

eRAMS Home My Account My Groups Resource Center

Map Fields

Select Field: TKPIVOT22

Weather Stations

TKPIVOT22
117.71 acres

COLORADO IWM (449) eRAMS-WISE GUIDANCE

BACKGROUND:

NRCS Colorado will be transitioning over to the CSU eRAMS WISE program for use in IWM.

eRAMS:

What is eRAMS?

Environmental Risk Assessment and Management System. eRAMS is a Colorado State University (CSU) developed platform for building accessible and scalable analytical tools and simulation models that can be accessed via desktop or mobile devices. eRAMS provides online services for sustainable management of land, water, and energy resources.

WISE:

What is WISE? The Water Irrigation Scheduler for Efficiency was produced by researchers at Colorado State University in cooperation with growers across the state of Colorado, WISE makes irrigation scheduling both convenient and as cost-effective as possible to maximize crop yield and also minimize excess irrigation. See the User Guide below for more information

REASONING:

As technology changes, NRCS Colorado can no longer guarantee the functionality of CO449 JS_1 which has been used for irrigation system analysis and documentation. Due to agency software and hardware changes in recent years, in most cases CO449 JS_1 doesn't operate as planned. Use of CO449 JS_1 is optional and at the discretion of the planner. Keep in mind NRCS Colorado will not provide support to fix any issues. Therefore, NRCS will be transitioning to the use of the WISE for IWM.

PURPOSE OF THIS DOCUMENT:

To provide guidance to NRCS personnel in the use of eRAMS-WISE. Below are the directions and links to access the program.

NOTES:

eRAMS should run on the Internet Explorer (IE) browser on NRCS machines, however if there are performance issues then an alternative is to run eRAMS through the browser Mozilla Firefox. This browser can be downloaded onto NRCS machines, but employees will have to work through their local IT person to have Mozilla Firefox installed.

NRCS FIELD OFFICE PROJECTS:

eRAMS is a powerful platform and it is recommended that FO personnel familiarize themselves with its structure and functionality. Knowing the structure of eRAMS will assist with IWM project organization. Field Office personnel may want to consider setting up projects that encompass groups of farmers, specific geographic areas, by calendar years, or all irrigation water management activities in one project for the office instead of having individual landowner projects. Account access to eRAMS is by individual, however FO's may want to consider utilizing one person's email as the login and a FO password to access eRAMS. Some thought should be attempted on project naming conventions. If employees are working with numerous landowners over multiple years on IWM consider at least utilizing a year designation in the

project name. eRAMS has the capability to allow for copying data from one project to another, thus dramatically reducing data entry time.

CONTACT INFORMATION:

NRCS:

Todd Boldt

Cell: 970-215-9897

Email: todd.boldt@co.usda.gov

CSU:

