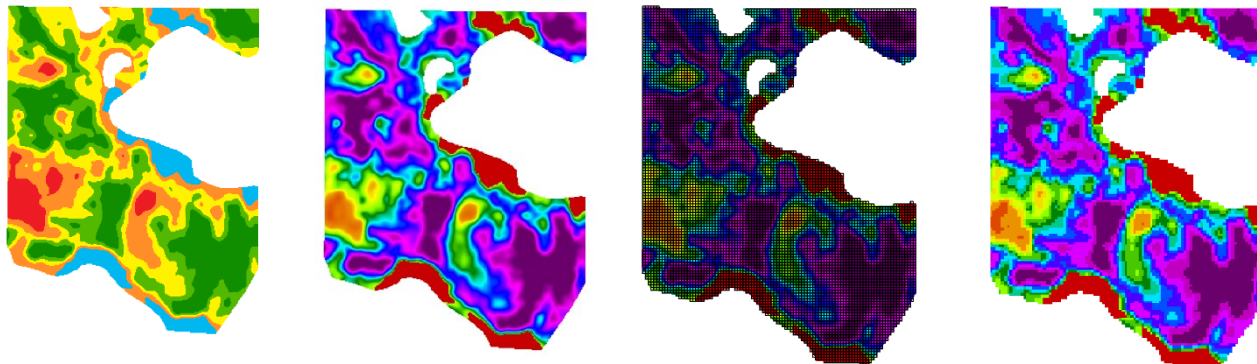


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Variable Rate Rx – Merge Zone Results – To Controllers (VR)

At the end of this training session, attendees should be able to build soil test and variable rate maps, modify variable rate maps with check strips and intra-layer math, build prescriptions for controllers, and print prescription maps.



Where we're headed today: we are taking a zone map we've already built and we are adding soil test and crop input values to it so that we can create prescriptions that our customers can use in their VRT controllers.

During class, we will be adding soil test and crop input values to zone maps using the "Merge Zone Results" window. This window is what becomes available with the **Variable Rate Create** package. Once your training trial code expires, you will need to purchase the **Variable Rate Create** package to create variable rate fertilizer prescriptions in ADMS.

We will be working out of Merge Zone Results and Map Window and Merge Zone Results window for this class.



Grower: GKT-Zones_Grids_Rx

Farm: Merge Zone Results

Field: BM 28-33-EH-130ac

Starting in Merge Zone Results Window (p. 138-185)



We are building out maps in this step. We are taking soil test results or fertilizer guidelines that we want for each management zone and creating maps so that we can take those maps and turn them into prescriptions for our controllers later.

- Create Fert. Product & Rx Manual Entry (p. 138-141)

- What you'll need: soil test results (.csv), fertilizer plan, fertilizers set up in ADMS
- VRT Maps we are writing today: seeding rates (corn), Zone ID, Yield Goal, Urea, MAP, Potash
- Setting up fertilizers in ADMS: Setup>Fertilizers; Click Yellow Plus sign to add new; Click on products in left-hand side list to edit details. Names must be less than 12 characters.
- Manual entry: reference your fertilizer sheet
 - Step 1: Turn on Zone Map from Data Tree

