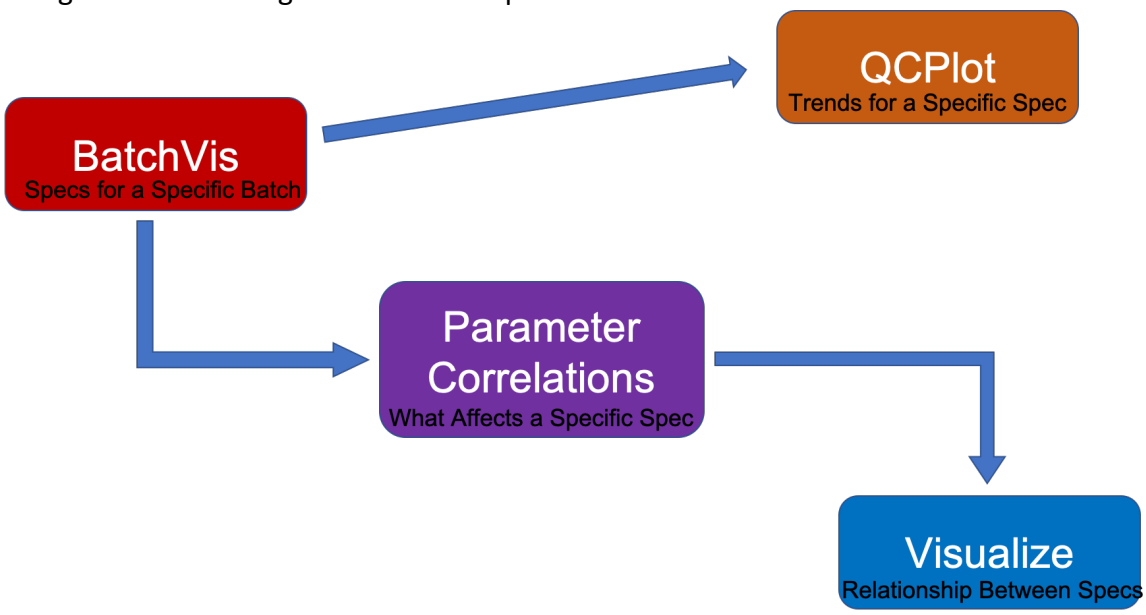
Welcome Tab

Welcome to MaltVis,
This web tool allows you to upload a .csv from Airtable to visualize malting specs. In general, you can move through the tabs going left to right and will most likely only need the BatchVis and QC Plot tabs. The Parameter Correlations and Visualize tabs are for data exploration and troubleshooting specs that may be off.

In general, each tab does the following:

- Upload- Upload data in the form of a .csv file
- BatchVis – View several finished malt specs for a batch in comparison to other batches of the same variety
- QC Plot – Visualize a single malt spec across any number of batches
- Parameter Correlations – Highlights interactions between parameters. If something is off this could tell you what may have caused it
- Visualize – Pick any two variables and see how they affect each other
- Look Up Data – A searchable table that will show values from the .csv uploaded into MaltVis

Visit the Help tab for specific examples on how to use the app. Start with BatchVis to see how a current batch looks. If everything looks good, stop there. If something is outside of the acceptable range, or approaching it, use the QC Plot to see if it was a unique batch or if it is part of a trend. If a bad value is part of a trend, use the Parameter Correlations tab to see what affects that Hartwick Parameter the most. The highest values on the Correlations tab can then be fed into the Visualize tab to see how a specific process step affects the parameter. The image below is a rough outline of this process.