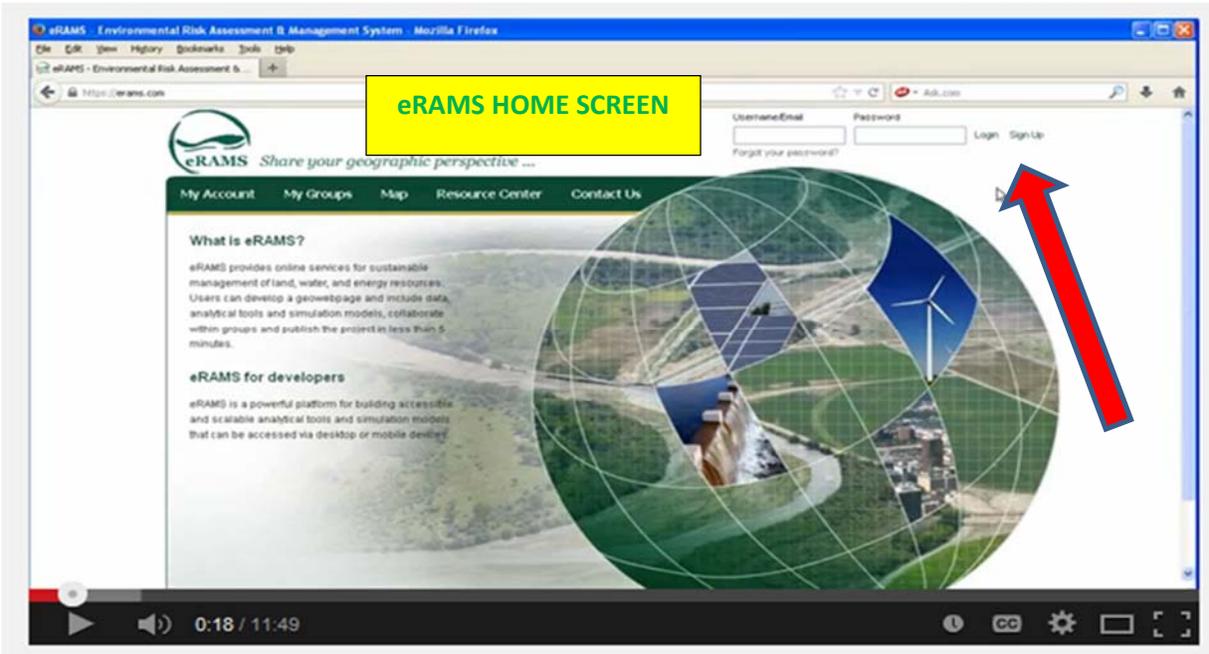
Erik Wardle

Phone: 970-491-0447

Email: erik.wardle@colostate.edu

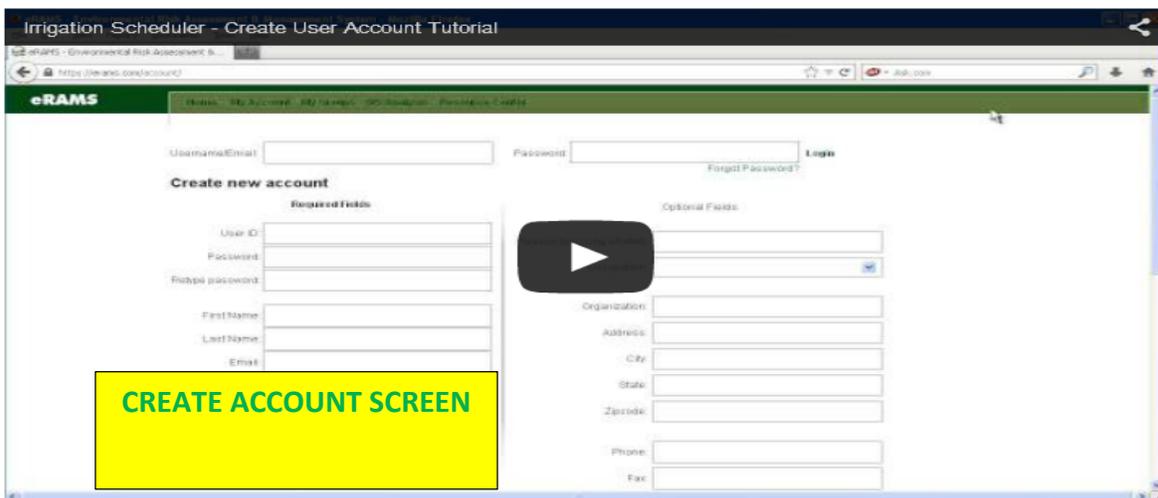
HOMEPAGE

1. Navigate to <http://www.erams.com>
See (<https://www.erams.com/resources/Apps/Irrigation%20Scheduler>) if you prefer to view short videos for instructions.



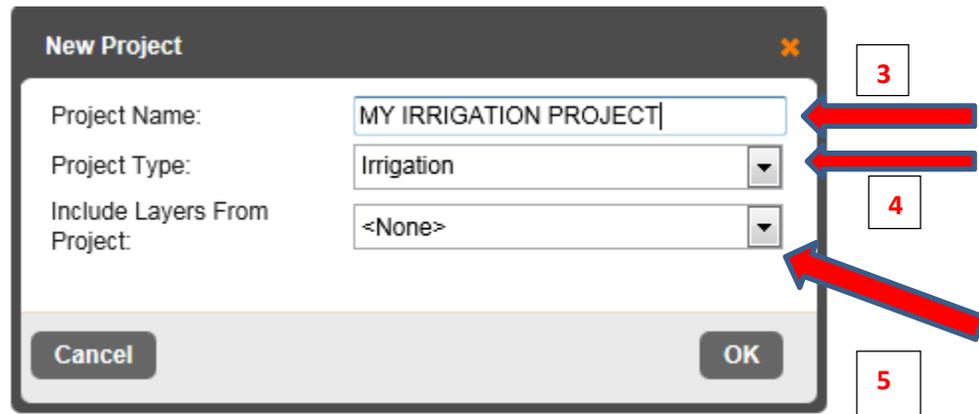
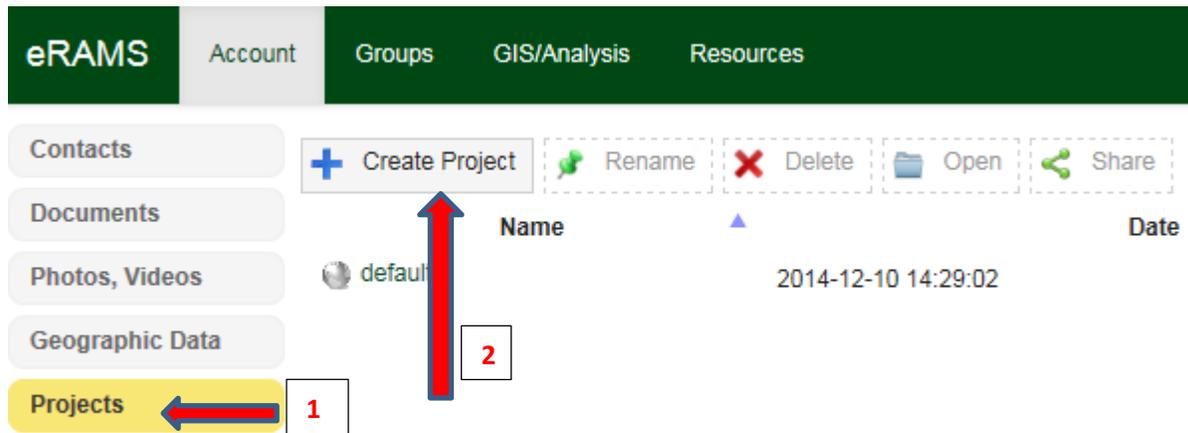
CREATE A NEW USER

