



**VRI Pivot
Prescription Software
Version 8.55**

User Guide

0998090_D



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General Information

About this User Guide

This user guide illustrates the proper installation and use of the Pivot Variable Rate Irrigation (VRI) Prescription software. This product works with the following 32- or 64-bit operating systems: Windows 7, Windows 8 or Windows 10.* And, it requires that Microsoft .NET, version 4.0 be installed.

All information in this manual is based on information available at the time of printing. Valmont Industries Inc. reserves the right to make changes at any time without notice and without incurring any obligation. Specifications are applicable to equipment sold within the United States, and may vary outside of the United States.

Minimum Hardware Requirements

- 8 GB RAM
- i5 Processor - 2.0 GHz
- Intel HD Graphics 4400
- 128 GB Hard Drive
- USB 2.0 port with USB to serial adaptor Valmont part no. 0178021
- Wi-Fi Capability
- Serial connection (USB to RS232 converter).

Valmont Recommended Laptop or Tablet Computer:

GETAC V110 or F110 preloaded with Valmont Applications available at www.integron.com/valley. This recommendation meets all the above minimum hardware requirements.

Software and Manuals

Flash Drive delivery of software and manuals.

- Insert flash drive into the USB port, go to Windows Explorer and select the flash drive to access:
 - » Manuals
Open a manual using Adobe Reader 8.0, or later, recommended for display of the Variable Rate Irrigation (VRI) Prescription Software User Guides.
 - » Prescription Software

NOTE

- **Uninstall all previous versions of VRI prescription software from the computer before installing the new version.**

Open setup.exe, then click **OK**.

* Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Overview

Zone Control

Valley's Pivot Variable Rate Irrigation (VRI) operates with the sprinklers of the machine arranged in groups (zones); each zone is controlled independently. A prescription map assigns an application percentage to each zone for a sector of the field.

Speed Control

Creating a VRI Speed Control prescription is conducive for growers who want to minimize costs but still receive the benefits of applying water more efficiently. The VRI Speed Control prescription software divides the 360 degree field into two-degree segments creating 180 pie-shaped sectors for which then watering rates must be established to accommodate the variances in soil type, topography, etc. The uploaded VRI prescription speeds up and slows down the pivot to achieve the desired application depth across each segment.

Prescriptions

VRI Prescription software creates the irrigation plan that tells the irrigation system when and where to adjust the application depth in each sector in the field. This plan can be based on topography information, soil data maps, yield data, and other user-defined information.

Introduction

Glossary of Terms and Acronyms

The following are definitions of terms and acronyms used in this manual.

AgSense ComanderVP – Remote monitoring and communication device used to report changes in equipment operation to the user and to communicate user-initiated control commands to the equipment control panel.

Base Station – The combination of a computer with control software and hardware that is used to remote control or monitor a device. (i.e. a pivot or pump controlled with a computer).

Center Pivot Irrigation - A form of sprinkler irrigation consisting of several segments of pipe joined together in a span and supported by trusses, mounted on wheeled towers with sprinklers positioned along the length of the span. The system moves in a circular pattern and is fed with water from the pivot point at the center of the arc.

GPS (Global Positioning System) - A space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.

Grid - Pattern of Sectors.

Irrigation Zone - A predetermined area of a field requiring a unique management plan comprised of one or more sectors.

North Offset Angle - An angular offset, in degrees, relative to the North Pole (zero-degrees north). This indicates the 0-degree pivot position for grid.

Prescription - Irrigation plan that tells the center pivot when and where to adjust the application percentage (depth) in specific irrigation management sectors in the field.

Pivot Point - The center point of the irrigation system which feeds water to all of the sprinklers in the spans.

Pivot Length - Length of the pivot as measured from the pivot point to the end of the machine which includes the overhang.

Pivot Project - Collection of all prescriptions related to a single pivot. One project per pivot.

Pivot Road - Road/path/line from the center of the pivot to the outer ring, preferably on a zero-degrees north angle.

Remote Telemetry - Measurement and transmission of data from a remote source.

RTU ID (Remote Telemetry Unit Identification) - Three-digit, user-defined number identifying the remote telemetry device associated with the pivot.

Sector - A predetermined area of a field to be prescribed a water application percentage. A Pivot Sector area is defined by the zone length and pivot circumference arc of 2 degrees pivot angle (segments).

Segment – A pivot segment is based on 2 degree increments totaling 180 segments.

Speed Control - Irrigation system control by which water is applied to the field in quantities based on the speed of the pivot over prescribed sectors of the field. These sectors are based off the entire length of the pivot machine by the segment length (degree increments).

Sprinkler Package - A group of sprinklers with each sprinkler designed to deliver a specific amount of water based upon the sprinklers position along the length of the machine. This package also includes pressure regulators and required components to install the sprinkler on top, on the side or below the span pipeline.

Road Angle - Angle of road off of zero-degrees north. Valid values are 0 through 359.

VRI - Variable Rate Irrigation.

Watering Rates – Percent of water application depth.

Zone - Bank of sprinklers grouped along a Pivot machine controlled by a single control. Zone numbering starts at pivot point and continues to the end of the pivot.

Zone Control - Variable rate irrigation where the sprinklers of the machine are arranged in groups (zones), each zone controlled independently. A prescription map assigns an application percentage to each zone for each sector in the field.

Create a Project and Prescription

Create a Working Folder

Before you begin creating a pivot project, you must create a working folder. The working folder is where all the new pivots (projects), maps, images, and prescriptions, that you create or select with the Variable Rate Irrigation (VRI) Prescription software, are stored. The suggested format is as follows. See Figure 7-1.

Drive

VRI Files

Folder <Name of Pivot A>

Folder <Name of Pivot B>

Folder <Name of Pivot C>

Folder <Name of Pivot D>

Images Folder

Maps Folder

Pivots-Projects Folder

Prescriptions Folder

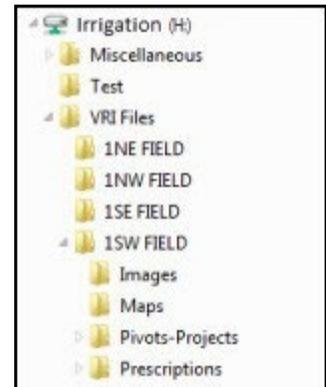


Figure 7-1 Folder format

Opening the VRI Application

To open the VRI application, double click on the VRI icon on your desktop. (Refer to Figure 7-2.)



Figure 7-2 VRI Icon

The Project Selection screen appears. Choose Pivot and click OK. The Variable Rate Irrigation screen for Pivots appears. See Figure 7-3

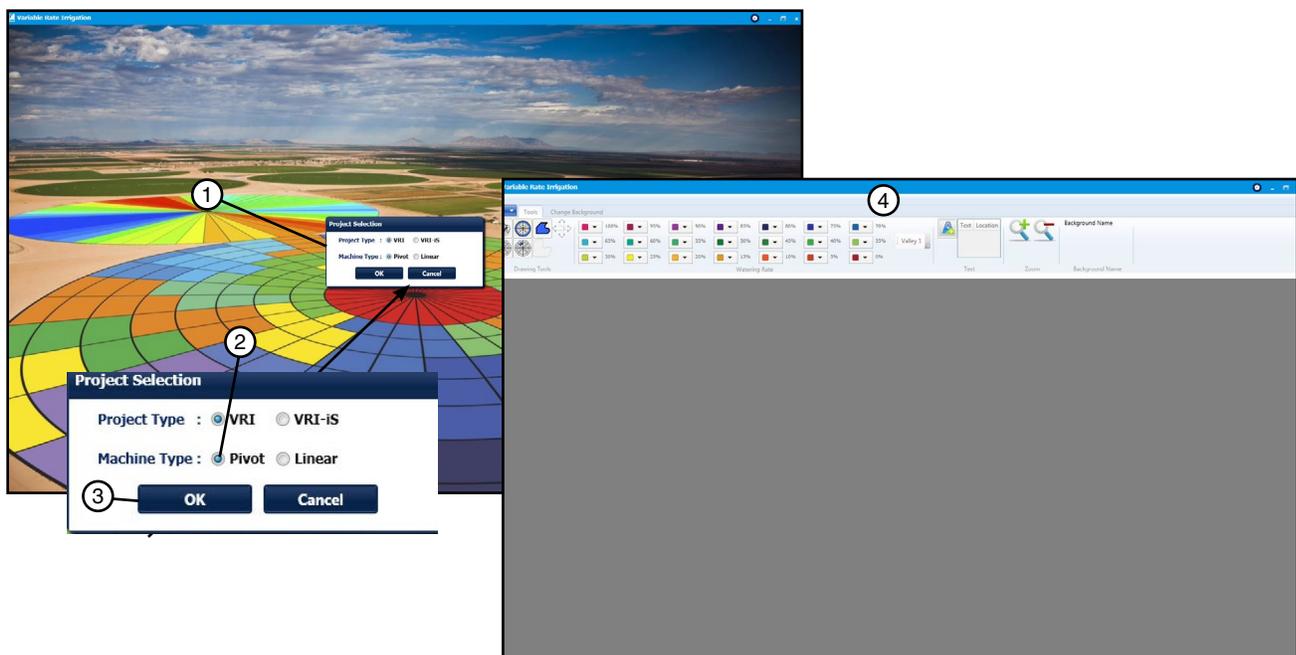


Figure 7-3 1. Project Selection screen
2. Choose Pivot

3. Click **OK**
4. Variable Rate Irrigation screen appears

Create a Project and Prescription

Creating a Pivot Project

Note: Within VRI, each project defines one pivot. Each project can have multiple prescriptions. Multiple pivots will require multiple projects.

To create a VRI project, select **New Project** from the VRI drop-down menu. See Figure 8-1.

The Add New Pivot screen appears.

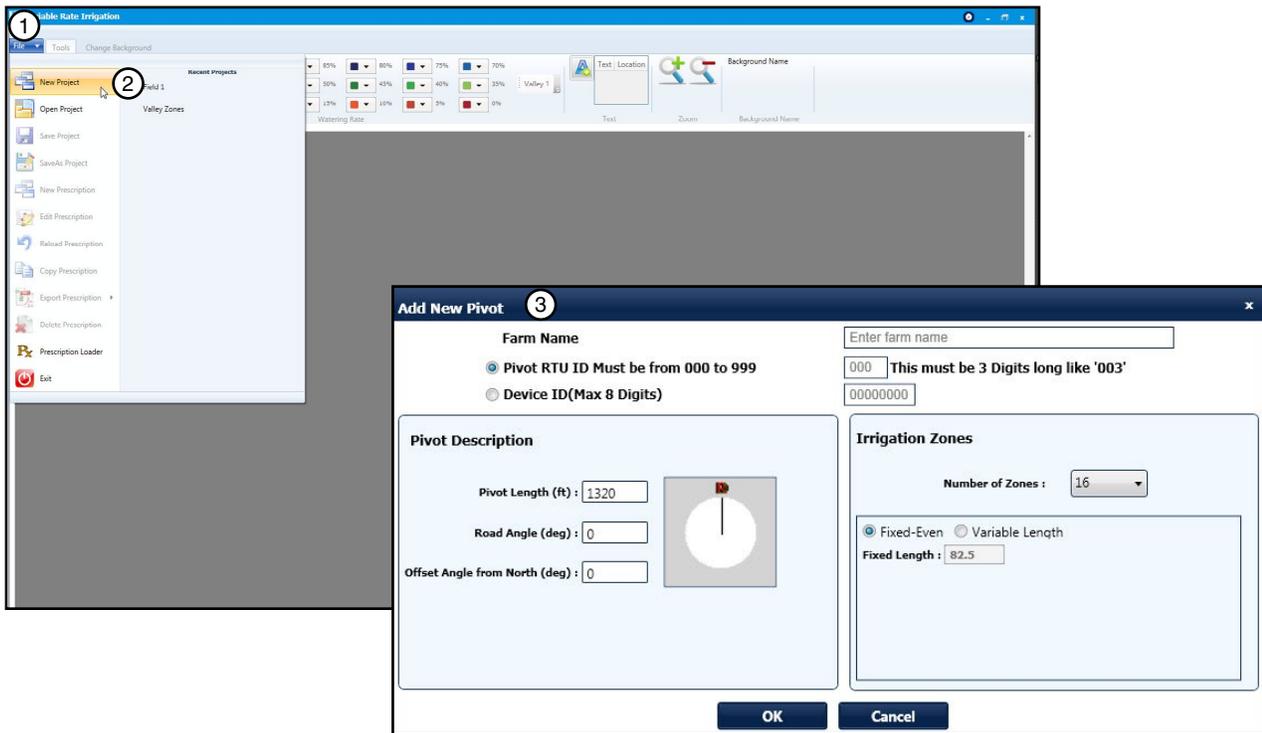


Figure 8-1 1. VRI Drop-Down Menu 2. Select New Project 3. Add New Pivot Screen

The Add New Pivot screen provides basic information regarding the layout of the field covered by the Pivot. The following are examples of terms used in this section. See Figure 8-2.

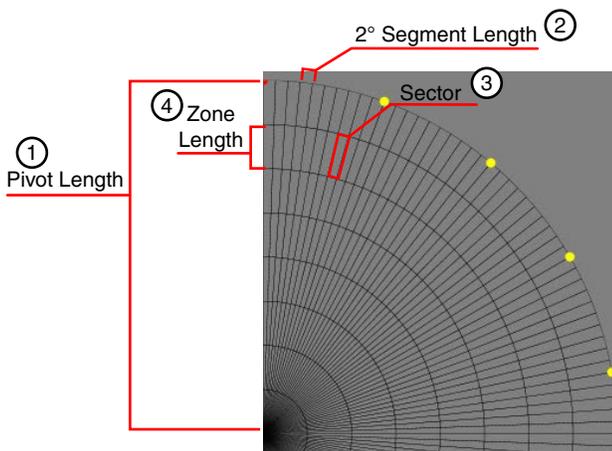


Figure 8-2 1. Pivot Length 2. 2° Segment Length 3. Sector 4. Zone Length

Create a Project and Prescription

Creating a Pivot Project

Pivot Parameters

The Pivot Parameters section of the Add New Pivot screen provides fundamental information about the pivot. See Figure 9-1.



Figure 9-1 Pivot Parameters

1. Enter the farm name in the **Farm Name** field.
2. Select one of the following, and:
 - Enter the pivot's Remote Telemetry Unit (RTU) number in the **RTU ID** field. This is a user-defined number, and must be three digits long.
 - or
 - Enter the Device ID in the **Device ID** field. The maximum length of this field is eight digits.

Pivot Description

The Pivot Description section of the Add New Pivot screen provides the physical and logistical information about the pivot. See Figure 9-2.

1. Enter the pivot's total length in feet in the **Pivot Length** field. Length of pivot for VRI Prescriptions is from pivot point to end of machine which includes the overhang. The maximum length is 3,000 feet. The default length is 1320 feet.
2. If desired, enter the road angle in degrees (in relation to the Offset Angle from North) in the **Road Angle** field.
3. If desired, enter the offset angle in degrees in the **Offset Angle from North** field.

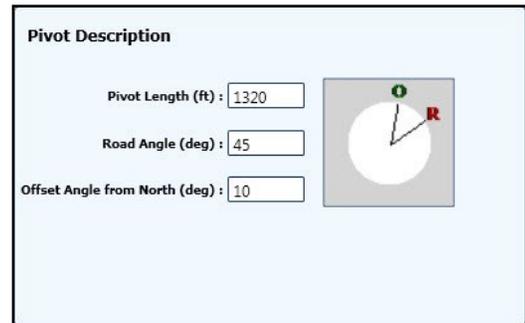


Figure 9-2 Pivot Description

Irrigation Zones

The Irrigation Zones section of the Add New Pivot screen provides information on the number of zones and their lengths. See Figure 9-3.

See the Irrigation Zones section of the Appendix for more information.

1. In the Irrigation Zones section, select the number of zones in the **Number of Zones** drop-down menu. The maximum number of zones allowed is 30. See Figure 9-4.

NOTE
• Select 1 Speed Ctrl to implement VRI Speed Control.

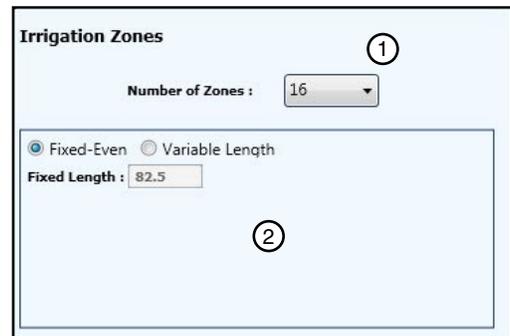


Figure 9-3 1. Pivot Zones
2. Pivot Zone Lengths

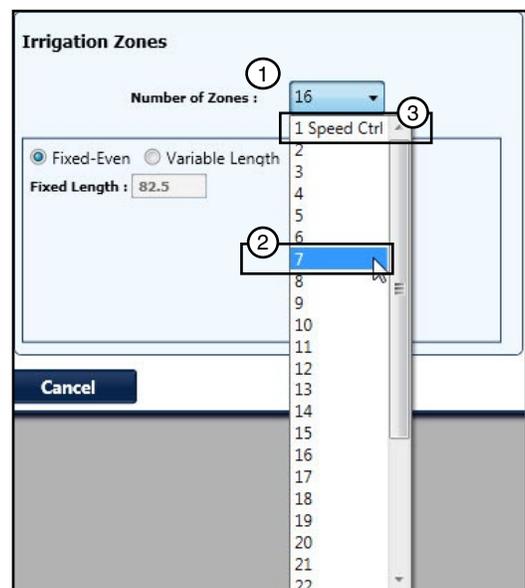


Figure 9-4 1. Menu
2. Number of Zones
3. Speed Ctrl

Create a Project and Prescription

Creating a Pivot Project

Zone Length

2. Select either **Fixed Even** or **Variable Length** to describe the irrigation zone length.

- If you select **Fixed-Even**, the fixed length is equal to the pivot length divided by the number of zones. See Figure 10-1.
- If you select **Variable Length**, enter the individual lengths for each zone shown in the drop-down list box, beginning with zone 1 (closest to the center of the pivot). As each zone length is entered, it is deducted from the total pivot length. See Figure 10-2.

3. Click **OK** on the Add New Pivot screen once all selections are filled out correctly. See Figure 10-3.

If any of the fields on the Add New Pivot screen have been left blank or need to be corrected, the List of Errors screen appears on the errors identified. You must correct the errors before continuing.

