

AgStudio 2016

Release Notes August 15, 2016

This first major release of 2016 introduces several significant sets of features, nice minor improvements, and more progress on improving performance. The significant feature sets are a completely new model for crop zone boundaries and the crop zone boundary editor, a new solution for soil sampling work orders, and major enhancements to the product pickers and grower-specific product relationships.

Soil Test Automation

We have completed the first phase of our initiative to improve our Soil Test Automation functionality. This phase was to migrate the soil sampling work order process to a complete new work order model that we had built over that past three years for managing crew-based cellulosic ethanol production. This model introduces the concept of crews to do work. By moving to the concept of a sampling crew, we get three significant benefits:

1. You can now have users with login credentials that will let them run MAP, and only MAP if they have no other reason to log into AgStudio.
2. As a manager, you have much greater control over directing specific crews (and a person may be a one-man crew) to specific fields.
3. As an area manager with a specific interest in sampling for only a small part of your area, you can log into MAP and sync just the fields to which you have assigned yourself as the sampler. MAP won't sync down all of the fields that are assigned to other sampling crews in your territory.

And of course, with the automatic indication of fields being completed by the receipt of soil test results, those fields will no longer be synced to MAP. The issues of having too many fields for a successful MAP sync should be a thing of the past.

A more complete description of the new Soil Test Automation model will be available in a separate document.

Products

We have significantly enhanced the support for grower-specific product selections and updated the product pickers used throughout the application. With this release, you will see the same product picker in all places where you pick products such as the FieldOp Resource Linker, Advanced Variety Placer, Place a Variety, and other extensions.

For growers, the picker will provide quick access to the list of all products that have been used in prescriptions or field operations, or explicitly selected in the product editors. And, in the grower database, our new model also ensures that each grower gets a unique lot of selected products. This will avoid the issue we have had in the past where one user might change the nutrient analysis of Lime, or the seed count of B95 soybeans, and that change would impact other growers that reference the same product. Now, everyone will have their own specific set of editable product characteristics.

In the pro databases, you have easy access to the list of products that are explicitly associated with a grower, and the list of products that have been associated at the Location, Territory, or Company level (depending upon where you have selected them within the product editors).

In both cases, there is a powerful Search tool that can be used to do a quick name search for any product in the database, and it will automatically add it to the grower's list when selected. For most, this will eliminate the need to ever go into the product editors. The change to this common search model is part of our move to support searching industry standard product databases in subsequent releases.

In preparation for supporting a grower inventory system, our new products implementation ensures that there is always a direct grower association to any product which has been used by or on behalf of a grower. These are the products that appear on the Grower Selections list.

A more complete description of these product enhancements will be available in a separate document.

Boundaries

To support year-specific field boundaries, we have now implemented persistent crop zone boundaries. In the past, if you did not explicitly create a crop zone boundary with the Crop Zone Boundary Editor, the crop zone simply inherited the field boundary. This means that if you have a 160 acre boundary in 2014, and then edit the field to make it 140 acres in 2015, you would have noticed your 2014 crop zone was changed to 140 acres, too.

To avoid this, we now copy the 2014 field boundary and persist it as the 2014 crop zone boundary. Then, if the field boundary is changed in subsequent years, the 2014 crop zone will remain unchanged. It stays at 160 acres. This is the best implementation that we have ever had for “year-specific” boundaries. Now the “year-specific” part is actually reflected in the year-specific crop zones.

Whenever crop zones or the field boundary are updated, a single “crop zone boundary estimator” routine is called. Any crop zone boundaries that you have explicitly drawn are retained as-is. However, any crop zones that you did not explicitly link to a polygon will implicitly inherit the balance of the field that has not been explicitly linked (within each sequence). So, in most cases, you do not need to do anything different than you have been doing to take advantage of the new persistent boundaries. It just works. But, for those of you who need to carve fields into multiple crop zones for irrigation, seed production, or some other purpose, this new crop zone boundary model offers a greatly improved user experience.

A more complete description of these boundary enhancements will be available in a separate document.

VRA

- 🔗 The Advanced Nutrient Recommendation tool was significantly enhanced to support running recommendations without a soil test layer. Part of this enhancement was to place the soil test layer into the list of available layers. This lets you incorporate soil test results, but use any other layer as the spatial definition for the resultant recommendation (for instance, use soil type polygons, with soil test values associated with each polygon).
- 🔗 When you choose a specific layer from the Pre-Surface, Crop Removal, or Post-Surface tabs in the Advanced Nutrient Recommendation tool, it now checks for the “Get Latest of Type” if checked AND if there is a layer of that type available on the selected domain. This reduces the occurrence of diagnostic messages regarding layer names.
- 🔗 The VRF Export process will now generate a warning if the difference between the crop zone area and the prescription area is greater than 1%.
- 🔗 The Export Manager now preloads scripts and send-to factories in the background, so the Export Manager Script Editor will open much faster when you click the Export button within the VRA tools.
- 🔗 The tools that intersect two layers have been enhanced to support joining small regions when specific attributes within the regions have disparate values. This can be used to prevent joining irrigated and non-irrigated polygons, for instance.

Performance

We have allocated significant resources to profiling all tasks within AgStudio. We’ve documented several areas where we have the opportunity to improve the overall performance of AgStudio. Some of these areas have been addressed in this release:

- 🔗 The Advanced Nutrient Recommendations tool’s script editor can now be used by working with only the definitions of the layers available for a grower. In the past, we had to actually retrieve all

layer content in order to use the script editor. This drastically reduces the startup time for the ANR editor.

- 🌀 We found that we had redundant calls to get data in order to populate the properties pages. Those redundant calls have now been eliminated.
- 🌀 We are now completely loading the domain tree, in the background, once a grower is selected. If you have the Background Task Manager open, you will notice a task called the Domain Loader. It is retrieving (and loading into the tree) every crop zone, field operation, and layer in the background. The intent is that this information is already loaded for you by the time you want to work with any of it.
- 🌀 We have replaced most of the legacy GIS components with a new implementation that performs polygon intersections, unions, and other tasks much faster. But more important, it does so without the slivers and artifacts that could sometimes be generated by the older engine.
- 🌀 We are drawing field operations on large fields and section controlled planters drastically faster. We found that when drawing a dot for every row of a planter for every GPS point in the field on large fields, we were frequently painting the same pixel of the screen several times. Now we paint each pixel one time, only, significantly reducing the number of times we draw on the screen.
- 🌀 We made several internal changes to make it significantly faster to get and put layer information over your internet connection.

Miscellaneous

- 🌀 The Variety Locator has been re-enabled for setup card export.
- 🌀 mmhos/cm has been added to the UOM list
- 🌀 Added the tool to display CLUs and link them to a field for use as a field boundary if desired.
- 🌀 A new Component Featureset Generator has been added as a shapefile or csv export for application data.
- 🌀 The read-only layer functionality has been enhanced to:
 - 🌀 Prevent a read-only layer from being deleted.
 - 🌀 Put a cute little locked symbol in the corner of the layer icon on the domain tree.
- 🌀 Add support for combining attributes into a single Rx shapefile for Trimble