1. Click on the **“Sign Up”** link at the top right corner of the Home Screen.
2. Click **“Register Now”** in the right hand corner of the screen.
3. Enter your required user information and click **“Create Account.”** You’ll be logged into eRAMS.



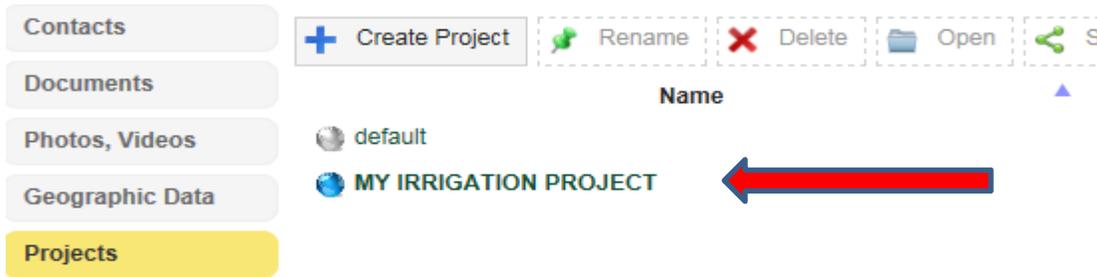
ADD IRRIGATION PROJECT AS DEFAULT PROJECT

1. On the left hand side of the page, click on the **“Projects”** box.
2. When the Projects page opens, click on **“Create Project.”**
3. Enter a name for your project, such as **“My Irrigation Project 2015.”**
4. **Under “Project Type,” select “Irrigation.”**
5. The **Include Layers from Project** drop down allows a user to bring existing field and crop data into the project from other projects created in eRAMS-WISE. This is extremely valuable when working with a producer in multiple years. This will eliminate the need to reenter data every year.
6. Click **“OK.”**