If there are no errors, the Prescription Name Entry Screen appears. See Figure 10-4.

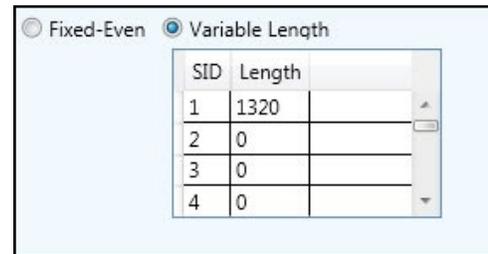
4. Enter the name of the pivot's prescription in the **Prescription Name** field.

5. Click **OK**.



The dialog box shows two radio buttons: **Fixed-Even** (selected) and **Variable Length**. Below them is a text input field labeled **Fixed Length :** with the value **82.5**.

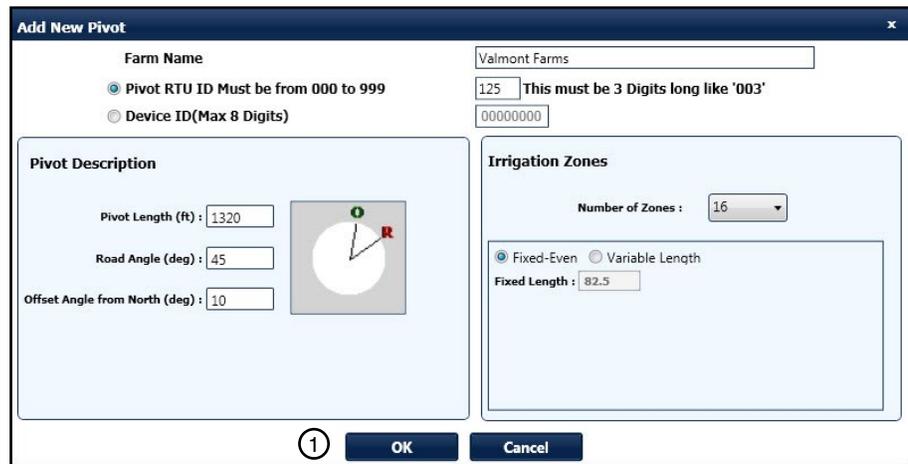
Figure 10-1 Fixed Length Selection



The dialog box shows two radio buttons: **Fixed-Even** and **Variable Length** (selected). Below them is a table with columns **SID** and **Length**.

SID	Length
1	1320
2	0
3	0
4	0

Figure 10-2 Variable Length Selection



The **Add New Pivot** dialog box contains the following fields and controls:

- Farm Name:** Valmont Farms
- Pivot RTU ID:** 125 (with a note: "This must be 3 Digits long like '003'")
- Device ID (Max 8 Digits):** 00000000
- Pivot Description:** Pivot Length (ft): 1320, Road Angle (deg): 45, Offset Angle from North (deg): 10. Includes a diagram of a pivot system.
- Irrigation Zones:** Number of Zones: 16, Fixed-Even (selected), Variable Length, Fixed Length: 82.5
- Buttons:** OK, Cancel

Figure 10-3 1. Click **OK**.



The **Prescription Name** entry screen shows a text input field labeled **Prescription Name :** with the value **Valley** and an **OK** button below it.

Figure 10-4 Prescription Name Entry Screen

Create a Project and Prescription

Creating a Pivot Project

The Tools screen appears. You will use this screen to create a pivot prescription. See Figure 11-1.

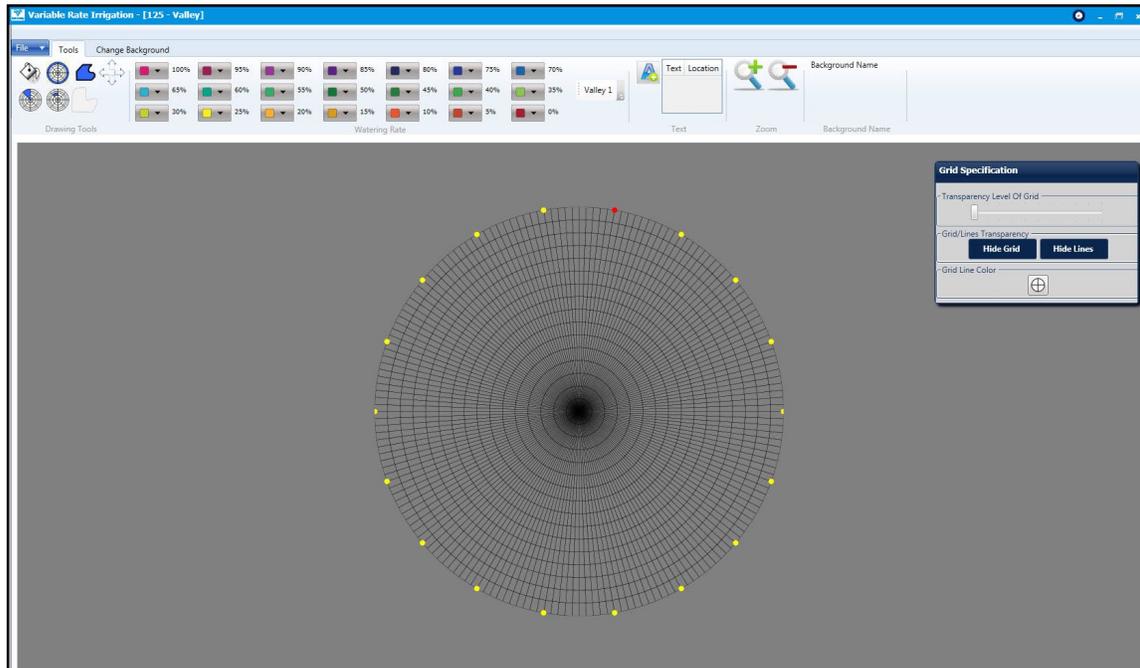


Figure 11-1

NOTE

- When creating VRI Zone Prescriptions, a good understanding of the overall hydraulics of the center pivot, pipeline (if any), and pump is necessary to ensure equipment is not damaged by shutting off too many zones at once, thereby decreasing flow to less than the minimum flow rate.
- Most pumps will experience an increase in pressure as the flow is decreased. The minimum flow rate must be determined in order to calculate the maximum changes that can be made.
- A variable speed pump is a good option.

Zone Control Tools Grid

The grid for the Zone Control pivot is a complete 360-degree circle with 180 two-degree segments. Considering that you can designate up to 30 zones for the pivot, it is possible that you could establish as many as 5400 sectors in the pivot grid. See Figure 11-2.

The red marker on the pivot grid indicates the zero-degree pivot position on the grid. This point is based on the setting you selected in the **Offset Angle from North** field on the Add New Pivot screen.

The yellow markers on the pivot grid appear at 20 degree increments.

Speed Control Tools Grid

The grid for the Speed Control pivot is a complete 360-degree circle with 180 two-degree segments. See Figure 11-3.

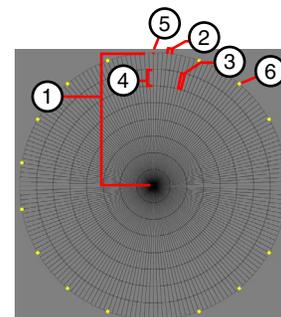


Figure 11-2 Zone Control
1. Pivot Length
2. 2° Segment
3. Sector
4. Zone Length
5. Zero-Degree Pivot Position
6. Degree Markers

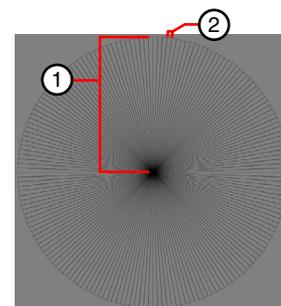


Figure 11-3 Speed Control
1. Pivot Length
2. 2° Segment

Create a Project and Prescription

Selecting a Background Field Image

Background Field Image

The first thing to do when creating a pivot prescription is to select the image of the field to be used as the map's background.

1. Click the **Change Background** tab on the Variable Rate Irrigation screen. See Figure 12-1.

The Change Background screen appears.

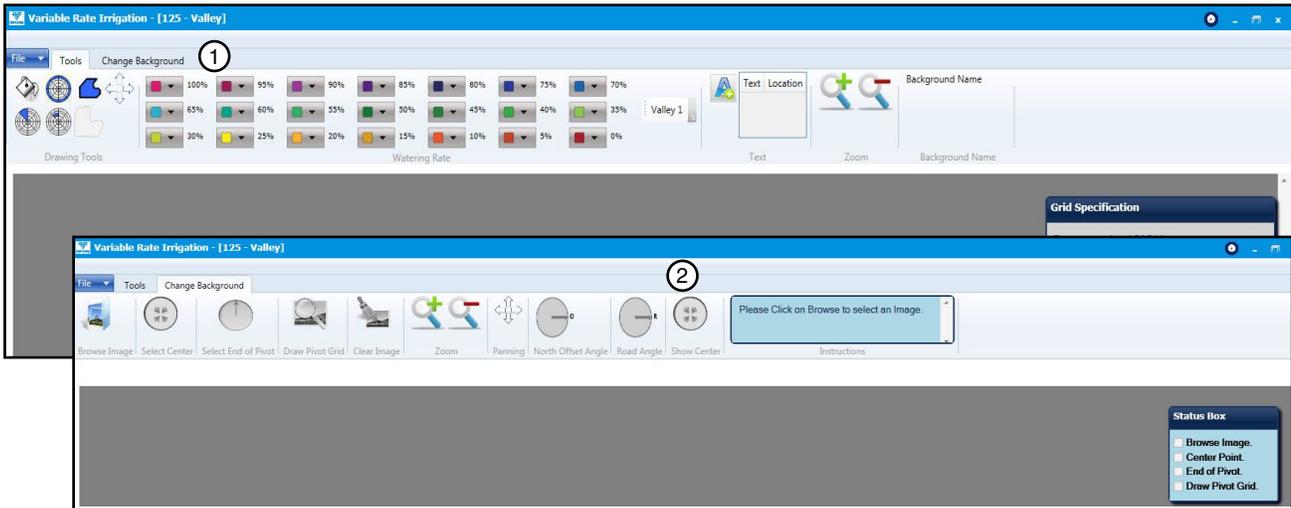


Figure 12-1 1. Change Background Tab
2. Change Background Screen

Following are descriptions of the buttons and boxes found on this screen.

	Browse Image - Opens the Images folder for the selection of the image of the field for which you are creating a prescription.		North Offset Angle - Displays a red arrow indicating the North Offset Angle selected when describing the pivot project.
	Select Center - Allows the selection of the center point of the pivot with the cross hairs tool.		Road Angle - Displays a yellow arrow indicating the Road Angle selected when describing the pivot project.
	Select End of Pivot - Allows the selection of the outer boundary of the pivot with the cross hairs tool.		Show Center - Places a red X on the image to indicate the center of the pivot.
	Draw Pivot Grid - Displays the zones selected when describing the project/pivot.		Multiple Images - Lists and displays all images related to the project/pivot. Individual images can be deleted from this list.
	Clear Image - Clears the selected image from the screen.		Delete All Images - Deletes all images from this list.
	Zoom In - Increases the detail of the image.		Instructions - Provides instructions for the Browse Image, Select Center, Select End of Point, and Draw Pivot Grid buttons
	Zoom Out - Decreases the detail of the image.		Status Box - Indicates which actions (Browse Image, Center Point, Boundary, and Orientation) have been completed.
	Panning - Used in conjunction with the Zoom In button to move the image around the screen.		

Create a Project and Prescription

Selecting a Background Field Image

Background Field Image (continued)

2. Click the **Browse Image** button on the Tools screen, select the image of the field for which the prescription is being created, and click **Open**. See Figure 13-1.

The image appears on the screen. See Figure 13-1.

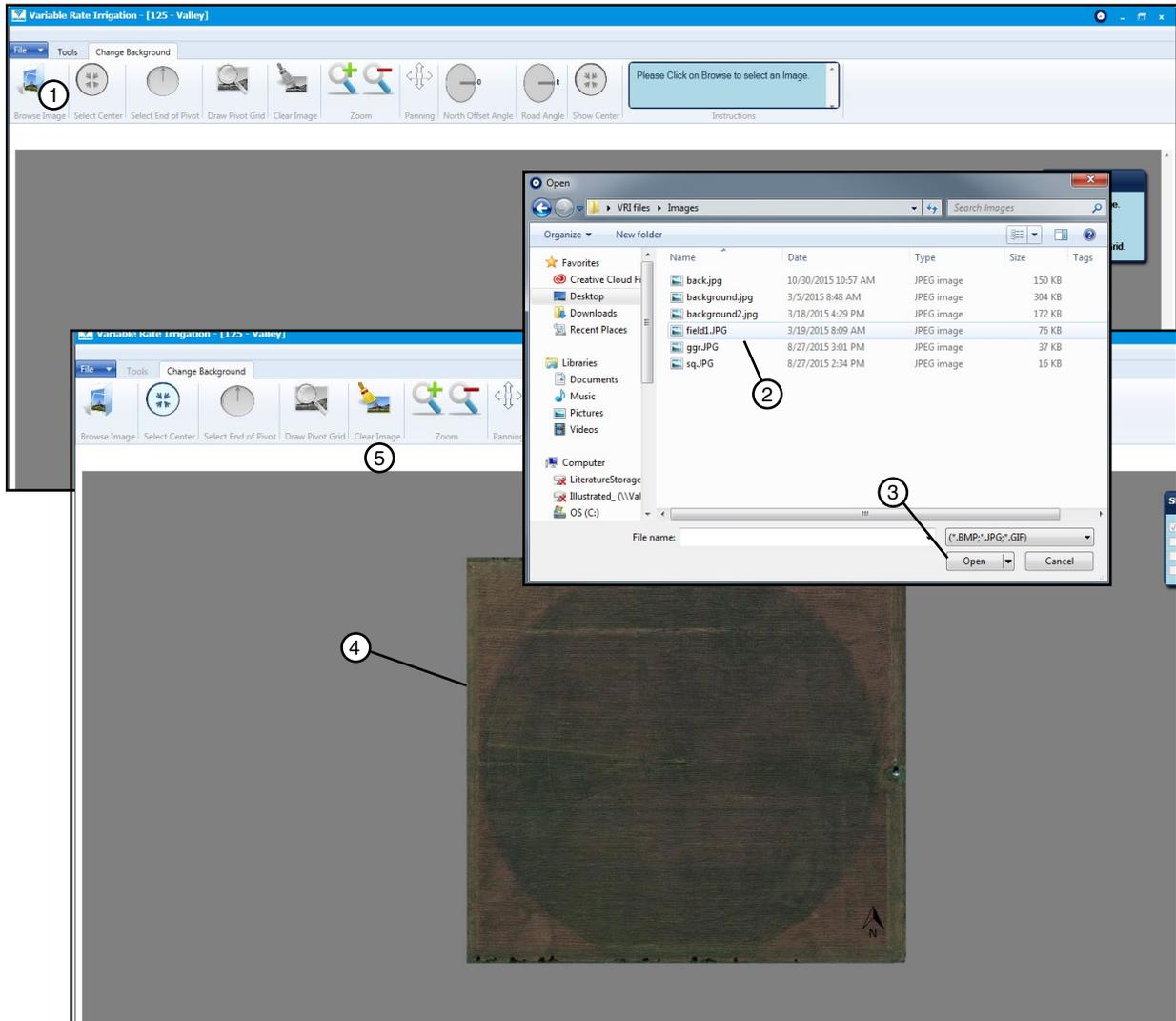


Figure 13-1 1. Browse Image button 4. Background Image
2. Image Selection 5. Clear Image button
3. Open

At any point in the Change Background process, you may remove the image from the screen and start over with a different image by clicking the **Clear Image** button.

Create a Project and Prescription

Selecting a Background Field Image

Background Field Image (continued)

3. Click the **Select Center** button, position the cross hairs over the center of the field, and left-click to set the centerpoint. See Figure 14-1.
4. Click the **Select End of Pivot** button, position the cross hairs at the edge of the field to identify the outer boundary of the pivot, and left-click to set the end of pivot.
Note that both the centerpoint and the boundary of the image can be moved by clicking on the centerpoint indicator and one of the four boundary nodes.
5. Click the **Draw Pivot Grid** button to align the center and edge of the pivot grid with the image.

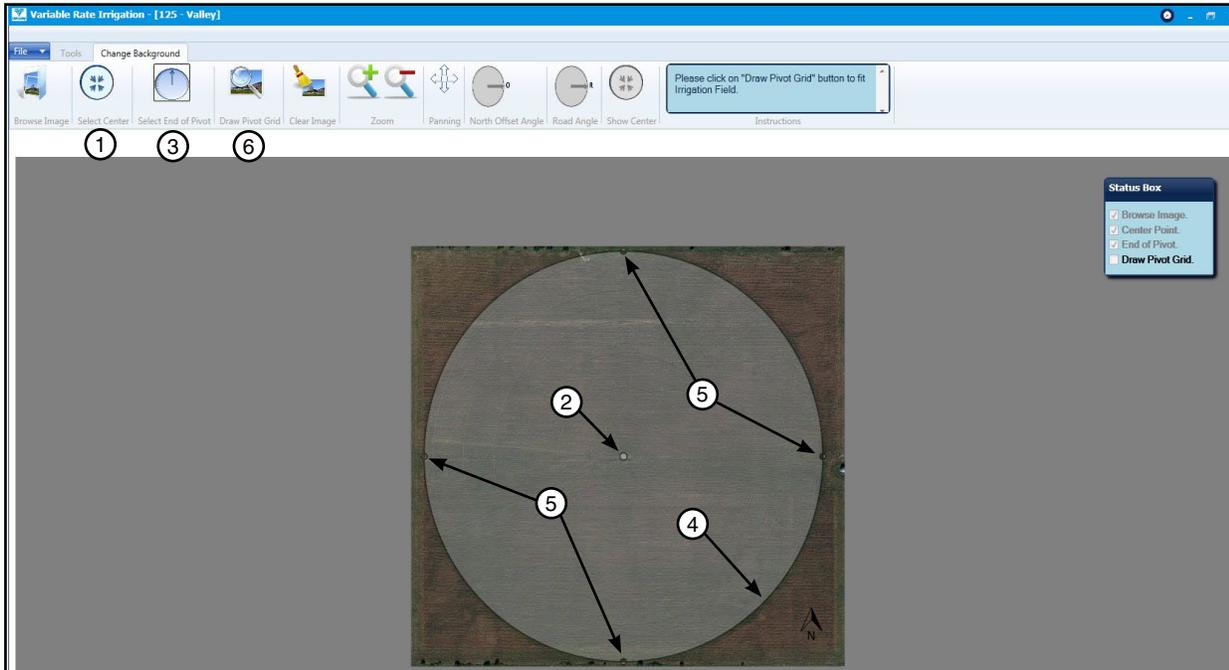


Figure 14-1 1. Select Center Button 2. Centerpoint Indicator 3. Select End of Pivot Button 4. Boundary 5. Boundary Node 6. Draw Pivot Grid Button

6. If you want, you may now click the **North Offset Angle** and **Road Angle** buttons to display these settings. See Figure 14-2.

