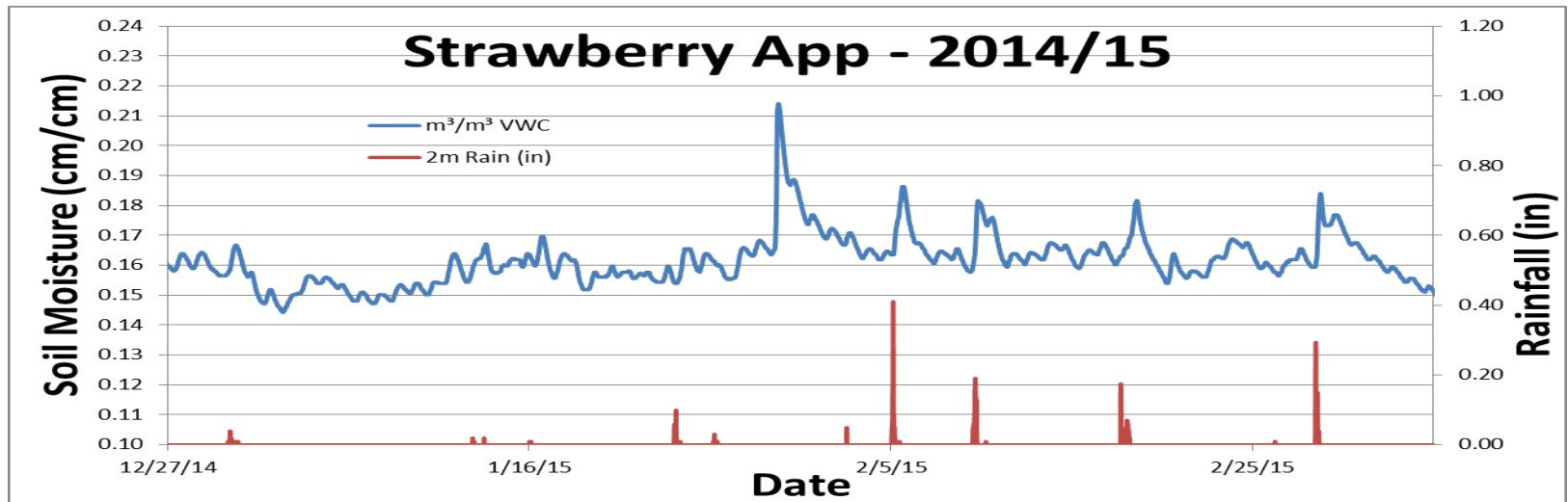
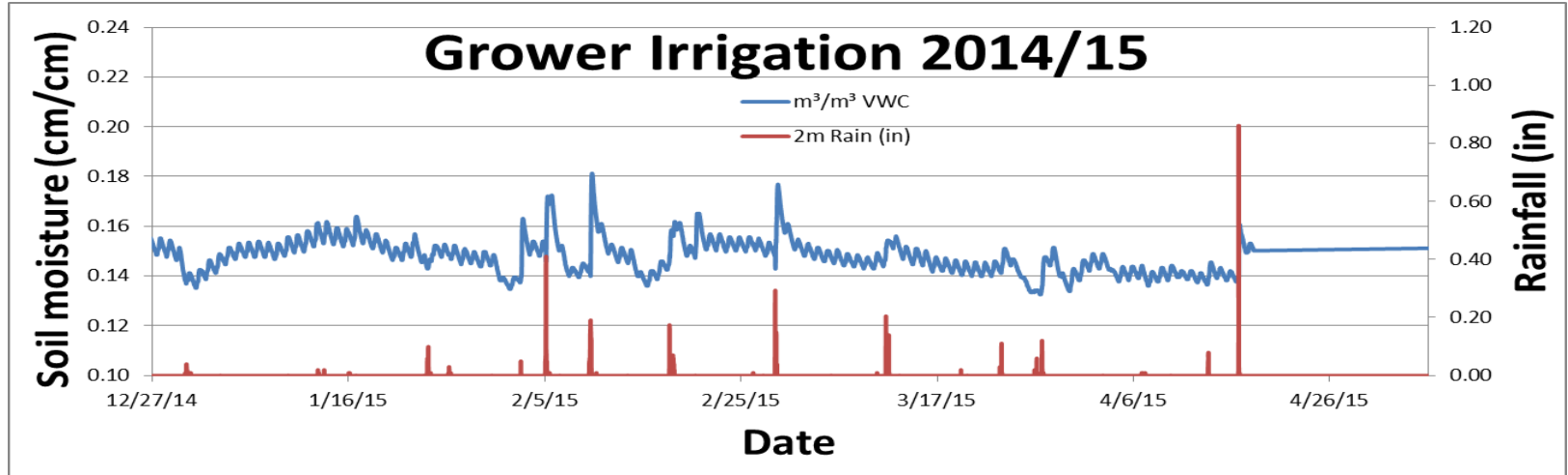




# Soil Moisture at 6 inches



# Soil Moisture at 18 inches



# Thank you!



## smartirrigation apps

### Realization



United States Department of Agriculture  
National Institute of Food and Agriculture