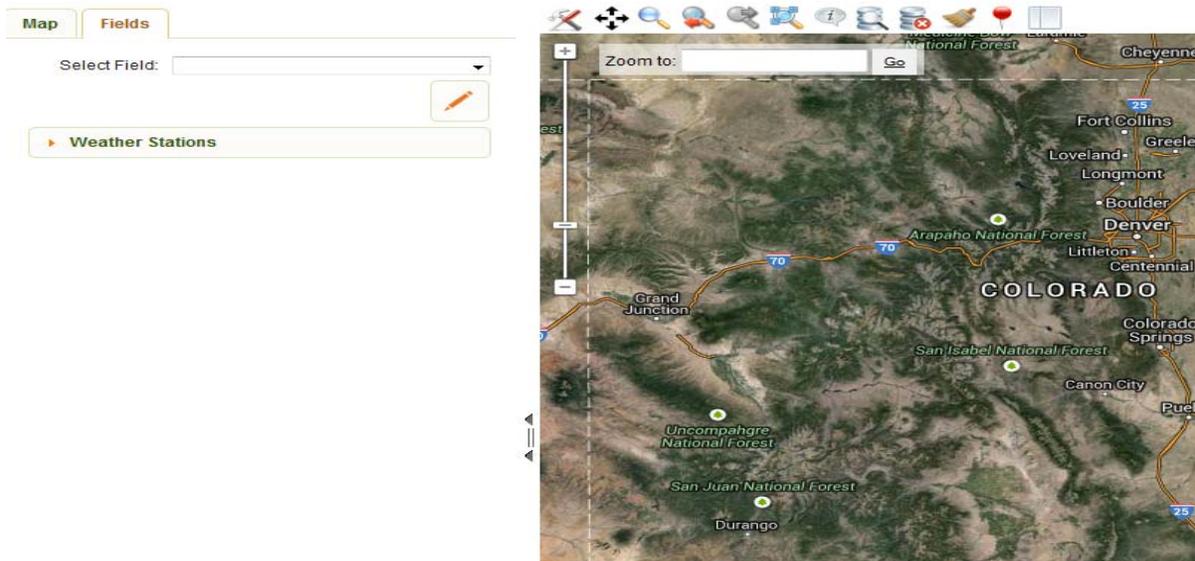
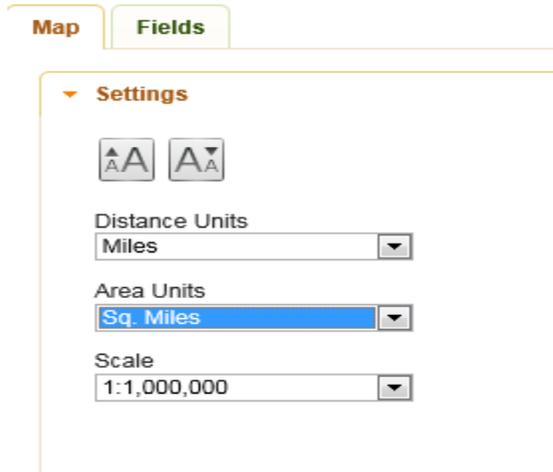
OPEN THE MAP

1. The new project will be listed on the screen. If more than one project is created, the active project will be bold and the globe icon will be blue. **Double click** on the project name to open the irrigation project.

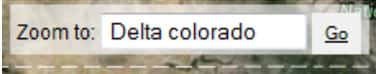


CREATE A CROP FIELD

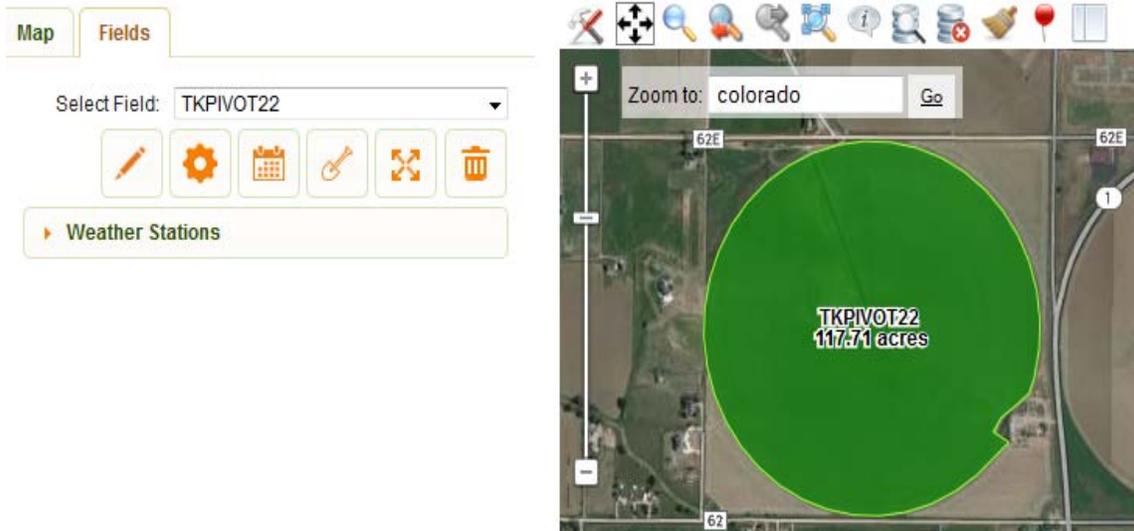
1. On the left side of the screen, you will see two tabs: “Map” and “Field.” To change units of measurement click on “Map” tab.



2. Use your mouse wheel or the zoom tool above the map to zoom to a particular location

on the map. Type in a location in the box  and it will zoom to the specified location.

- a. To use the zoom tool, click on the zoom tool button  then click and drag your mouse across the map. Once you let go of your mouse, the map will zoom to the extent of the box that was previously drawn.
3. Hover over the **“Draw”** button (the pencil icon)  which is located below the “Select Field” dropdown box.
 - a. Select **“Draw Circle,” “Draw Polygon,” or “Import.”**
4. For a **polygon**, draw your crop field by making successive clicks on the map at each corner of your crop field. Double click to complete.
 - a. To draw a **circle**, click and hold your mouse in the center of the circle you wish to draw, then drag your mouse to the perimeter of the circle. Release your mouse to complete.
 - b. **Import** can bring a shape file that you have already developed.
5. Provide a name for your crop field in the dialog box that appears, such as “My Alfalfa Field 2015,” and click OK.