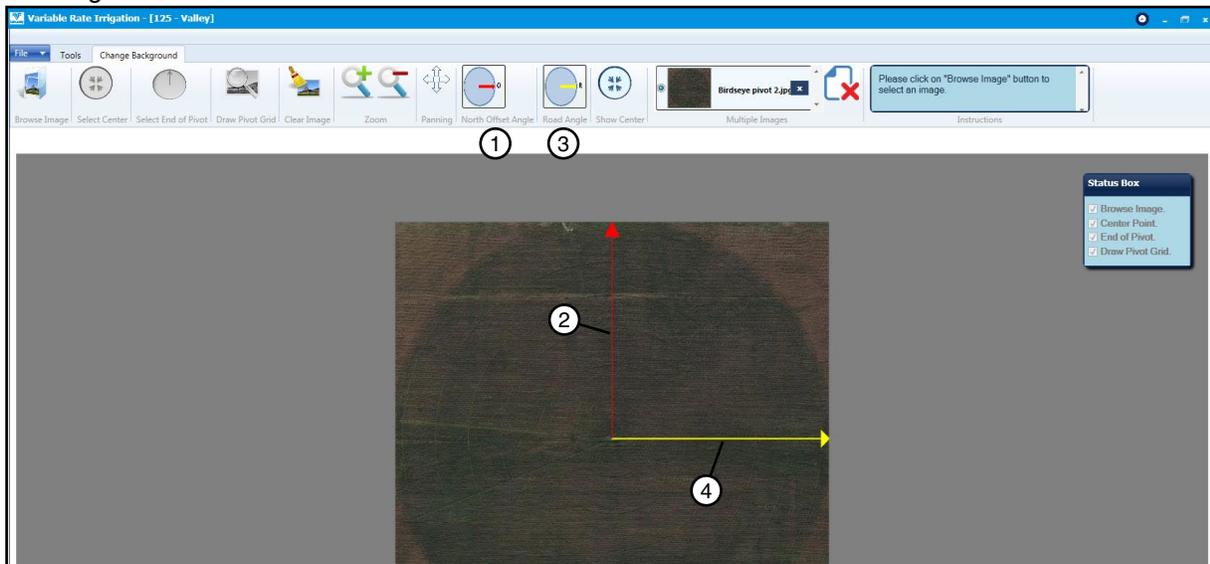


Figure 14-2 1. North Offset Angle Button 2. North Offset Angle at 0° 3. Road Angle Button 4. Road Angle at 90°

Create a Project and Prescription

Building a Prescription

After selecting the image of the field on the Change Background screen, you now will use the Tools screen to create the pivot's prescription.

Note that the RTU or Device ID and prescription name appear at the top of the screen.

1. Click the Tools tab on the menu bar. See Figure 15-1.

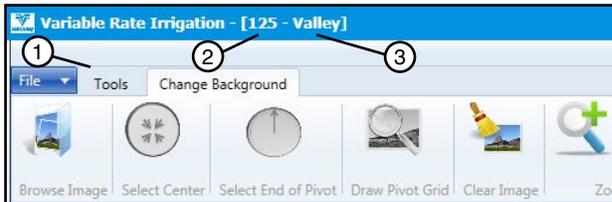


Figure 15-1 1. Tools Tab 2. RTU ID 3. Prescription Name

The Tools screen appears with the prescription grid overlaid on the image of the field. See Figure 15-2. The Tools screen is used to create a new VRI-Speed (VRI-S) or VRI-Zone (VRI-Z) map, or to edit an existing map. The lines on the map outline sectors.

Note that the speed control grid map appears only when the number of zones selected was **1 Speed Ctrl** when creating a pivot project in the Irrigation Zones heading. This decision was made after selecting **New Project** from the VRI drop-down menu. If a zone number was selected, the zone control grid map will appear instead.

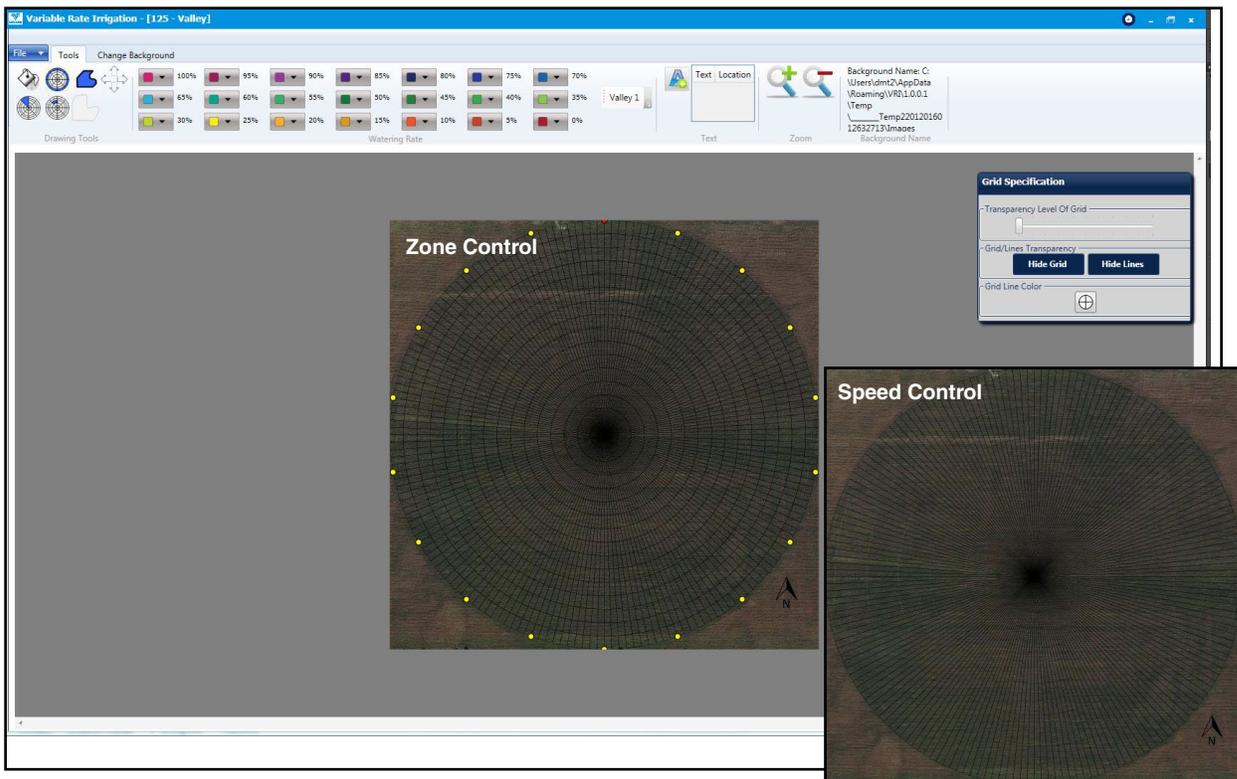


Figure 15-2 Tools Screen

Create a Project and Prescription

Building a Prescription (continued)

Drawing Tools

The Drawing Tools section contains buttons that are used to define the area in which the watering rates are to be applied. See Figure 16-1.

2. Select one of the following tools to identify a watering area:

- (1) **Adjacent Sector Tool** - Click anywhere on the map to fill all connecting sectors, that are not already selected by any of the other tools, with the desired watering rate, or to change a block of sectors to a different watering rate.
- (2) **Circular Sector Tool** - Click on a sector to fill all sectors within that zone with the desired watering rate.
- (3) **Polygon Tool** - Draw a multi-sided shape by left-clicking the mouse button at each position, then right-click the mouse button to close and complete the shape and fill in all sectors that are in the polygon (fully or partially) with the desired watering rate.
- (4) **Panning The Zoomed Area Tool (Panning TZAT)** - Click and hold the left mouse button on the grid after zooming in to move the grid around the screen.
- (5) **Sector Ray Tool** - Click in a sector to fill in all sectors within that 2 degree segment with the desired watering rate to be applied.
- (6) **Single Sector Tool** - Click on a single sector to fill it with the desired watering rate.
- (7) **Hide Polygon Lines Tool** - Click to hide the lines of the polygon. Selecting it again will unhide the polygons.

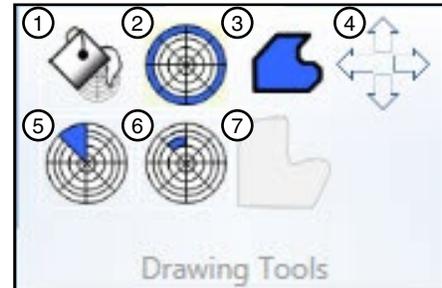


Figure 16-1 1. Adjacent Sector Tool
2. Circular Sector Tool
3. Polygon Tool
4. Panning TZAT
5. Sector Ray Tool
6. Single Sector Tool
7. Hide Polygon Lines

Create a Project and Prescription

Building a Prescription (continued)

Watering Rate

The Watering Rate buttons are used with any of the Drawing Tools buttons to describe the amount of water to be applied to sectors. The color-coded buttons range in 5 percent increments from 0 to 100 percent. This is the percent of application depth. See Figure 17-1. For example: If the application rate (base rate) is 1 in (0.0254 mm) and the water rate is 50% the applied rate would be 1/2 in (0.0127 mm) or $AR \times WR = \text{Applied Rate}$.

Note that the lowest watering rate percentage when applying water to the speed control grid will be 1% as to not stop the irrigation system.

3. Choose the Watering Rate Color pallet. As you may have noticed in Figures 17-1, 17-2 and 17-3 there is an open drop down menu that can be used to select 3 possible Watering Rate Color pallets.

Valley 1 (Figure 19-1) which is based off of a gradient system similar to that of a soil map.

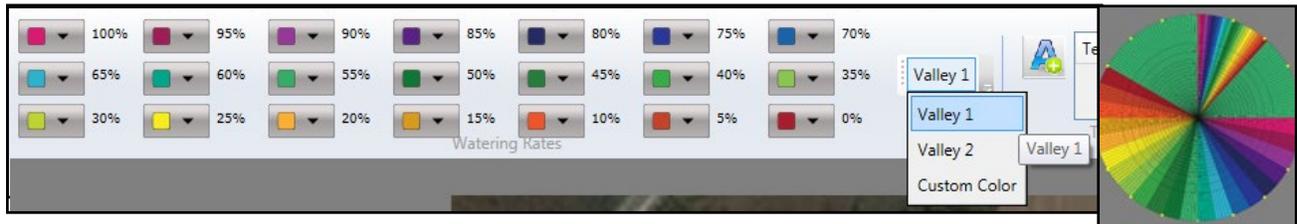


Figure 17-1

Valley 2 (Figure 19-2) designed with varying high contrast colors.



Figure 17-2

Custom Color (Figure 19-3) a user definable and savable color pallet.

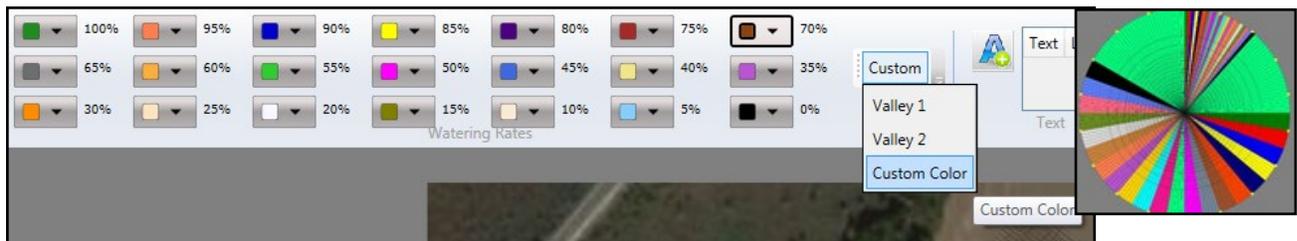


Figure 17-3

Create a Project and Prescription

Building a Prescription (continued)

Watering Rate (continued)

Custom Color Selection

- (a) To make your Custom Color pallet See Figure 18-1:
- (b) Select **Custom Color** in the drop-down menu. **Note:** You can change colors in Valley 1 and Valley 2 but the program will ask you if you want to save this as your Custom Color pallet.
- (c) At each watering rate there is a drop-down arrow. Select it and color options will appear.
- (d) Choose the desired colors for your Custom Color pallet from the **Default Colors**
- (e) Or select **More Colors**
- (f) The **More Colors** screen will appear if selected. Choose a color shade then click on the watering rate drop-down arrow to exit color selection.
- (g) Once you have chosen your colors try selecting **Valley 1** or **Valley 2**
- (h) A pop-up window will appear asking “Do you want to save the color palette in Custom Colors.” Click **Yes** if you would like to save.

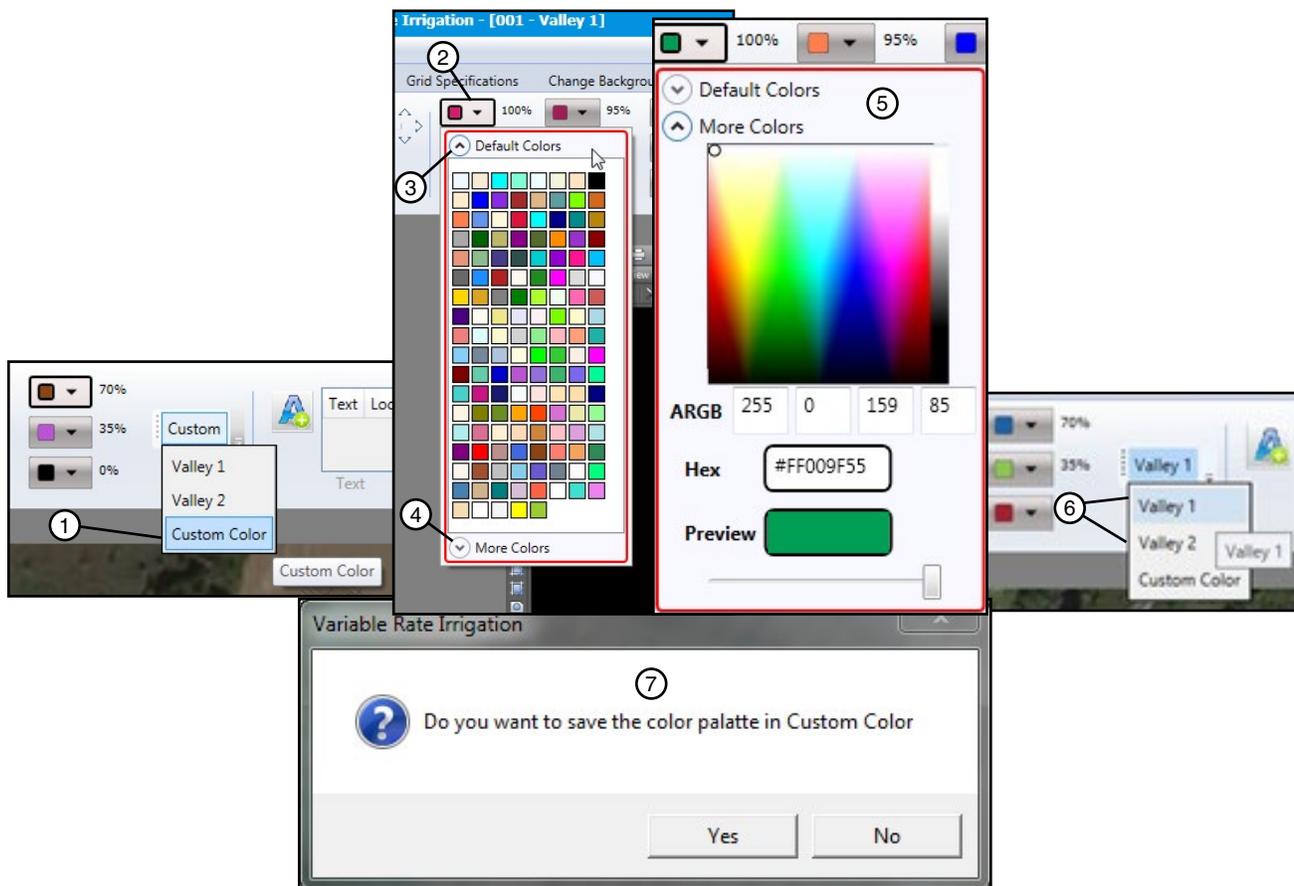


Figure 18-1 1. Custom Color 5. More Colors Screen
2. Watering rate drop-down arrow 6. Valley 1 or Valley 2
3. Default Color 7. Save popup window
4. More Colors

Create a Project and Prescription

Building a Prescription (continued)

Watering Rate (continued)

4. Click the appropriate Watering Rate button.
5. Select the areas of the Zone Control prescription grid on which to apply the watering rate. See Figure 19-1.

The example in Figure 19-1 displays the effect of using each of the drawing tools. Note that when you apply the Sector Ray tool (2) after first applying the Circular Sector tool (1), the Sector Ray overrides the Circular Sector. Likewise, applying the Circular Sector tool (3) after the Sector Ray tool (2) will cause another override.