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- Step 2: Click “Soil Test Results” tab>Click “Enter Result Manually”>Select products>“OK”
 - Enter values in the “Soil Test Results” area
 - Build out Corn Seed map first: we have values in all zones for corn seed. Press “Interpolate Output Maps” then “Build Maps” then “View Nutrient Maps”
 - Build out fertilizer maps next.
 - Uncheck corn seed, check fertilizers on next. Choose “NO TEST” for orange and light green zones (interpolates values in between zones that had soil test results) – NO TESTs cannot be a bottom or top zone
 - Check “Interpolate Maps”
 - Checking “Enforce Product Max and Mins” will enforce product max and mins set in Setup>Fertilizers
- Where is ADMS saving these results out to?
 - Settings>User Interface 2>Zone Results Folder Name (suggested: name of crop a field is going into) with the “Current Season” year in front of it.
- **Assign Common Names (formerly Common Name Mapping) (p. 150)**
 - Setup>Assign Common Names
 - This is where Fixed Color Tables are set (Color By Value Table) (p. 152-156)
 - Fixed color tables can be loaded into your _DB folder
 - This is also where soil test result abbreviations get their “full” names
 - Have a column that’s in your soil export .csv that you don’t want to load? Delete it from your Assign Common Names table.
- **Create Soil Test Results Using CSV Soil Test (p. 142-144)**
 - Load Sample Result File
 - Close out of Merge Zone Result window, Open again (“reset” settings)
 - Step 1: Turn on Zone Map from Data Tree
 - Rename Soil Test Results Folder we just built to avoid saving over it
 - Step 2: “Load Sample Results File”
 - Settings>User Interface 2>”Start Search for Sample Results in Field Folder”
 - Select soil test result .csv file
 - Step 3: Select the Column that Contains the Zone ID – In this case, “SampleID”
 - Step 5: Match up Zone ID column to Sample ID loaded with file
 - No test completed for a zone? Leave zone as “NO TEST”
 - Step 4: Column Names from loaded soil test csv file automatically converted to Soil Test Layers thanks to **Common Name Mapping**
 - Uncheck any layers you don’t want to build maps out for
 - Building soil test maps: make sure to check on “Interpolate Output Maps” and don’t check on “Enforce Product Min and Max Rates”
 - Click “Build Maps” then “View Nutrient Maps”
 - Colors of maps here are set by Fixed Color Tables, as assigned in Setup>Assign Common Name
 - Want to use a Blend Group? Check out Kelly’s training on **Blending Fert for Application (VR)**

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- Phosphorus Conversion (Phos Convert) (p. 145-146)

- Select one of the P options that you want to create a new column for and select which column of P you already have value. Important if you want one P test value across field



- Implementing Check Strips (mod area) (p. 148-149) >>>>

- We've built out our fertilizer variable rate maps. Before we create a Rx map for the controller, let's add a check strip in a built fertilizer map.
- For this example: check on 46-0-0 map
- We are now going to DRAW a check strip into the map so that we can modify the fertilizer map we've already made.
 - Create New Layer from Template>Check Strip>Draw New Object (from bottom toolbar)>Change Pencil (in Drawing Tools window) to "Rectangle"
 - Good practice: put check strips in *perpendicular* to the direction of travel across multiple zones
- Additional details about the Drawing Tools tab: Check out Sarah's class on "Drawing Tools"
- Drawn objects (or check strips) can be moved and copied once drawn on map
 - Select object>Drawing Tools>Move Objects
 - Select object>Copy Object>Right Click to finish moving it.
- Where exactly you want to place check strips/blocks in the field will depend on what question you are trying to answer.
- These check strips we will now use to modify the variable rate fertilizer map we've already made.
 - Select object>make sure the layer you want to modify is the active layer (46-0-0)>Magic Wand (Modify Pixels Under Drawn Area)
 - Replace with this Value – set to 0 (or whatever value you want!)>click OK
 - Save As – Layer with Check Strip (so you can keep your original too)

Exporting to Controllers (p. 193-207)

Grower: GKT-Zones_Grids_Rx **Farm:** Exporting Rx_Printing **Field:** BM 28-33-EH-130ac

- Making yard test file (Everyone do this) (p. 195)

- Goal of a test file: Makes sure that everything is working right before it's time to go to the field.
- What we're trying to do here: quickly make a raster (geographically referenced surface with 1 value per pixel) for an area we can use our tractor and rate controller to test a prescription with values that are close to what we would actually be using in the field.
- Navigate to "farmyard" on NAIP image>Right Click>Extract Current View
- Draw boundary around the test area
- Extract Red band surface from NAIP image
- Use Intra-Layer Math to change raster values to something we would be using with the rate controller we're testing.
- Good idea to add a zero rate into the test prescription: we can make a mod area like we did in the previous section to get us a 0 rate.
- Rename test prescription, export to controller (we will talk about how to do this now).