- After naming the field if you want to edit the field shape go to the gear  and select edit shape, this will bring up the following information:

Click here to finish editing or cancel. You can also reshape your crop field.

The red words of **here, cancel or reshape** become active by clicking on the word.

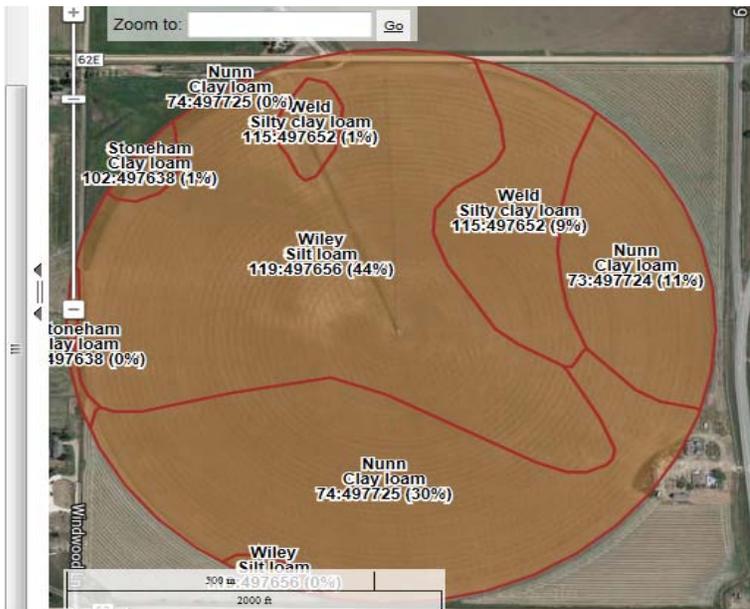
- Once you name the field and click OK. The program will attain the NRCS soils information for your field. This may take a while.
- Once the soils are done aggregating click on the  to display the soils information.
- Select a dominant soil that will be used when calculating your crop irrigation schedule by clicking the checkmark next to the desired soil. If nothing is selected, the scheduler will use the soil with the largest area of your crop field

DISPLAY SOILS INFORMATION FOR YOUR CROP FIELD

Soils Summary

Select a dominant soil that will be used when calculating your crop irrigation schedule by clicking the checkmark next to the desired soil. If nothing is selected, the scheduler will use the soil with the largest area of your crop field.

- | | |
|---|-------------------------------------|
| Wiley
Silt loam (44%) | <input checked="" type="checkbox"/> |
| Nunn
Clay loam (30%) | <input type="checkbox"/> |
| Nunn
Clay loam, Clay (11%) | <input type="checkbox"/> |
| Weld
Silty clay loam, Silty clay, Clay (9%) | <input type="checkbox"/> |
| Weld
Silty clay loam, Silty clay, Clay (1%) | <input type="checkbox"/> |
| Stoneham
Clay loam, Sandy clay loam, Loam (1%) | <input type="checkbox"/> |
| Nunn
Clay loam (0%) | <input type="checkbox"/> |
| Stoneham
Clay loam, Sandy clay loam, Loam (0%) | <input type="checkbox"/> |
| Wiley
Silt loam (0%) | <input type="checkbox"/> |



VIEW WEATHER STATIONS

Weather stations may have already been collected for your crop field, but if not you can use the following steps to find weather stations nearest your crop field.

1. Click on the “Weather Stations” panel below the “Field” tab on the left side of the screen, if the panel has not already been opened.
2. Click on the “Search” icon to find closest applicable weather stations for your crop field. (Note: currently only Colorado CoAgMet, NCWCD, and AgriMet weather stations exist).
3. Click on a weather station to see it on the map.
4. Click on the “Zoom to Full Extent” button to see all of the weather stations displayed on the map
 - a. Hover your mouse over a weather station marker on the map to see details about the weather station.

ACTIVATE OR DEACTIVATE WEATHER STATIONS

1. Activate or deactivate a weather station in the left column by clicking on the power button that appears next to a weather station name when you hover your mouse over the station.