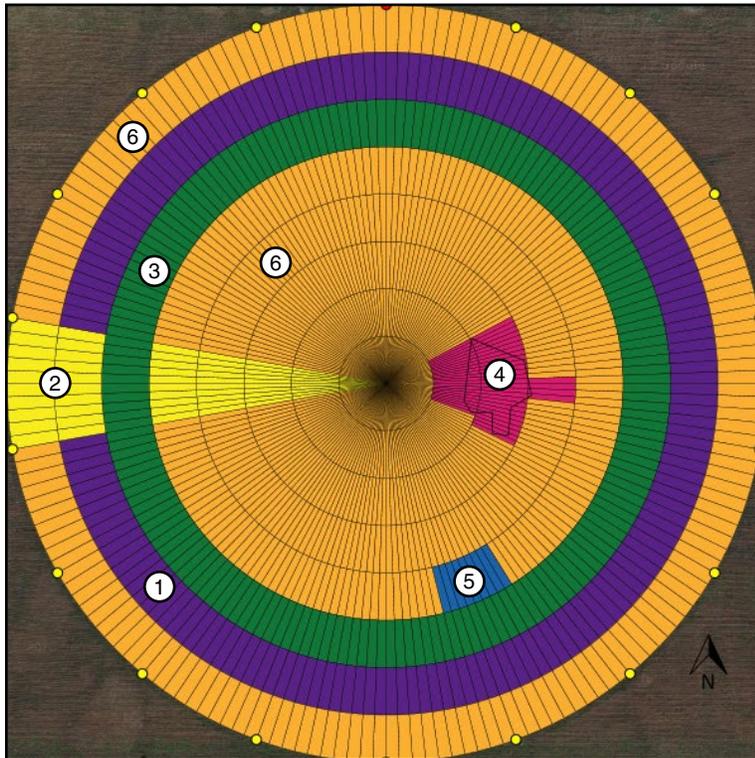


Figure 19-1 1. Circular Sector Tool Applied (85%) 2. Sector Ray Tool Applied (25%) 3. Circular Sector Tool Applied (50%) 4. Polygon Tool Applied (100%) 5. Single Sector Tool Applied (70%) 6. Adjacent Sector Tool Applied (20%)

NOTE

- When creating VRI Zone Prescriptions, a good understanding of the overall hydraulics of the center pivot, pipeline (if any), and pump is necessary to ensure equipment is not damaged by shutting off too many zones at once, thereby decreasing flow to less than the minimum flow rate.
- Most pumps will experience an increase in pressure as the flow is decreased. The minimum flow rate must be determined in order to calculate the maximum changes that can be made.
- A variable speed pump is a good option.

Create a Project and Prescription

Building a Prescription (continued)

Watering Rate (continued)

Figure 20-1 is an example of what a Speed Control prescription grid might look like. It was created using the Adjacent Sector and the Sector Ray tools.

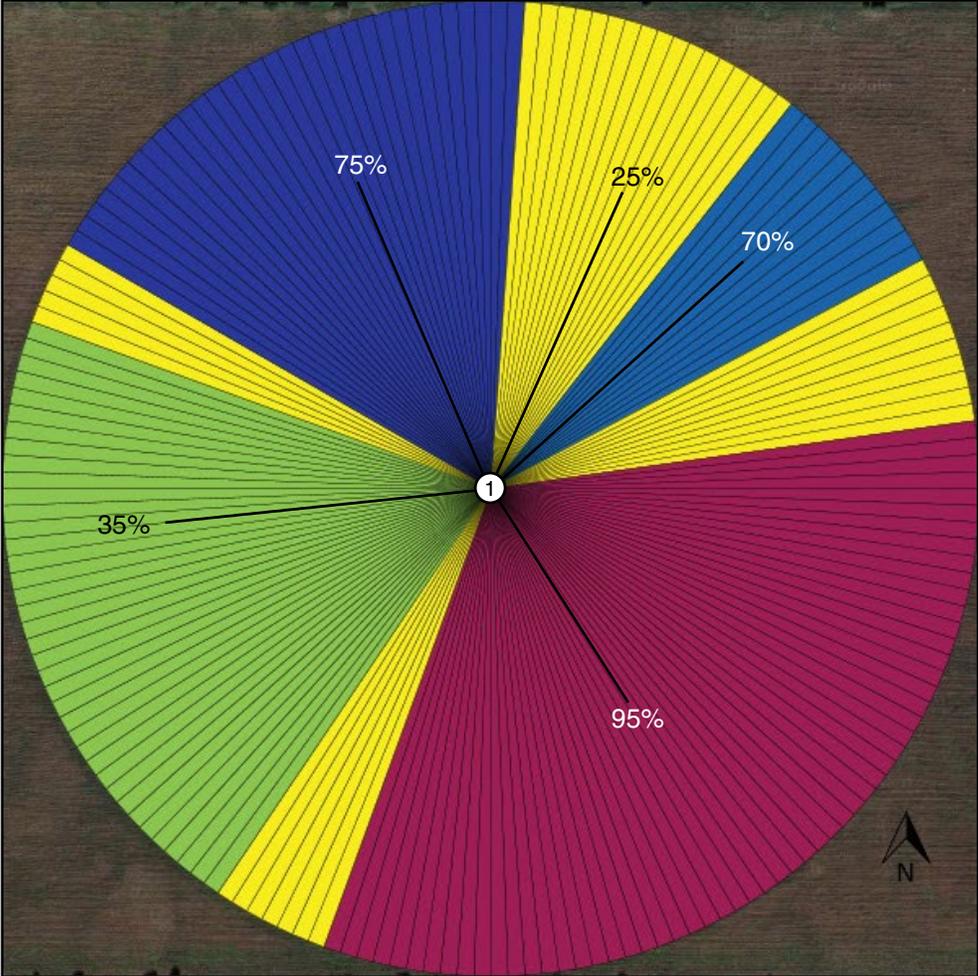


Figure 20-1 1. Speed Control Watering Rates

Create a Project and Prescription

Building a Prescription (continued)

Text

The **Text tool** is used to add text to the grid, and to edit or delete the text. See Figure 21-1.

Do the following to add text to the image.

1. Click the **text icon**.
2. Click on the area of the grid in which you want to place the text.

The **Enter the Text** pop-up screen appears. See Figure 21-2.

3. Enter the text you want displayed on the grid.
4. Click the **Font** button to change the appearance of the text.

The **Select Font** pop-up screen appears. See Figure 21-3.

5. Select the **Font Family**, **Style Weight Stretch**, and **Font Color** you want applied to the text.

A sample of your selections appears in the **Sample Text** box.

6. Click **OK**.

The **Enter the Text** box now displays the text as you want it to appear on the grid. See Figure 21-4.

7. Click **OK**.

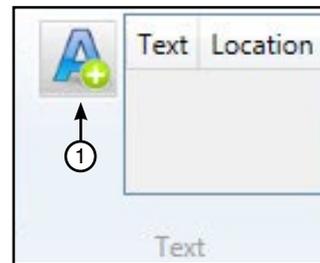


Figure 21-1 1. Text Icon

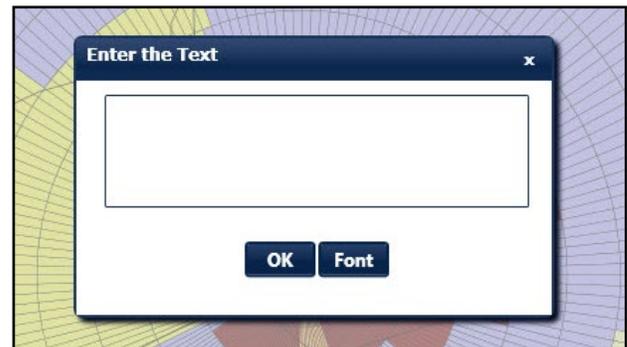


Figure 21-2 Enter Text Box

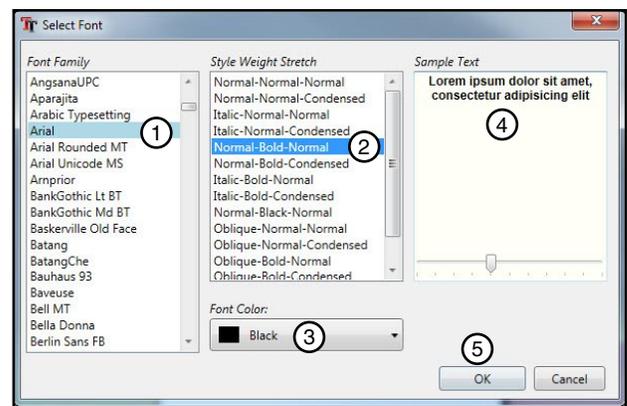


Figure 21-3 1. Font Family 2. Style Weight Stretch 3. Font Color 4. Sample Text 5. OK Button

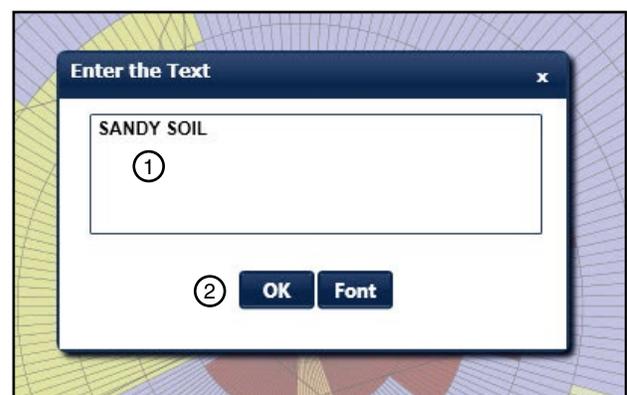


Figure 21-4 1. Desired Text 2. OK Button

Create a Project and Prescription

Building a Prescription (continued)

Text (continued)

The text is now displayed on the grid in the desired position. See Figure 22-1.

The Text tool now displays the text that was inserted, and its location on the grid. See Figure 22-2.

If you want to remove the text, first select the text in the tool bar (See Figure 22-2) then the **Enter Text** box will appear (See Figure 21-4). Delete the text from the box and click **OK**. The text now is removed from the screen.

Zoom

Use the + button to increase the size of the image, and use the - button to decrease it. See Figure 22-3.

Background Name

The **Background Name** tool provides the file name and location of the background image being used for this grid. See Figure 22-4.

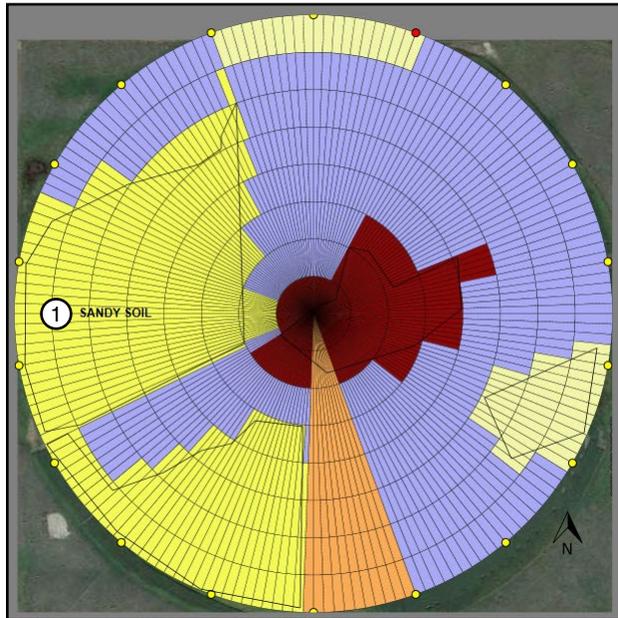


Figure 22-1 1. Inserted Text

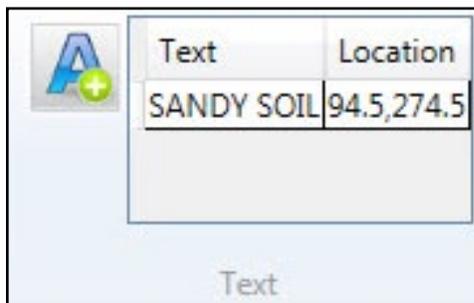


Figure 22-2 Text Tool with Text and Location

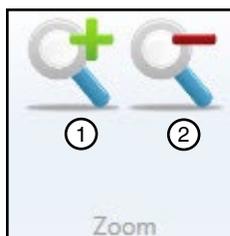


Figure 22-3 1. Zoom In
2. Zoom Out

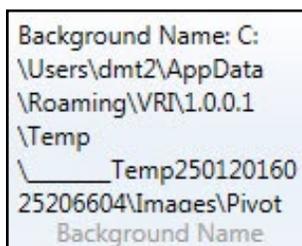


Figure 22-4 Background Name

Create a Project and Prescription

Building a Prescription (continued)

Grid Specification

The **Grid Specification** tool provides the means to change the appearance of the grid's transparency, grid, grid lines, and grid line color. See Figure 23-1.

Transparency

At some point you may want to increase the transparency of the grid to view it in relation to the image behind it. To do this, click on the slider in the **Transparency Level of Grid** and move it to the right as far as you need. See Figure 23-2.

The before and after affects of this can be seen in Figure 23-3.



Figure 23-1 1. Transparency 2. Grid / Lines 3. Grid Line Color



Figure 23-2 1. Transparency Slider

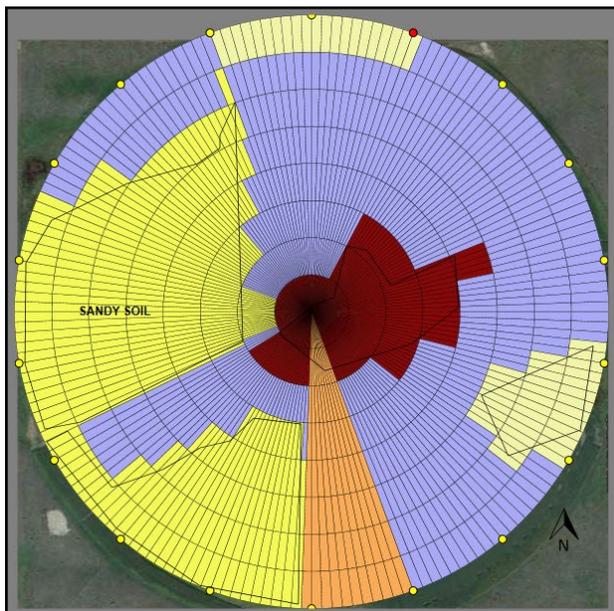


Figure 23-3 Image Before Increased Transparency

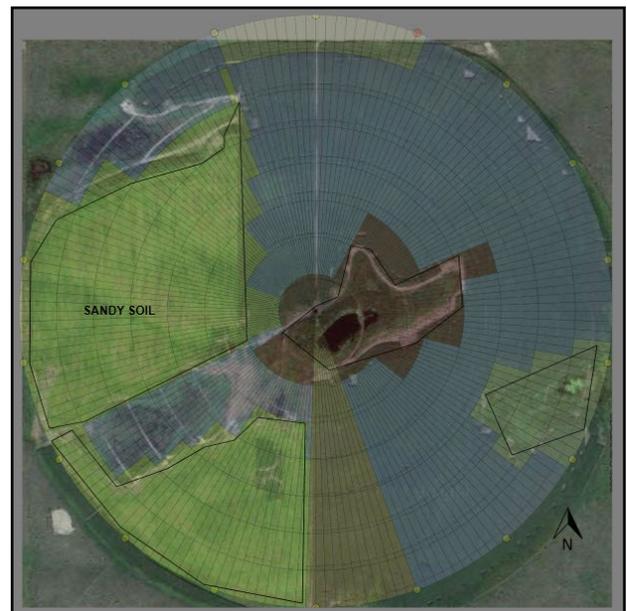


Image After Increased Transparency

Create a Project and Prescription

Building a Prescription (continued)

Grid/Lines

You can hide the grid from view by clicking the **Hide Grid** button. See Figure 24-1.

You will still see any text you have added to the grid and any polygon lines you may have drawn. See Figure 24-2.

To hide the polygon lines, click on the **Hide Polygon Lines** drawing tool.

To display the grid, click **Show Grid** on the Grid Specification pop-up screen. See Figure 24-3.



Figure 24-1 Hide Grid

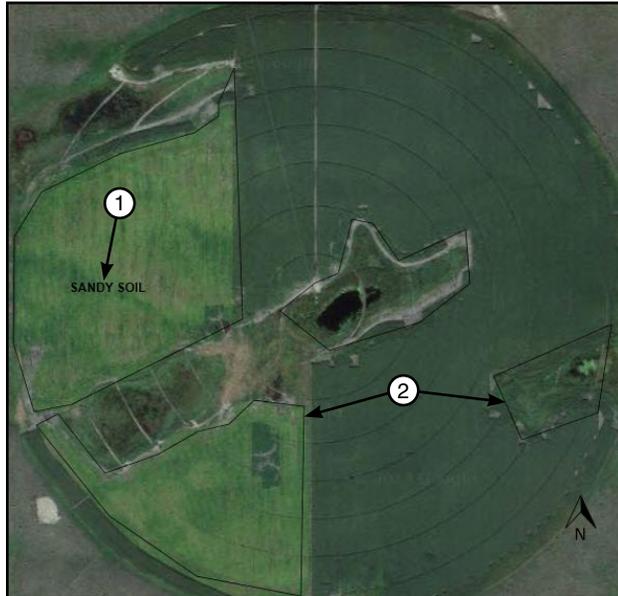


Figure 24-2 1. Inserted Text
2. Polygon Lines



Figure 24-3 Show Grid

Create a Project and Prescription

Building a Prescription (continued)

Grid/Lines (continued)

You can hide just the lines of the grid by clicking the **Hide Lines** button. See Figure 25-1.

Once again, you will still see any text you have added to the grid and, any polygon lines you may have drawn. See Figure 25-2. To hide the polygon lines, click on the **Hide Polygon Lines** drawing tool.

To display the lines, click **Show Lines** on the Grid Specification pop-up screen. See Figure 25-3.



Figure 25-1 Hide Lines

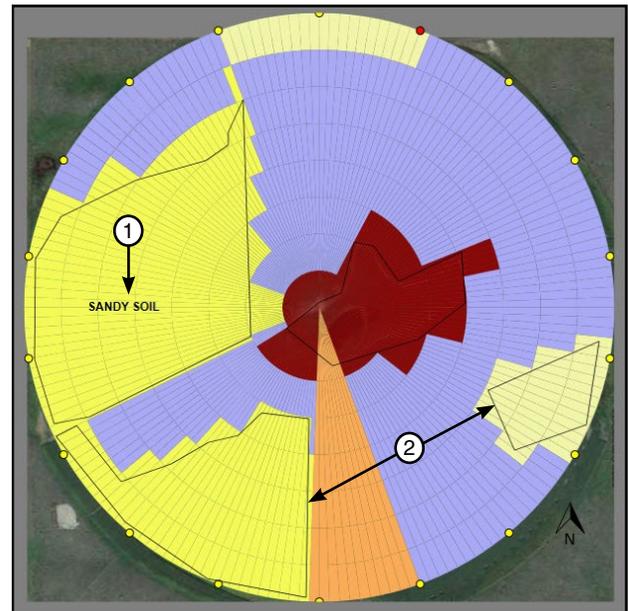


Figure 25-2 1. Inserted Text
2. Polygon Lines



Figure 25-3 Show Lines

Create a Project and Prescription

Building a Prescription (continued)

Grid Line Color

There may be times when the color of the grid lines needs to be changed to provide more clarity. To do this, click on the **Grid Line Color** icon, and choose the desired color. See Figure 26-1.