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- **Corn Seed – Intra-Layer Math Increment Raster (1000 sds) (p. 204)**
 - o Why? Preference item AND gives us more control over number of rates that are in the field. Also, some controllers can't handle a bunch of rates.
 - o Select seed map>Intra-Layer Math button (bottom toolbar)>Round to Increment>Operator Value
 - Start small and go bigger. You can always go bigger, but you can't round to a smaller increment.
 - Want to "Undo"? Unload layer and DON'T save.
 - If you plan to round to increment for seed, put check strips/blocks in AFTER you've rounded to increment
- **SHP Export (p. 206)**
 - o We can also do this on the back end on the .SHP file that is exported from a non-rounded raster.
 - o For controllers that have **RATE** limitations
 - Open Rx.SHP to be rounded>Click "Perform a Math Operation on a Column" from bottom toolbar>Round to Increment>enter in your operator>OK>Check the new database
 - o For controllers that have **POLYGON** limitations (you need to round to increment first)
 - Open Rx.SHP to be dissolved>Right Click that Layer>Shape Tools>Dissolve
 - New SHP file will contain number same number of polygons as rates.
- **Urea – Intra-Layer Math SHP (subtract by 20 lbs (9.2 lbs N)) (p. 149)**
 - o Turn on 46-0-0 map
 - o Click "Intra-Layer Math">Subtract the value>Operator Value = 87>OK
- **Urea – Intra-Layer Math – Increment SHP (20 lbs) (p. 196)**
 - o Same process as rounding to increment for seed, but we're rounding to a smaller scale
 - o Good idea in this example for 0-0-60
- **SHP Grid Export: most versatile export, most common (p. 198-210)**
 - o Select variable rate maps (raster) you want to export. Do not turn on any other maps.
 - o Click "Export">Shape Grid>Reference **PAGE 203** for your specific controller limitations you need to be cognizant of!
 - Most controllers limited to 10000 polygons
 - INCREASE output resolution meters until Approximate Output Cell Count is <~9500 polygons
 - Cell Merge Mode: Center most common
 - Max Rate Count: If using Center, try to use Infinite. BUT refer to page 203: you may have to select JD Rx (175) or SMS (255) based on the controller you're exporting to. (If you've already done hard breaks on seeds [so only 15 rates vs. 30000 rates] and you're only exporting a seed Rx, you can select infinite, even for controllers that are limited to 175 or 255 rates).
 - Click "Export Selected Rasters">Name Rx SHP file (keep it short and special character free)>SAVE
 - Open newly created SHP file and check database

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- **SHP Contour Polygon (p. 200)**
 - o Used to have to create contour polygons to dissolve polygons with the same rate
 - o You can now click this on when you are exporting out prescriptions that have discrete values (seed maps with 1000 or 2000 seed increments). It will also automatically make separate SHP files if you are exporting multiple VRT maps.
- **John Deere GRX – for 2600 & 2630 – NOT 4600 (p. 210)**
 - o Select maps you want to export>Export>John Deere GS2-GS3 GRX
 - o Check Layers to Export>Make sure Product Names are matching up below>Double check units of measurement>Browse to Export path (your USB)>"Export" – change name if it's too long
 - o Always export to the USB you're planning to move the script to the field with.
- **ISO Export – CNH, Topcon, Dickey John, Falcon VT (see pages p. 212-214)**
- **Printing RxMaps (p. 222-230)**
 - o Good idea to turn on background NAIP imagery.
 - Turn on NAIP image>Send to Back button (bottom toolbar)
 - o Working with an applicator? Create a print out for the applicator (only include maps relevant to applicator) and printout for the grower (include all maps you want for grower)
 - o Order that Surfaces in Map are on will determine order in which maps will print out.
 - o Change map window shape in order to change how map shows up in print output.
- **Summary Report Option (included with both below print options)**
 - o Batch Print
 - Select Maps>File>Print>Batch Print Surfaces>Include in Summary – Print to PDF creator.
 - This will create a separate sheet for each map and a separate summary page.
 - o Multi-Map Layout
 - Select Maps>File>Print>Multi Map Layout>Change order as you see fit
- **Creating Print Templates (p. 226-228)**

Questions?