VIEW WEATHER DATA FOR A WEATHER STATION

1. Click on a weather station in the list of search results
2. From the popup box displayed on the map that represents this weather station, click “See Current Weather”

The screenshot displays the eRAMS WISE interface. On the left, the "Weather Stations" panel shows a search radius of 20 miles and a list of stations. The "CoAgMet" section lists "CSU - ARDEC (3.3 mi)" with a blue hexagon icon, "Fort Collins AERC (9.1 mi)" with a yellow circle, and "Northern Water" with two blue circles. The "Northern Water" section lists "Fort Collins - East (6.1 mi)", "Fort Collins - Central (10.0 mi)", and "Eaton (15.6 mi)" with blue circles. A red arrow points from the blue hexagon icon to a green text box that reads: "The blue hexagon means that the weather station is fully irrigated."

In the center, the "Weather Station Legend" popup shows three categories: "Fully Irrigated" (blue hexagon), "Partially Irrigated" (yellow circle), and "Dry Land" (red circle).

On the right, the "About Weather Stations" popup explains that the selected station is used for calculating crop water use (ET), crop development, and precipitation data. Below it, the "Weather Station Legend" popup is visible. The main map shows "MY ALFALFA FIELD 124,69 acres" near Laporte, Colorado. A detailed popup for "CSU - ARDEC (2015-02-09)" is shown, including a link to <http://ccc.atmos.colostate.edu/> and the following data:

Irrigation Type:	full
Distance:	3.3 mi
Elevation:	5110 ft
Evapotranspiration:	0.131 in/day
Precipitation:	0.000 in
Max Temperature:	64.6 °F
Min Temperature:	27.7 °F
Soil Temperature:	37.1 °F
Solar Radiation:	318 Lngly

A "See Current Weather" button is located at the bottom of the detailed popup.

SET UP/MODIFY YOUR CROP FIELD

1. Click on the **“Set Up/Modify” button**  in the “Field” tab on the left hand side of the screen. Notice you can edit the shape of your field from this location also.
2. Enter a **Crop Type, Planting Date, and Emergence Date** for your crop field in the dialog that is displayed.
3. Enter the **type of irrigation system, method and use the slider bar** for selecting the irrigation system efficiency.
4. If applicable enter the **initial soil moisture deficit** in percent. If no number is entered the program will utilize 0% as the default.

Crop Information

Choose your crop type from the pull down menu below. Next, select your planting and emergence dates or leave blank if these are in the future.

Name:

Crop Type:

Planting Date:

Emergence Date:

Est. Harvest Date:

SETUP/MODIFY CROP INFO WINDOW

Advanced button 

Irrigation Information

Enter information about the irrigation system you use on this field.

Type:

Method:

Efficiency: 75% **Efficiency slider bar** 95%

Soil Information

Enter the initial soil moisture deficit for the crop rooting zone.

Initial Soil Water Deficit (%):

Initial soil moisture deficit

Using Map Unit 74:497725  

Soil Layer (in)	Soil Type	AWC (in/in)
0 - 10	Nunn	0.19
10 - 60	Nunn	0.17

Change AWC by double click

5. Note the AWC (in/in) column. The information can be changed by a double click in the box with the numbers.

6. Note the Advanced button.  Enter more specific information about the growth and development of the crops contained in your field. Note you can change the root zone depth and MAD.

Crop Development

Enter information about the growth and development of the crops contained in your field.

GDD at Maturity:

Base Temperature (°F):

Max Temperature (°F):

Managed Root Zone (in):

MAD (%):

ADVANCED WINDOW

Kcr Transitions

This section displays values for crop coefficients, which are used when calculating water deficits in your crop field. You can change them here or click on the "graph" button below to see a visual representation.

Cutoff 1:

Cutoff 2:

Cutoff 3:

Kc, ini:

Kc, mid:

Kc, end:



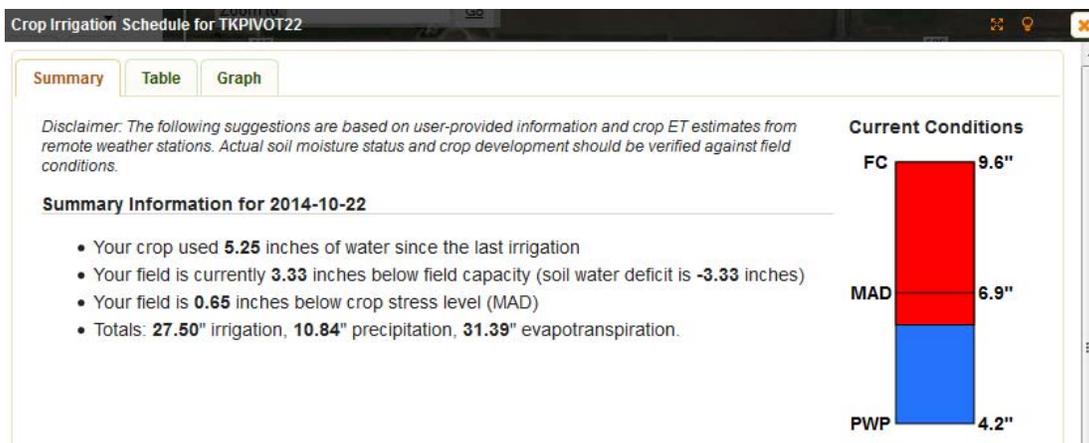
Load Defaults

Done

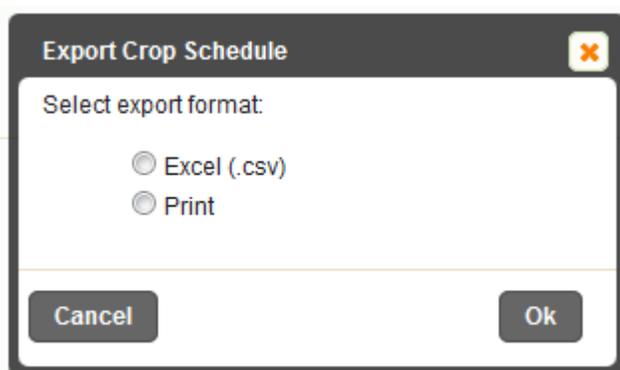
7. When changes are completed in the advanced window, click “Done”.
8. In the *Set Up Modify* window. Click “Update” on the bottom right corner of the dialog box. Then Click “Done”.

VIEW IRRIGATION SCHEDULE

1. Click on the “Schedule” button  in the “Fields” tab on the left hand side of the screen.
2. A summary of your crop field’s irrigation needs, as well as a table and graph of irrigation scheduling results can be viewed by clicking on their corresponding tabs.

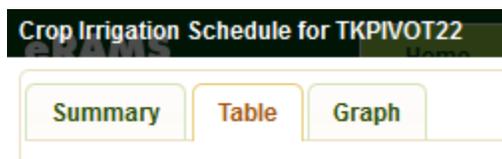


- The **EXPORT** button on the screen can be used to print out the information for the summary tab.



ENTER YOUR OWN RAIN OR IRRIGATION

- Click on the **Table** tab in "Crop Irrigation Schedule" dialog box.

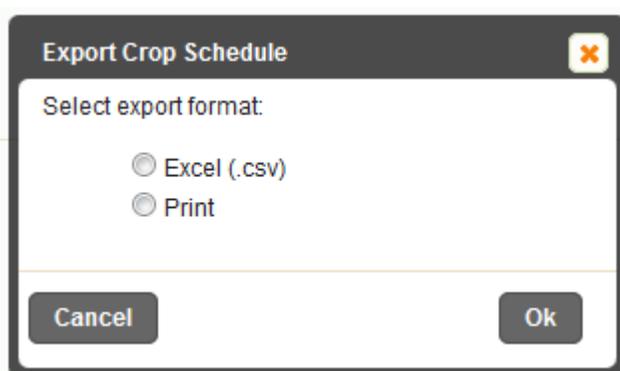


- Double click on one of the gray boxes under the Gross Irrigation, Rain, or Observed Soil Deficit columns. A text box will appear allowing you to enter a value. Type in a value and hit **"Enter"** on your keyboard.

Date	Crop Progress (%)	GDD (°F days)	Crop Water Use (in)	Gross Irrigation (in)	Rain (in)	Effective Water (in)	Soil Water Deficit (in)	Observed Soil Deficit (%)
July 18	48.0	2543.7	0.20	3.00	0.01	2.41	-0.24	
July 19	48.7	2580.0	0.31			0.00	-0.55	
July 20	49.4	2617.5	0.32		0.09	0.09	-0.77	
July 21	50.1	2655.4	0.29			0.00	-1.06	
July 22	50.8	2694.2	0.30			0.00	-1.36	
July 23	51.6	2733.4	0.20			0.00	-1.56	
July 24	52.3	2770.8	0.24			0.00	-1.80	
July 25	53.0	2808.7	0.23			0.00	-2.04	
July 26	53.7	2843.9	0.20			0.00	-2.23	
July 27	54.3	2880.3	0.20			0.00	-2.43	
July 28	55.0	2917.2	0.28		0.11	0.11	-2.60	
July 29	55.7	2952.0	0.13		0.62	0.56	-2.16	
July 30	56.2	2977.4	0.05		0.40	0.39	-1.81	

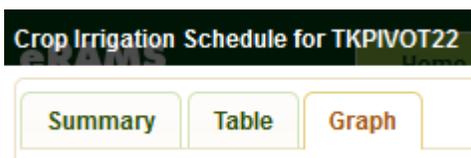
Export Ok

3. Click on the **“Update”** button to save this updated value to your irrigation schedule.
4. The **EXPORT** button on the screen can be used to print out the information for the table tab.