Note: The **More Colors** option can also be selected Figure 26-2.

The grid lines automatically change to the newly selected color. See Figure 26-3.

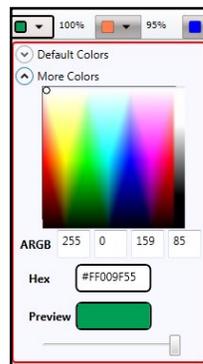


Figure 26-2 More Colors

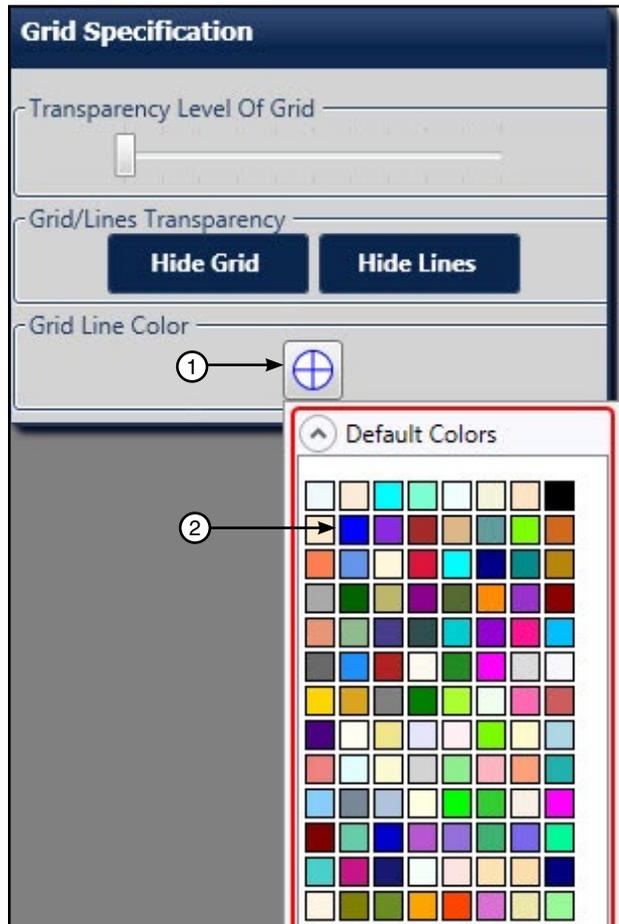


Figure 26-1 1. Grid Line Color Icon 2. Selected Line Color

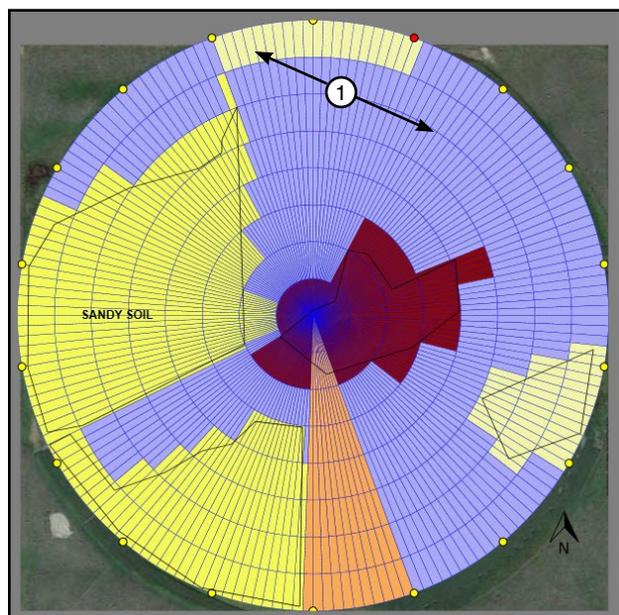


Figure 26-3 1. New Grid Line Color

Create a Project and Prescription

Building a Prescription (continued)

Saving a Pivot Project

1. Select **Save Project** in the VRI drop-down menu. See Figure 27-1.

The Save Project screen appears.

2. Locate the folder in which you want to save the project, give the file a name, and click **Save**. See Figure 27-2.

A pop-up screen appears stating that the project has been successfully saved. See Figure 27-3.

3. Click **OK**.

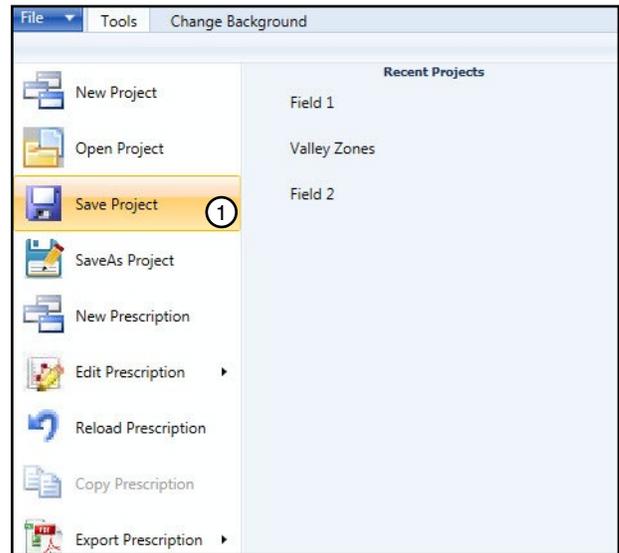


Figure 27-1 1. Save Project

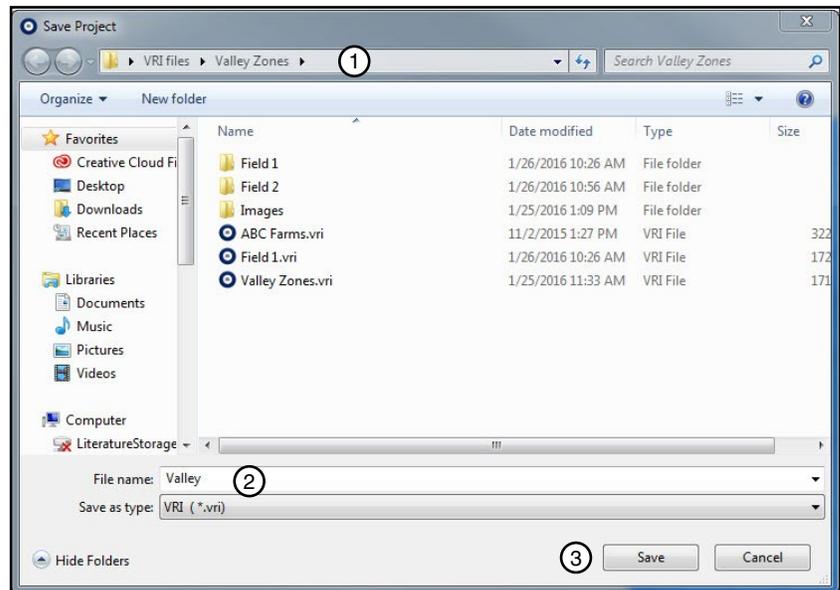


Figure 27-2 1. Folder Name
2. File Name
3. Save Button

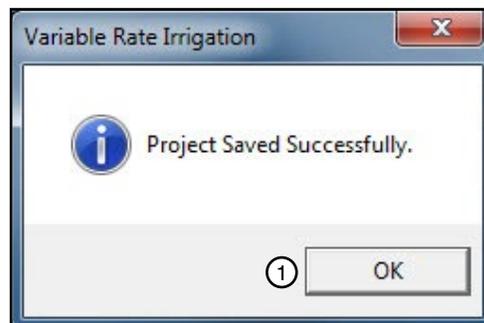


Figure 27-3 1. OK Button

Create a Project and Prescription

Working With Projects and Prescriptions

After you have created and saved a prescription, there are several things you can do with it, such as:

- Open
- Copy
- Save As
- New Prescription
- Edit
- Reload
- Export
- Delete
- E-mail

Opening a Project

In order to work with a prescription after it has been created and saved, you first need to open it. To do this, click on the VRI drop-down menu, and do one of the following.

1. Locate the project in the **Recent Projects** list, and click on its name to open it. See Figure 28-1.
2. Click on **Open Project**, locate it in the appropriate project folder, and click on it to open it. See Figure 28-2.

The project prescription opens on the **Tools** screen.

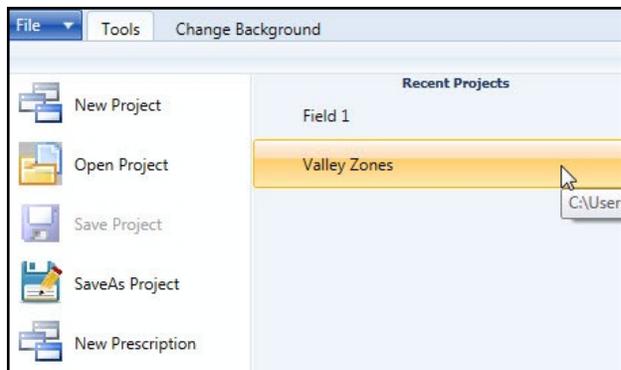


Figure 28-1 Open Recent Project

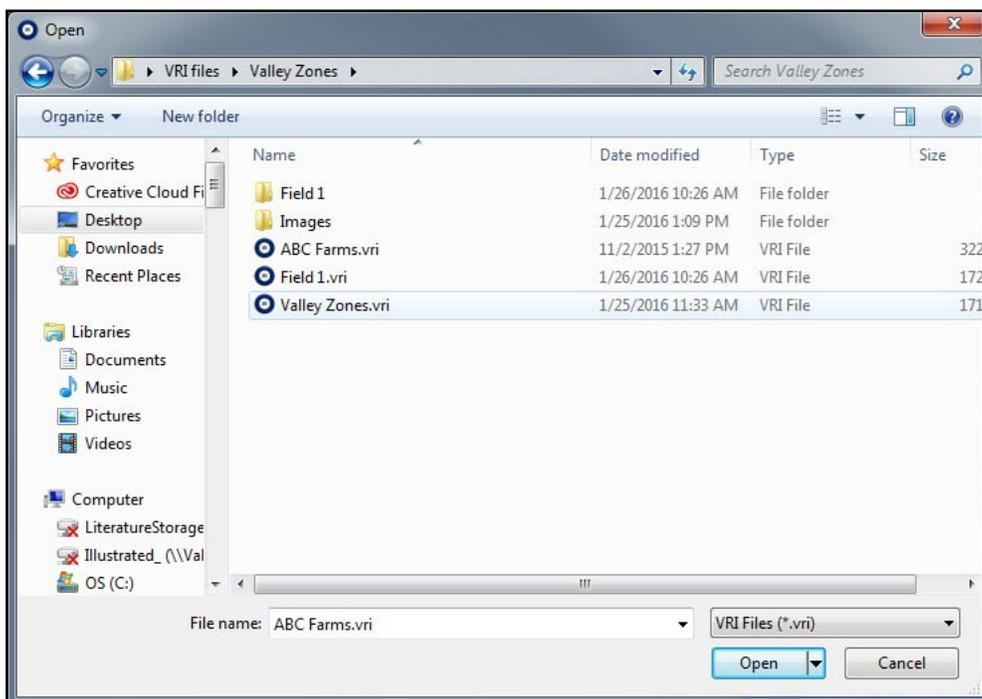


Figure 28-2 Open Project From Folder

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Copying a Prescription

Once the project prescription has been opened, you can copy it and save it under another prescription name.

1. Select **Copy Prescription** in the VRI drop-down menu. See Figure 29-1.

The Prescription Name Entry Screen appears. See Figure 29-2.

2. Highlight the “Copy of...” prescription name and erase it, if you want.

3. Enter the new prescription name and click **OK**.

A pop-up screen appears verifying that the prescription has been successfully copied. See Figure 29-3.

4. Click **OK**.

NOTE

•Your previously designed prescription has been copied and can now be edited and saved.



Figure 29-1 Select Copy Prescription



Figure 29-2 1. “Copy of...” Prescription Name Highlighted



Figure 29-3 Successful Copy

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

SaveAs Project

You may want to save the project under a different name or in a different location. To do this, open the project and do the following:

1. Click on the VRI drop-down menu, and select **SaveAs Project**. See Figure 30-1.

The Save As screen appears.

2. Locate the folder in which you want to save the new project; enter the new project name in the **File name** field, and click **Save**. See Figure 30-2.

A pop-up screen appears verifying that the project has been successfully saved. See Figure 30-3.

3. Click **OK**.

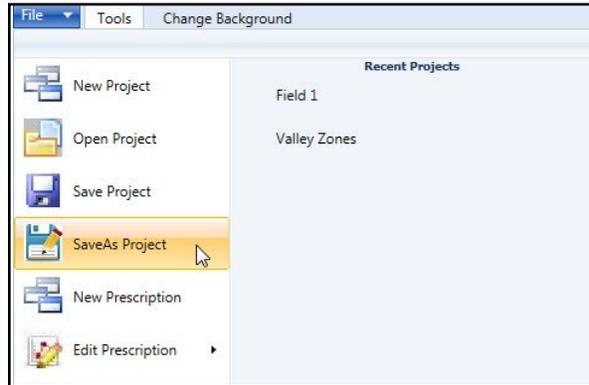


Figure 30-1 VRI Drop-down Menu

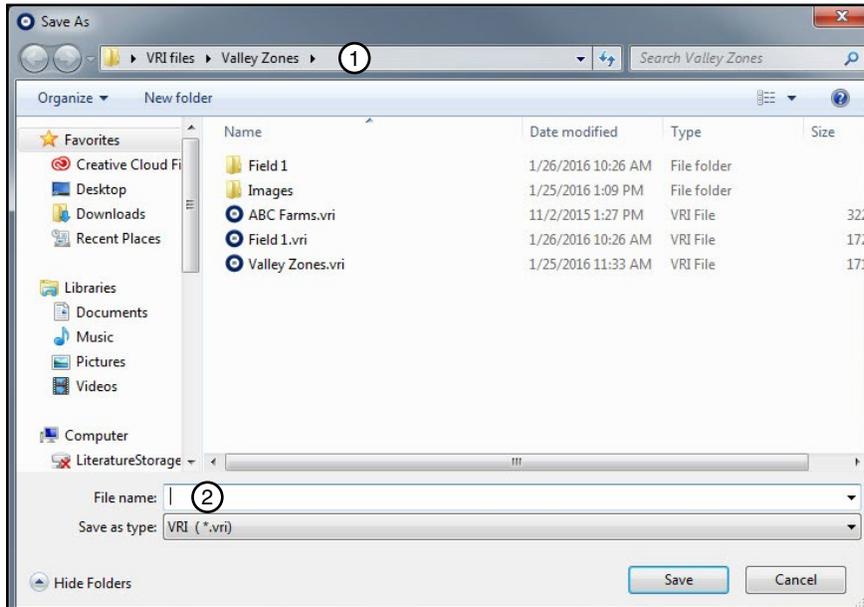


Figure 30-2 1. Folder Location 2. File Name Field

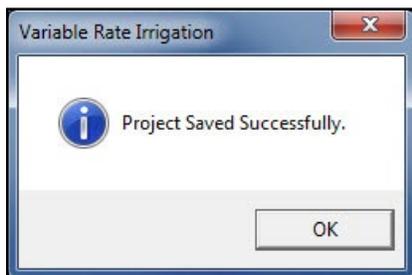


Figure 30-3 Successful Save

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

New Prescription

Once the project prescription has been opened, you can create a **New Prescription** in the same Project.

1. Select **New Prescription** in the VRI drop-down menu. See Figure 31-1.

The Prescription Name Entry Screen appears. See Figure 31-2.

2. Enter the new prescription name and click **OK**.

A pop-up screen appears verifying that the prescription has been successfully copied. See Figure 31-3.

3. Click **OK**.

NOTE

•Your Project information remains the same but your previously designed prescription has been removed and a new drawing and design can be made and saved.

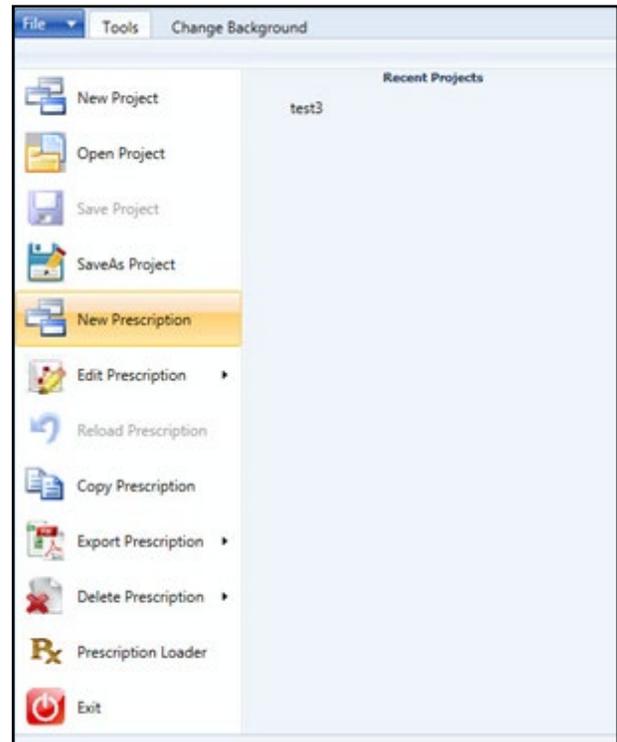


Figure 31-1 Select New Prescription



Figure 31-2 1. Enter Prescription Name

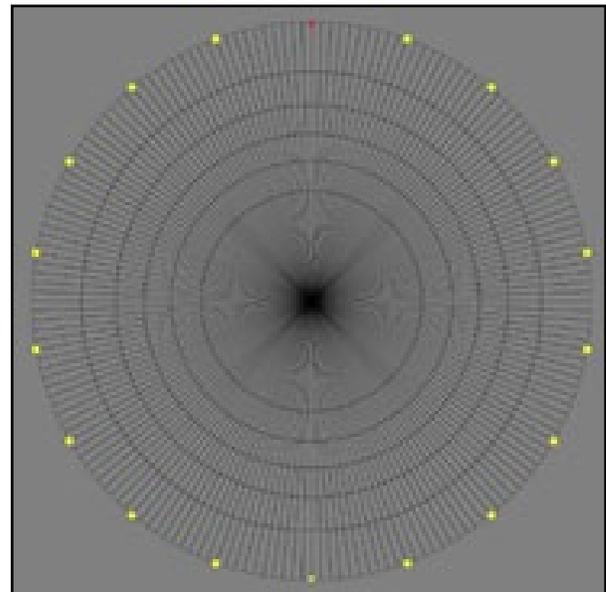


Figure 31-3 Successful New Prescription

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Editing a Prescription

Once the project prescription has been opened, you can change the watering rates for sectors through the use of the **Drawing Tools** and **Watering Rate** buttons on the **Tools** screen. You can also change or delete any text you added to the grid. You can also change the background image using the **Change Background** screen.

To view or edit a specific prescription when multiple prescriptions exist:

1. Select **Edit Prescription** in the VRI drop-down menu. See Figure 32-1.
2. Select the name of the prescription in the right column. See Figure 32-1.
3. Once you have selected a prescription it will load. Check the name in the top menu bar to confirm the selected prescription has loaded. See Figure 32-2.

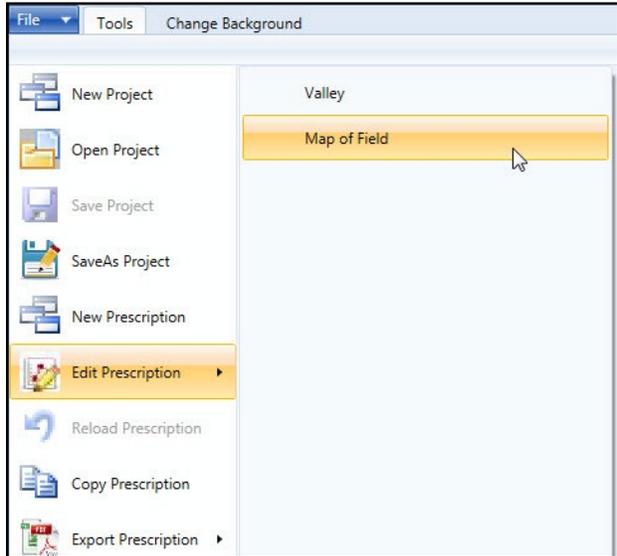


Figure 32-1 VRI Drop-down Menu Edit Prescription

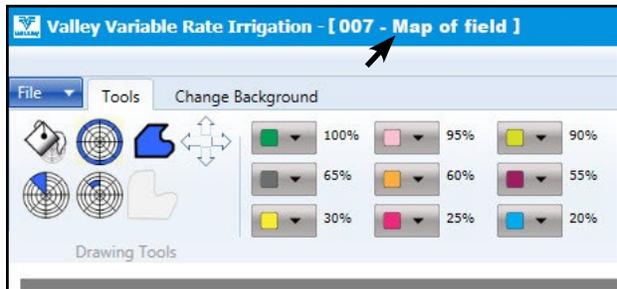


Figure 32-2 Top Menu Bar, Prescription Name

Create a Project and Prescription

Reloading a Prescription

If, while you are editing a prescription but before you have saved the change, you find you have made a mistake or just want to change an edit you made you can reload the prescription and start over. To do this:

1. Select **Reload Prescription** in the VRI drop-down menu. See Figure 33-1.
A pop-up warning screen appears. See Figure 33-2.
2. Click **Yes** if you want to discard your changes, or **No** if you do not.
3. If you select **No**, you are returned to the grid with the changes you have made.
4. If you select **Yes**, the prescription is reloaded without your changes.

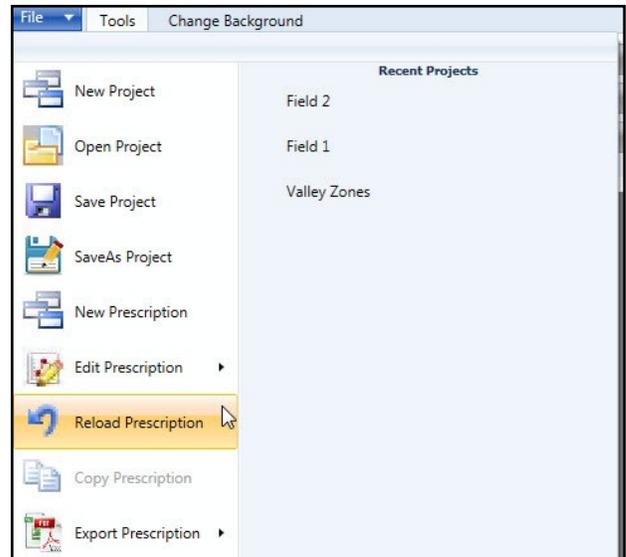


Figure 33-1 VRI Drop-down Menu Reload Prescription

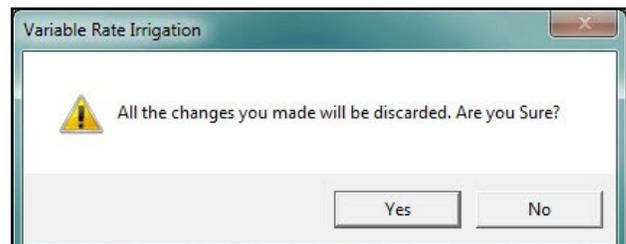


Figure 33-2 Discarding Changes Warning

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Exporting a Prescription

Within the VRI application, you can export a prescription to both a PDF (Portable Document Format) file and to a CSV (Comma-Separated Values) file.

Exporting to a PDF File

Exporting the prescription to a PDF file provides you with the ability to view its details online, to print a hardcopy, and to electronically share it with others.

To export a prescription to a PDF file:

1. Select **Export Prescription** in the VRI drop-down menu and click on **PDF**. See Figure 34-1.

The Select Images to Export screen appears. See Figure 34-2.

2. Select the images to export by clicking in the appropriate checkboxes, and click **Export**.

The Export screen appears.

3. Locate the folder in which you want to store the PDF file, and click **Save**. See Figure 34-3.

A pop-up screen appears verifying that the prescription details have been successfully exported.

4. Click **OK**. See Figure 34-4.

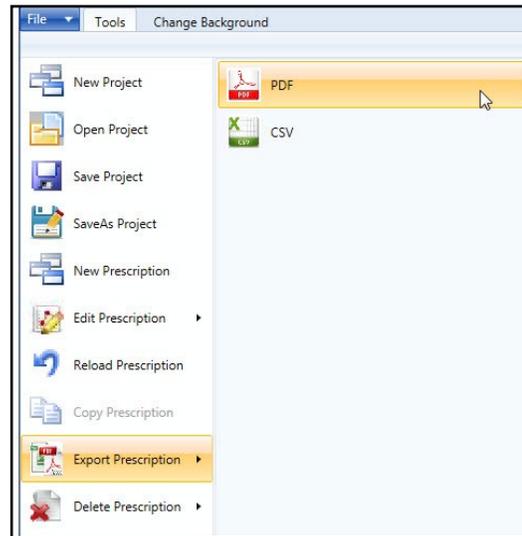


Figure 34-1 Export to PDF

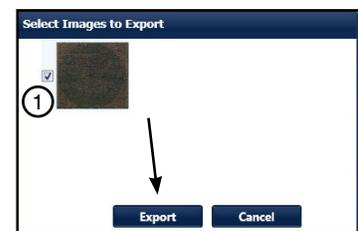


Figure 34-2 1. Image Checkbox

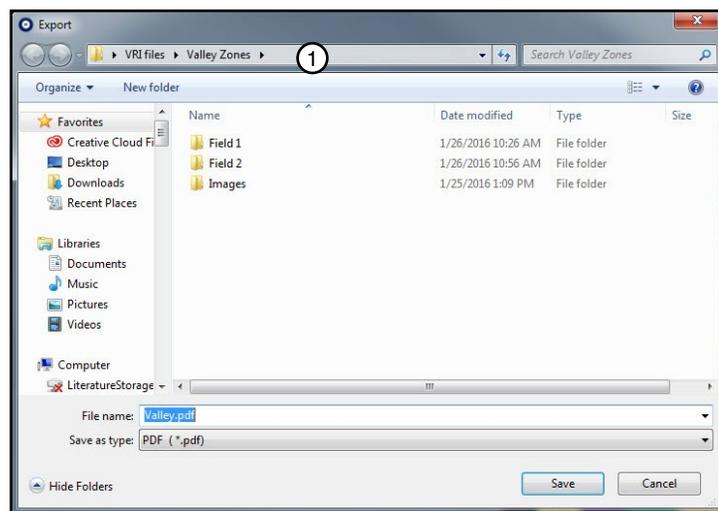


Figure 34-3 Export Screen 1. Folder Location

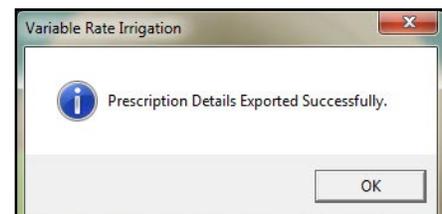


Figure 34-4 Successful Export

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Exporting a Prescription (continued)

Exporting to a PDF File (continued)

- Open the PDF and you will see that you have available the following information.

Cover Sheet - Includes Farm Name, Date the PDF was created, Prescription Name, RTU ID, Road Angle, Offset Angle, and a colored picture of the grid. See Figure 35-1.

Image Page - Includes the Farm Name, Prescription Name, and a colored copy of the image used in the prescription. See Figure 35-1.

Zone Information - Includes the Farm Name, Prescription Name, Zone Settings for Length and Zone Watering Rates for all sectors from 0 to 358 degrees. See Figure 35-1.

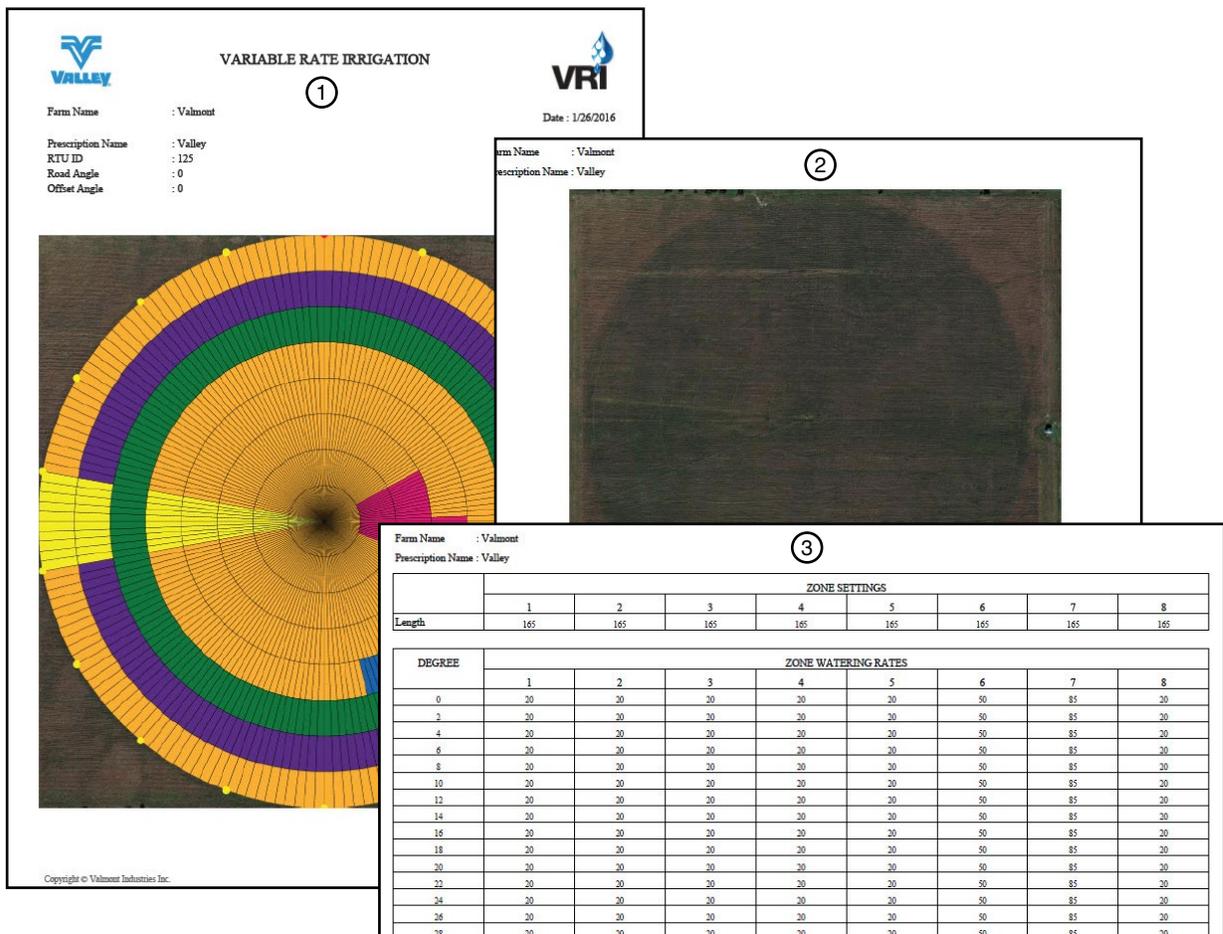


Figure 35-1 1. Cover Sheet

2. Image Page

3. Zone Information

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Exporting a Prescription (continued)

Exporting to a CSV File

Exporting the prescription to a CSV file provides you with the ability to import it into other data collecting programs, such as spreadsheets and databases, for reporting purposes. It can also be used for graphing and other such applications.

To export a prescription to a CSV file:

1. Select **Export Prescription** in the VRI drop-down menu and click on **CSV**. See Figure 36-1. The Export screen appears.
2. Locate the folder in which you want to store the CSV file, and click **Save**. See Figure 36-2. A pop-up screen appears verifying that the prescription details have been successfully exported.
3. Click **OK**. See Figure 36-3.

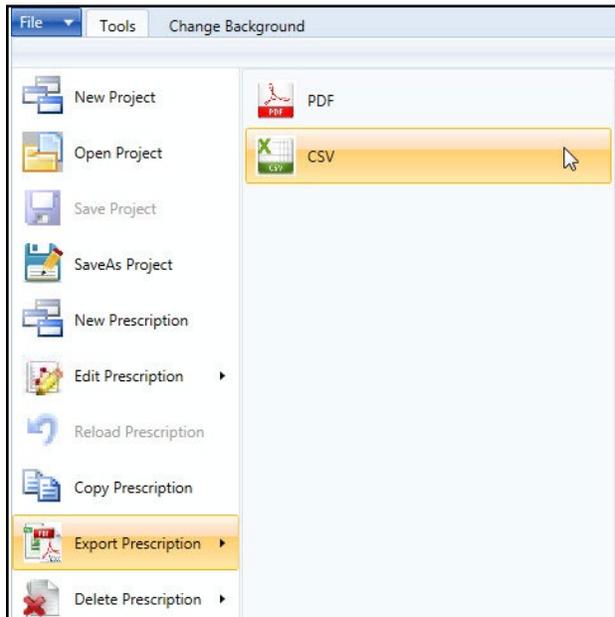


Figure 36-1 Export to CSV

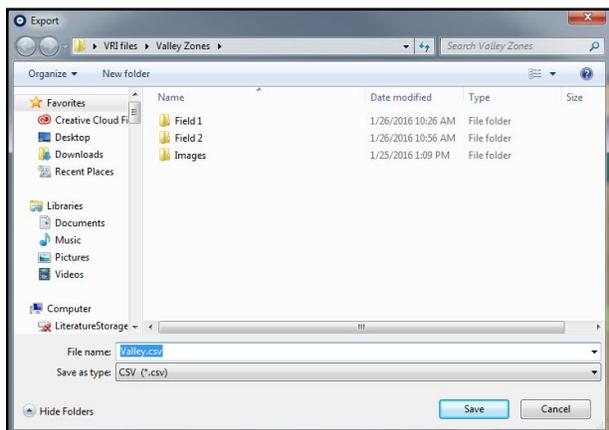


Figure 36-2 Folder Location



Figure 36-3 1. Successful Export

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Exporting a Prescription (continued)

Exporting to a CSV File (continued)

- Open the CSV file (from saved location).

You can see that it has been opened by a spreadsheet application. See Figure 37-1.

The file can also be imported into other data-gathering applications.

	A	B	C	D	E	F	G	H	I	J
1	Farm Name	Valmont	①							
2	Prescription Name	Valley	②							
3	RTU ID	125	③							
4	Road Angle	0	④							
5	Offset Angle	0	⑤							
6	DEGREE	Zone - 1	Zone - 2	Zone - 3	Zone - 4	Zone - 5	Zone - 6	Zone - 7	Zone - 8	⑥
7	⑦	0	20	20	20	20	20	50	85	20
8		2	20	20	20	20	20	50	85	20
9		4	20	20	20	20	20	50	85	20
10		6	20	20	20	20	20	50	85	20
11		8	20	20	20	20	20	50	85	20
12		10	20	20	20	20	20	50	85	20
13		12	20	20	20	20	20	50	85	20
14		14	20	20	20	20	20	50	85	20
15		16	20	20	20	20	20	50	85	20
16		18	20	20	20	20	20	50	85	20
17		20	20	20	20	20	20	50	85	20
18		22	20	20	20	20	20	50	85	20
19		24	20	20	20	20	20	50	85	20
20		26	20	20	20	20	20	50	85	20
21		28	20	20	20	20	20	50	85	20
22		30	20	20	20	20	20	50	85	20
23		32	20	20	20	20	20	50	85	20
24		34	20	20	20	20	20	50	85	20
25		36	20	20	20	20	20	50	85	20
26		38	20	20	20	20	20	50	85	20
27		40	20	20	20	20	20	50	85	20
28		42	20	20	20	20	20	50	85	20
29		44	20	20	20	20	20	50	85	20
30		46	20	20	20	20	20	50	85	20
31		48	20	20	20	20	20	50	85	20
32		50	20	20	20	20	20	50	85	20
33		52	20	20	20	20	20	50	85	20
34		54	20	20	20	20	20	50	85	20
35		56	20	20	20	20	20	50	85	20
36		58	20	20	20	20	20	50	85	20
37		60	20	20	20	20	20	50	85	20
38		62	20	100	100	20	20	50	85	20
39		64	20	100	100	20	20	50	85	20
40		66	20	100	100	20	20	50	85	20

Figure 37-1

1. Farm Name	5. Offset Angle
2. Prescription Name	6. Zone Numbers
3. RTU ID	7. Segments (Degrees 0 - 358)
4. Road Angle	8. Sector/Watering Rate

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

Deleting a Prescription

Individual prescriptions for pivot projects can be deleted without deleting the project. To delete a prescription, do the following.