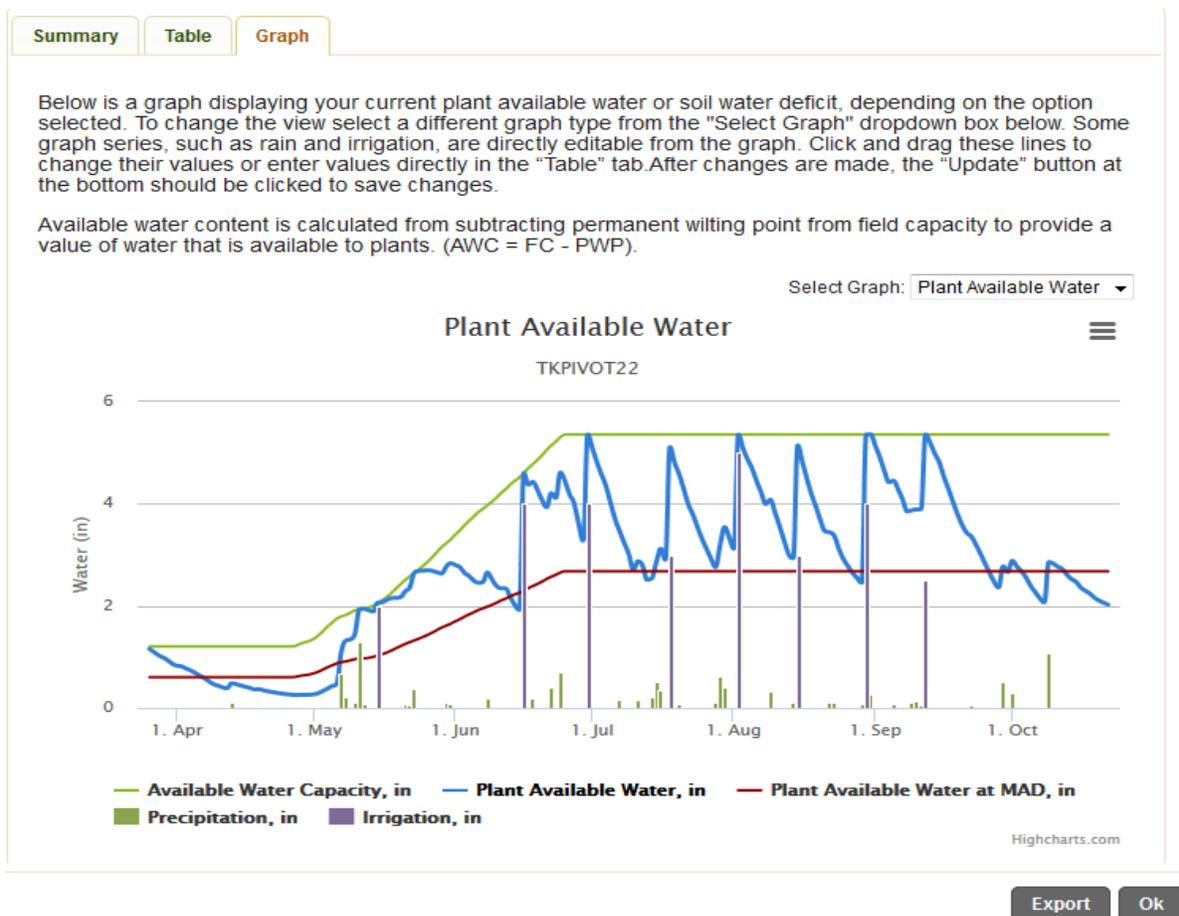


VIEW SCHEDULE GRAPHS

1. Click on the **“Graph”** tab in “Crop Irrigation Schedule” dialog box. A graph of plant available water will appear to display a visual representation of your schedule.



2. Click on the **“Select Graph”** dropdown box on the right hand side of the “Crop Irrigation Schedule” window. There are two graph options: Plant Available Water and Water Deficit to select from.



PRINT OUT THE GRAPH



1. Users have many options to print out the graph, clicking the ☰ button will list the options. A PDF may be the best option, however it is at the user's discretion.

FINAL DOCUMENTATION

1. At a minimum print out the summary, and Plant Available Water graph as the documentation for the application of IWM.

SMARTPHONE APPLICATIONS

An iOS app is now available. In the Apple App Store, search “WISE Irrigation,” or visit: <https://itunes.apple.com/app/id928128681>. Android users can use a web browser to utilize our html version located at: <https://erams.com/mobile/irrigation/>.

The smartphone application allows access to your projects, thus making in the field data entry beneficial.