1. Open the project whose prescription you want to delete.
2. Select **Delete Prescription** in the VRI drop-down menu, and click on the name of the prescription in the right-hand column. See Figure 38-1.

A pop-up decision screen appears asking if you are sure you want to delete the prescription.

3. Click **Yes**. See Figure 38-2.

You can click **No** if you have changed your mind.

A second pop-up screen appears confirming that the prescription was successfully deleted.

4. Click **OK**. See Figure 38-3.

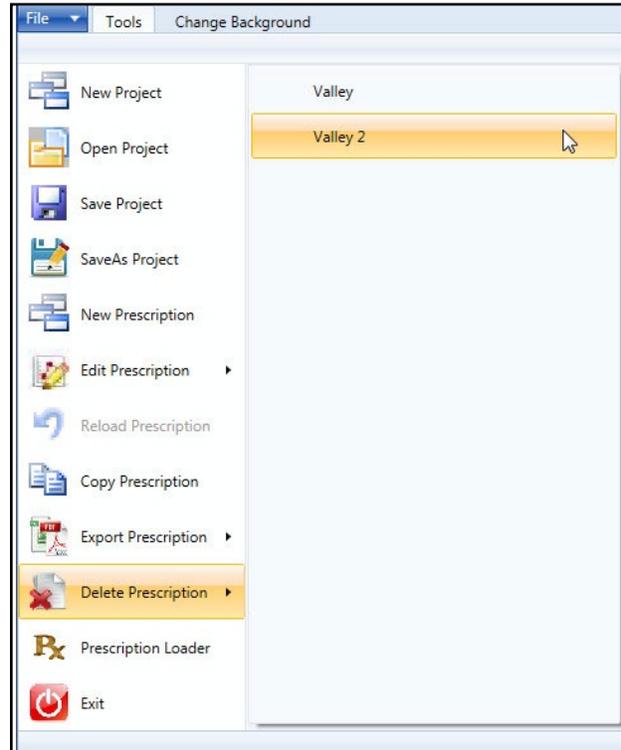


Figure 38-1 Delete Prescription

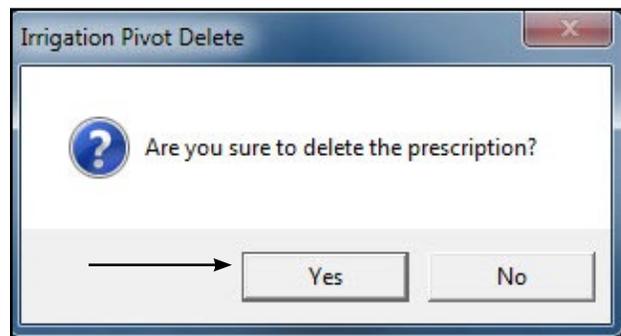


Figure 38-2 Delete Decision Pop-up

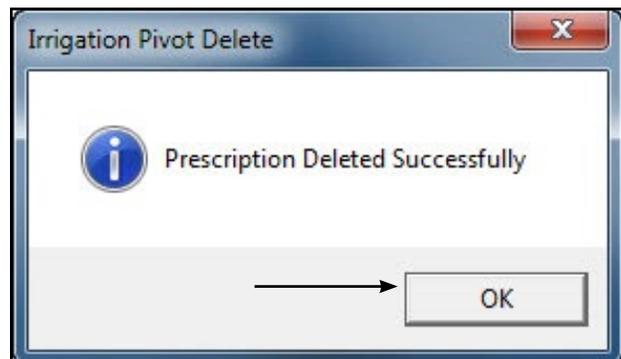


Figure 38-3 Deletion Successful

Create a Project and Prescription

Working With Projects and Prescriptions (continued)

E-mailing or Exchanging a Prescription

Prescriptions can be e-mailed or exchanged from one user to another.

To e-mail the files properly, there must be an understanding of the file structure of a VRI Project file.

When a VRI Project is saved the program creates a Project folder inside of the folder in which it was placed.

In Figure 39-1 the prescription ABC Farms was saved in the Pivot-Projects Folder. The program created the ABC Farms folder and inside of that folder it created an Image folder (which contains the image/ images if any were used in the programs prescription) and the actual VRI file.

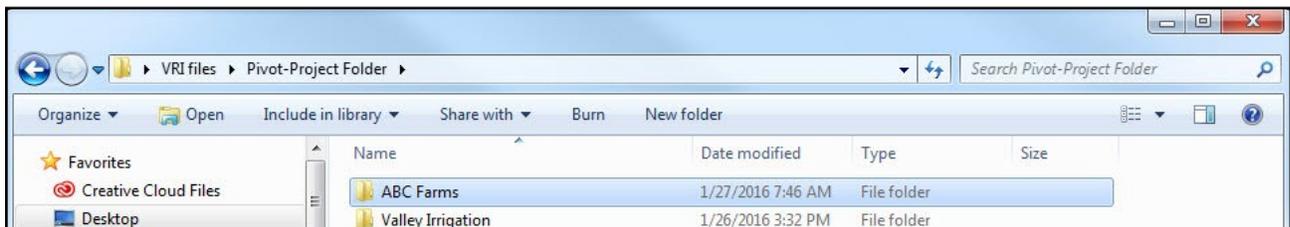


Figure 39-1

Additional information about these files:

1. The VRI file is all that is needed to load into a Panel. (Example: ABC Farms.vri) If the file is only going to be loaded with the RxLoader program only this file needs to be sent. Note: Sending only this file will not open properly in the VRI Program.
2. The second and preferred method for transfer is to exchange the entire ABC Farms folder. An easy way to do that is to Zip the folder with a zip program (most computers are equipped with the needed program). Right click on the file and a dropdown menu will appear select **Send to**, then choose **Compressed (zipped) Folder**. Figure 39-2

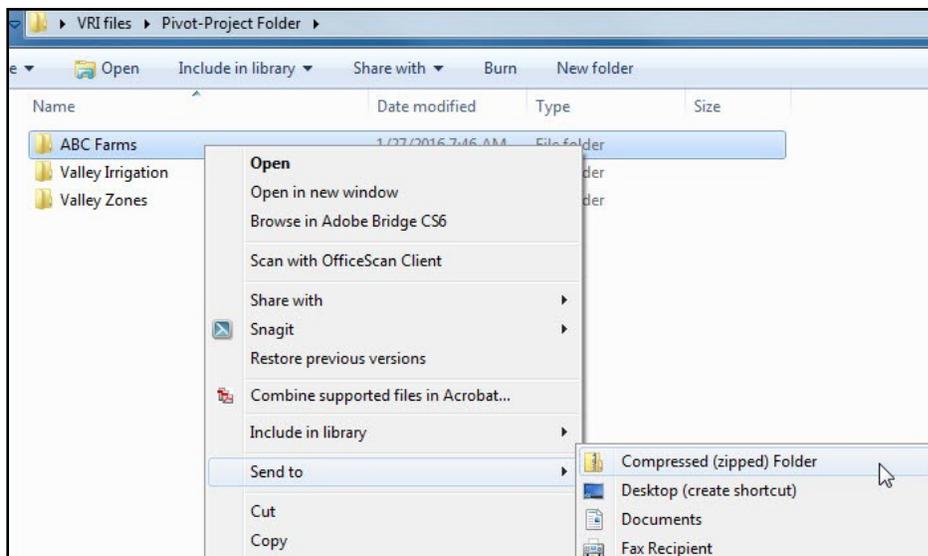


Figure 39-2

Name	Date modified	Type	Size
ABC Farms	1/27/2016 7:46 AM	File folder	
ABC Farms.zip	1/27/2016 7:52 AM	Compressed (zipp...	1 KB

Figure 39-3

You now have a Zipped file. Figure 39-3

This gives the recipient the entire project with the imagery and VRI prescription. They will need all of it to properly view the prescription.

Create a Project and Prescription

Uploading a Prescription

VRI Prescription Loader Version 4.0.1

The VRI Prescription Loader application is used to convert the user-entered VRI prescription details into a format that can be read by a control panel in the field.

Hardware and Software Requirements

- Pro2 control panel software v. 8.40 or higher (VRI Speed and VRI Zone)
- Select2 control panel software version 1.20 or above (VRI Speed)
- BaseStation2-SM software version 8.3 or above
- BaseStation3 software version 3.0 or above

Prescription Upload Methods

- Prescription loader: Upload or save a prescription created with the VRI prescription map program.
 - » Upload a prescription directly to a Pro2 or Select2 control panel through a serial cable connection with a personal computer.
 - » Use BaseStation3 or AgSense to upload a prescription to an ICON control panel.
 - » Save a prescription for use with BaseStation3, AgSense, or other remote loading methods.

Uploading a Prescription

Loading Prescriptions

To load a VRI prescription:

1. Open the pivot project.
2. Select **Prescription Loader** in the VRI drop-down menu. See Figure 42-1.

The Prescription Loader screen appears. See Figure 42-2.

3. In the Data Source File Selection section of the screen, select one of the following to identify the prescription's source:

- Use Valley VRI program Generated XML (default)
- Use Third Party program Generate XML

4. Select the prescription that is to be loaded or saved by clicking the appropriate checkbox.

NOTE: In the file selection window the names of the prescriptions inside the project selected are displayed with the prescription Type, RTU ID, Map, and prescription name.

There are 4 different Types: Pivot (Pivot Zone), SC Pivot (Pivot Speed), Linear (Linear Zone) and Next Gen (Pivot VRI iS).

The RTU ID is the number created in the software.

5. Select the Panel Type. ICON Series or PRO 2 Panel (including Select 2 and AutoPilot). This ensures the correct protocol type is sent to the panel.



Figure 42-1 Select Prescription Loader

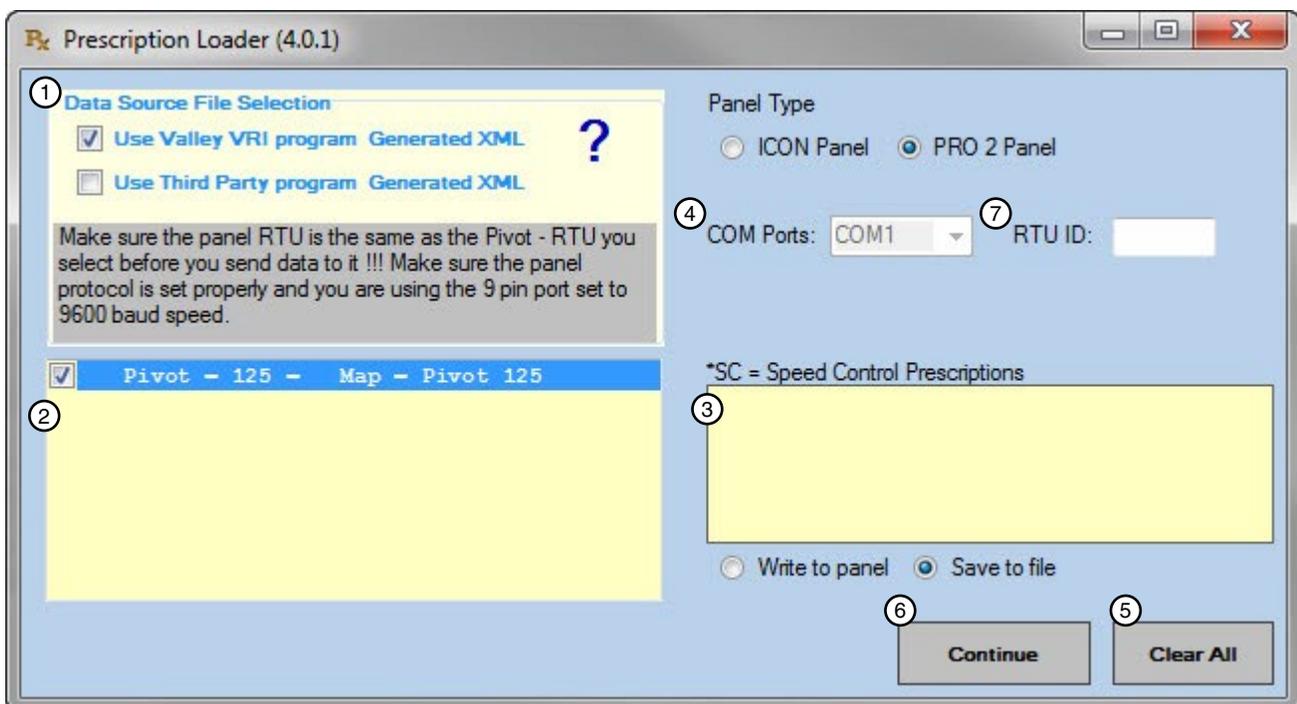


Figure 42-2 1. Data Source File Selection 3. Prescription Disposition Area 5. Clear All Button 7. RTU ID
2. Prescription Selection Section 4. COM Ports Drop-down Menu 6. Continue Button

Uploading a Prescription

Loading Prescriptions (continued)

6. Enter the RTU ID of the panel. This will be used instead of the number created prescription software. See Figure 43-1.

NOTE: ICON Panels need a 4 digit ID entered and can be 0-9 and/or A-F combination.

*make sure it matches the RTU ID in the Panel.

7. Select one of the following by clicking on the appropriate checkbox: See Figure 43-1.

- **Write to panel** - will cause the prescription to be sent directly to the control panel
- **Save to file** - will save the prescription to the location you select.

8. If you are writing to the panel, select the COM port to be used in the drop-down menu. See Figure 43-1.

NOTE: Use the 9-pin COM port on the control panel with constants set as Remote Control and with baud rate at 9600.

9. Click **Continue** to be taken to the next screen. See Figure 43-1.

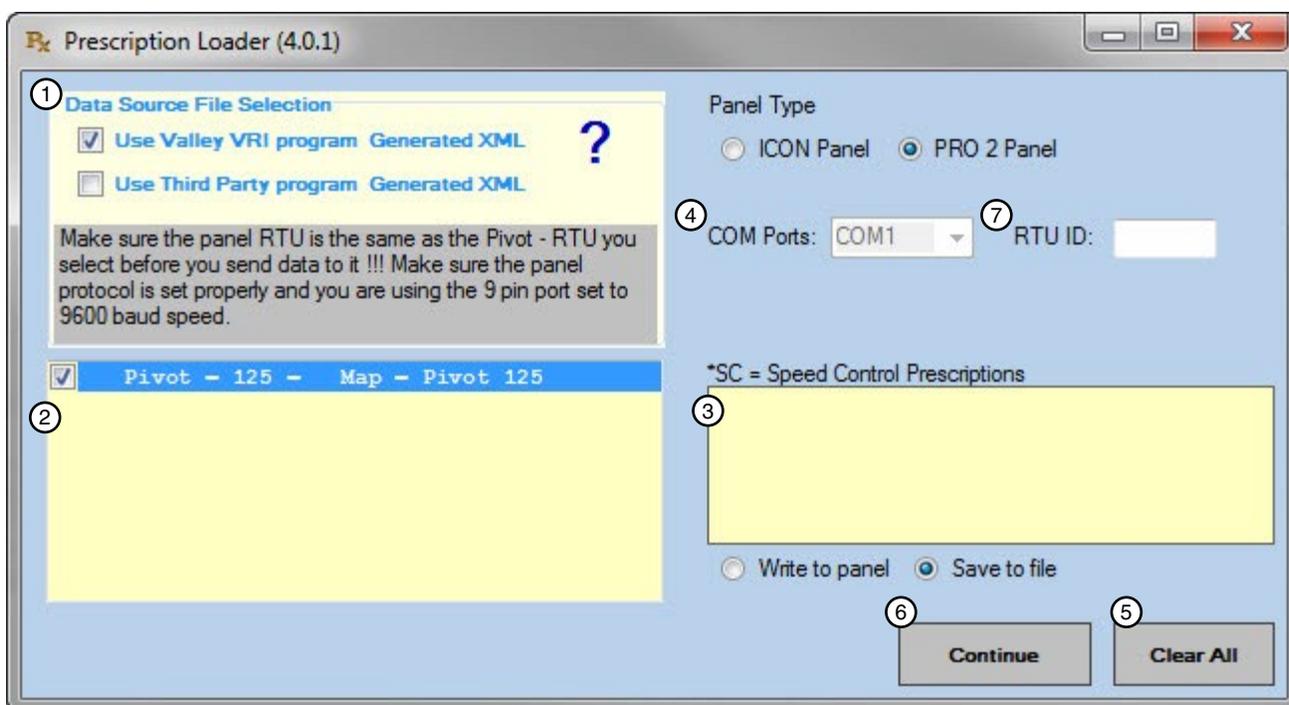


Figure 43-1 1. Data Source File Selection 3. Prescription Disposition Area 5. Clear All Button 7. RTU ID
2. Prescription Selection Section 4. COM Ports Drop-down Menu 6. Continue Button

Uploading a Prescription

Loading Prescriptions (continued)

- If you selected **Write to panel** and clicked **Continue**, the file is sent to the control panel and the Prescription Loader screen is updated with the status of the data transmission. See Figure 44-1.

NOTE: “All 64 records loaded” defines the sector details. This particular prescription has 16 zones, and the grid is divided into 4 quarters by the system. The prescription records are therefore calculated as 4 x 16 = 64.

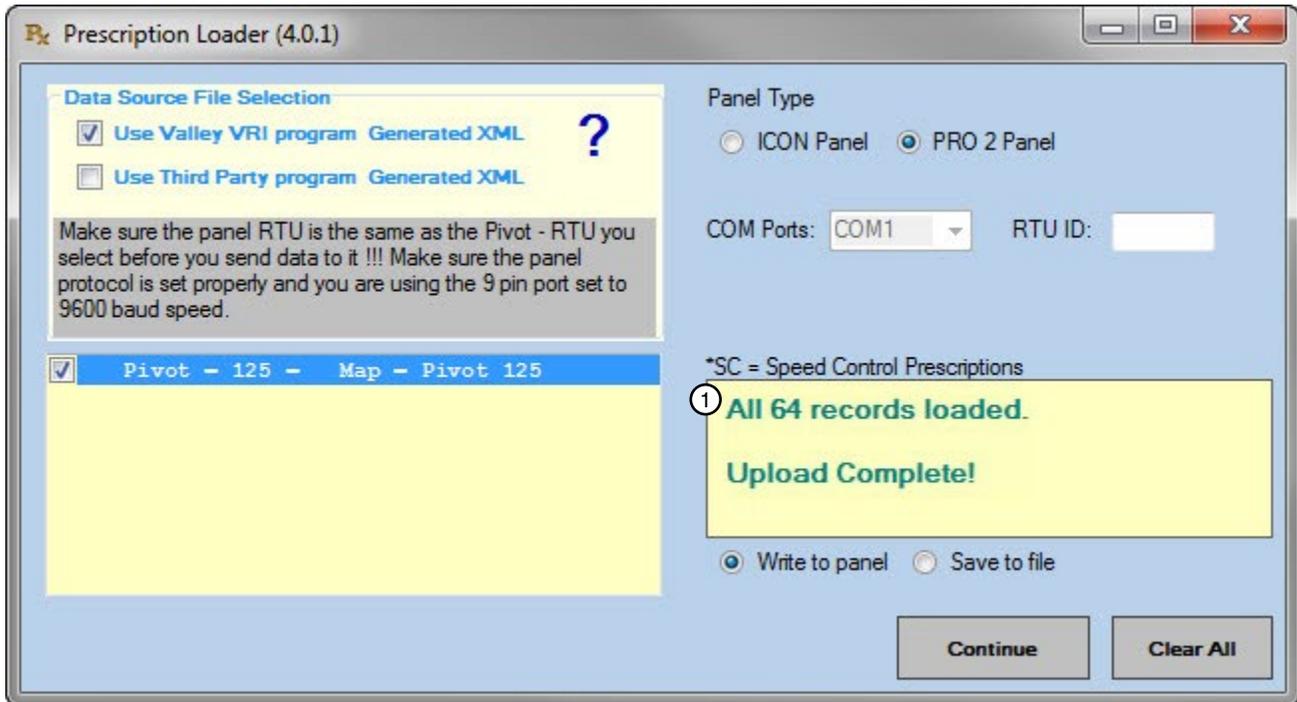


Figure 44-1 1. Data Transmission Status

- If you selected **Save to file** and clicked **Continue**, the Browse For Folder pop-up screen appears. See Figure 44-2.
10. Locate the folder in which you want to store the file and click **OK**.
- If you want to store it in a new folder, click **Make New Folder** and place it there.

Note: The stored files that are made from “Save to file” have different file extensions based on the Panel type and the prescription type.

Files will start with the Type, RTU, Map, Prescriptions name and have an extension at the end.

There are 2 different output Types: Pivot & Linear

There are 6 different file extensions: Zone, iZone, Speed, iSpeed, Vis, and iVis.

The i in front of Zone, Speed and Vis indicates those files are for ICON panels. The ICON panels use a new protocol so the files are different in order to load properly

Example: Pivot - 011 Map - Potatoes.Zone

.Zone is the extension.

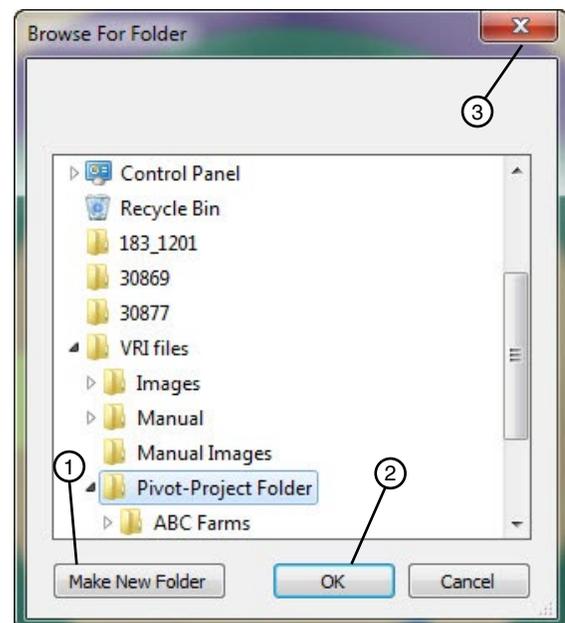


Figure 44-2 1. Make New Folder Button
2. OK Button
3. Close Button

Uploading a Prescription

Loading Prescriptions (continued)

- The Upload pop-up screen is updated to indicate that the file has been uploaded correctly. See Figure 45-1.
11. Click **OK**.
 12. Clicking **Clear All** removes all selections you have made on the screen. See Figure 45-2.
 13. Click the **Close** button on the Prescription Loader screen to exit the Prescription Loader application. See Figure 45-2.

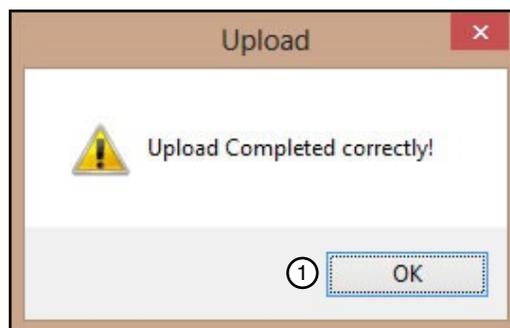


Figure 45-1 1. OK Button

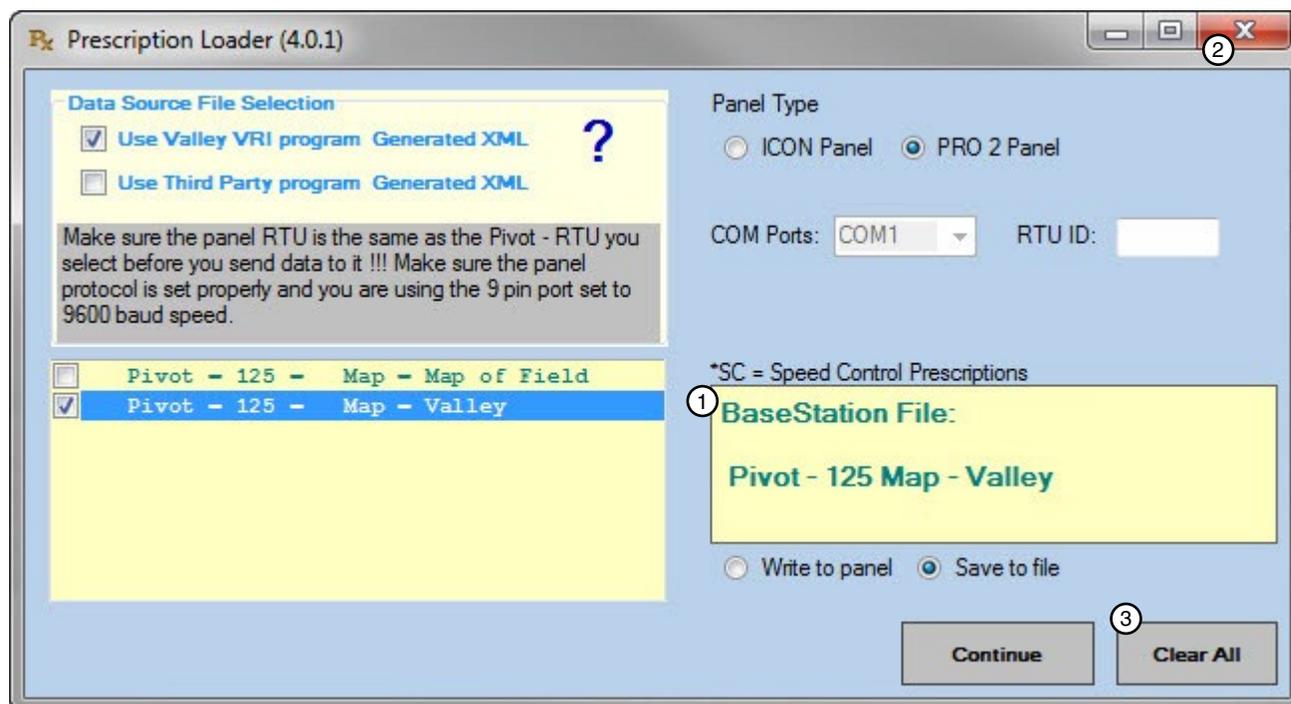


Figure 45-2 1. File Stored Indicator
2. Close Button
3. Clear All

Uploading a Prescription

Loading Prescriptions (continued)

Speed Control Prescription upload

When loading or saving a Speed Control file the user will need to enter a program number storage location in the control panel (1 to 5) to store the prescription in, before being able to select continue.

- Enter a Speed Control Program number. Up to 5 Speed control programs can be stored in a control panel. See Figure 46-1.

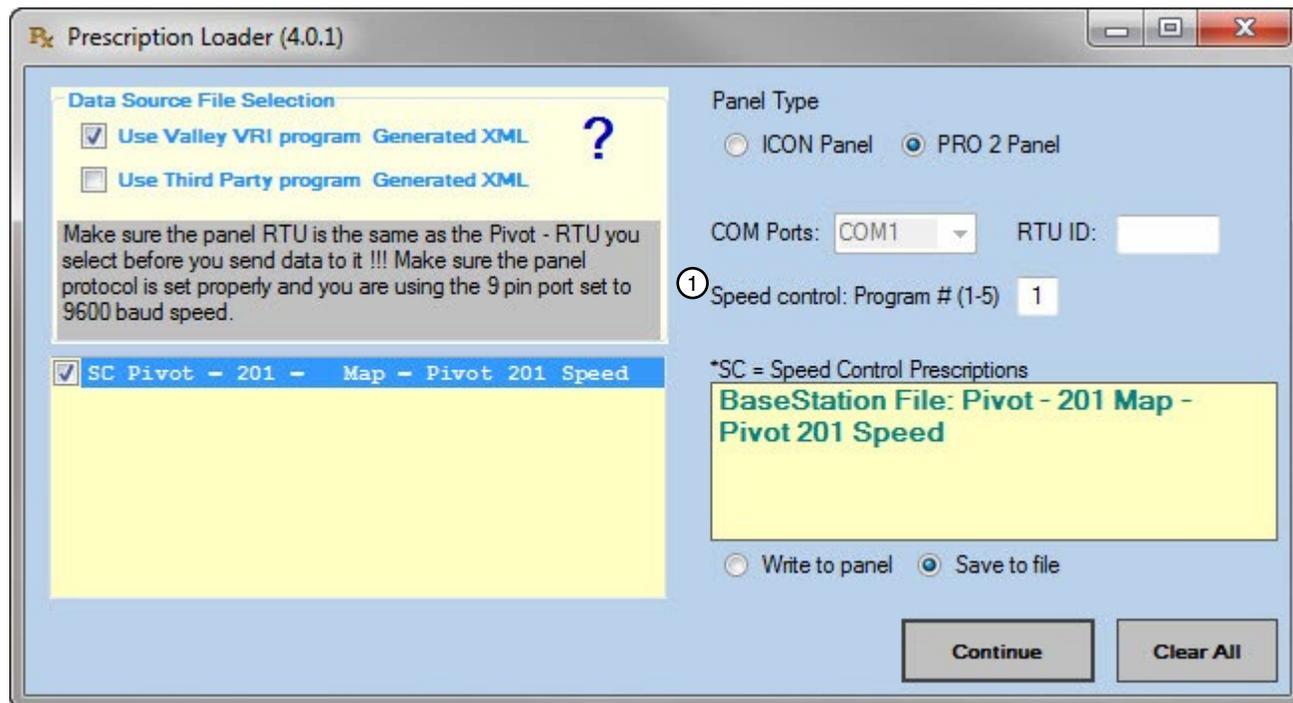


Figure 46-1 1. Speed Control Program Number

Note: If a USB to serial adapter is not connected or a serial port is not available when the RxLoader program is opened a warning screen will appear. See Figure 46-2.

- Select OK to continue. See Figure 46-2.



Figure 46-2

Uploading a Prescription

Loading Prescriptions (continued)

Without a serial cable connected you will not be able to “Write to panel” but you will be able to “Save to file”. You will also notice that the “Continue” button is now a “Build protocol file” button. See Figure 47-1

If a COM failure is detected a popup window will appear. See Figure 47-2.

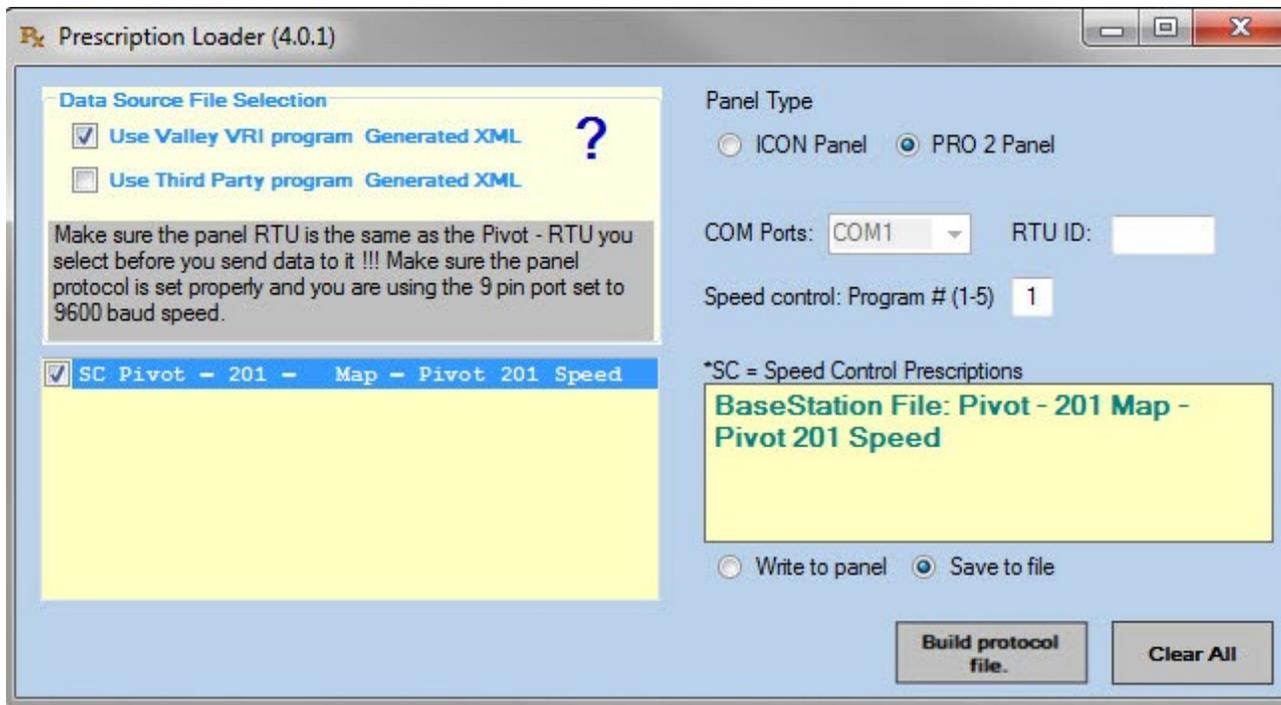


Figure 47-1

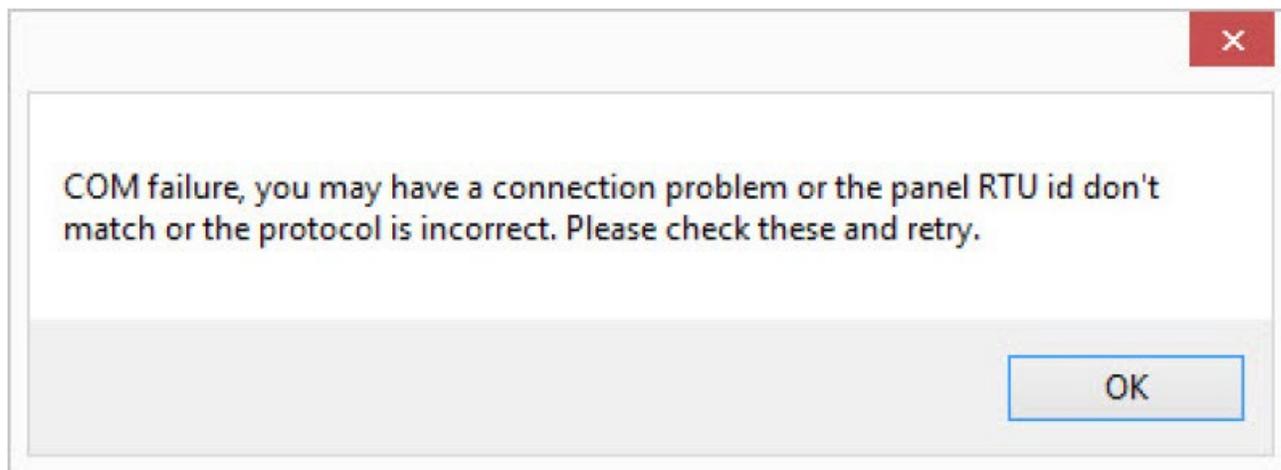


Figure 47-2

Uploading a Prescription

Irrigation Zones

Number of Sprinkler Zones

Number of Zones setting controls the number of zones shown on the map. Selection is made from the number of zones drop down list depending on the Variable Rate Irrigation (VRI) Control being used.

- VRI Speed Control, select **1 Speed Cntrl** zone.
- VRI Zone Control, The range is from 2 to 30 zones. Example: If the number of sprinkler banks is set to 16 there will be 16 zones shown on the map from the pivot point to the edge of the field.

Sprinkler Zone Length

The sprinkler zone length controls the length for each zone shown on the map and is not available when **1 Speed Cntrl** zone is selected, because the pivot length is the zone length

- When fixed value is selected, the zone lengths are equal to the pivot length entered in the pivot description divided by the number of sprinkler zones.
- When variable length is selected, the zone length on map can be customized to represent the actual length of the sprinkler group on the machine.
- One Valley VRI tower box controls two sprinkler zone solenoids. One sprinkler zone solenoid can control multiple sprinklers.
- Sprinkler zone number 1 in the list box is the sprinkler group next to the pivot point.
- Sprinkler zone length is an approximate measurement from the first sprinkler to the last sprinkler controlled by one solenoid.

If variable length is selected, enter the individual lengths for each sprinkler zone shown in the list box beginning with sprinkler zone number 1 and proceeding numerically. As each sprinkler zone length is entered it is deducted from the total pivot length. Lengths cannot be a negative number.

Appendix