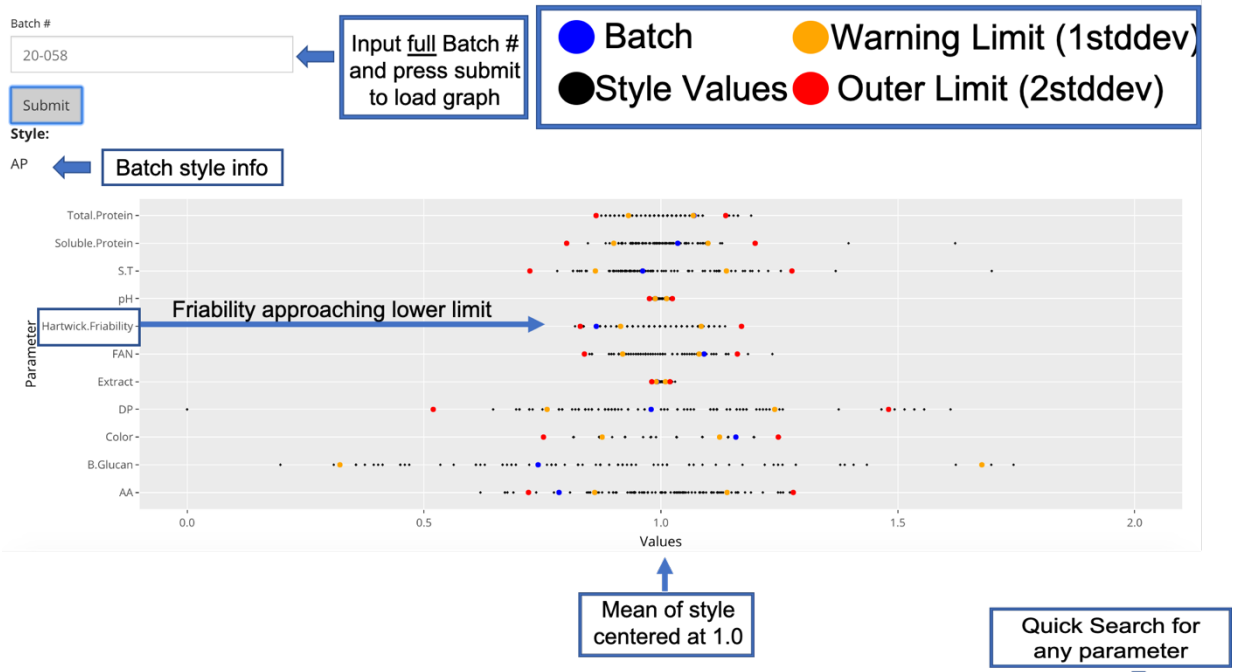


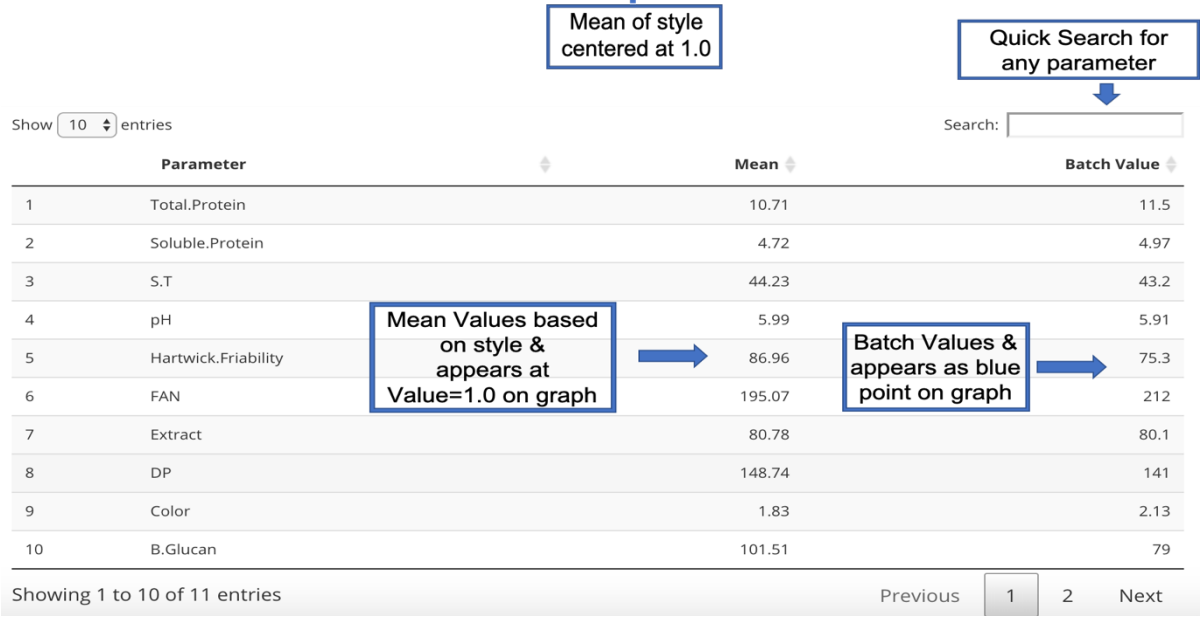
Help Tab

BatchVis

The BatchVis tab shows how the Hartwick data of a specific batch compares to other batches from the same style. Start by typing in the batch number of any batch (XX-XXX) and press submit. The mean for each parameter is normalized to a value of 1. Check the table below the graph to see what the non-normalized values for the mean and batch are.

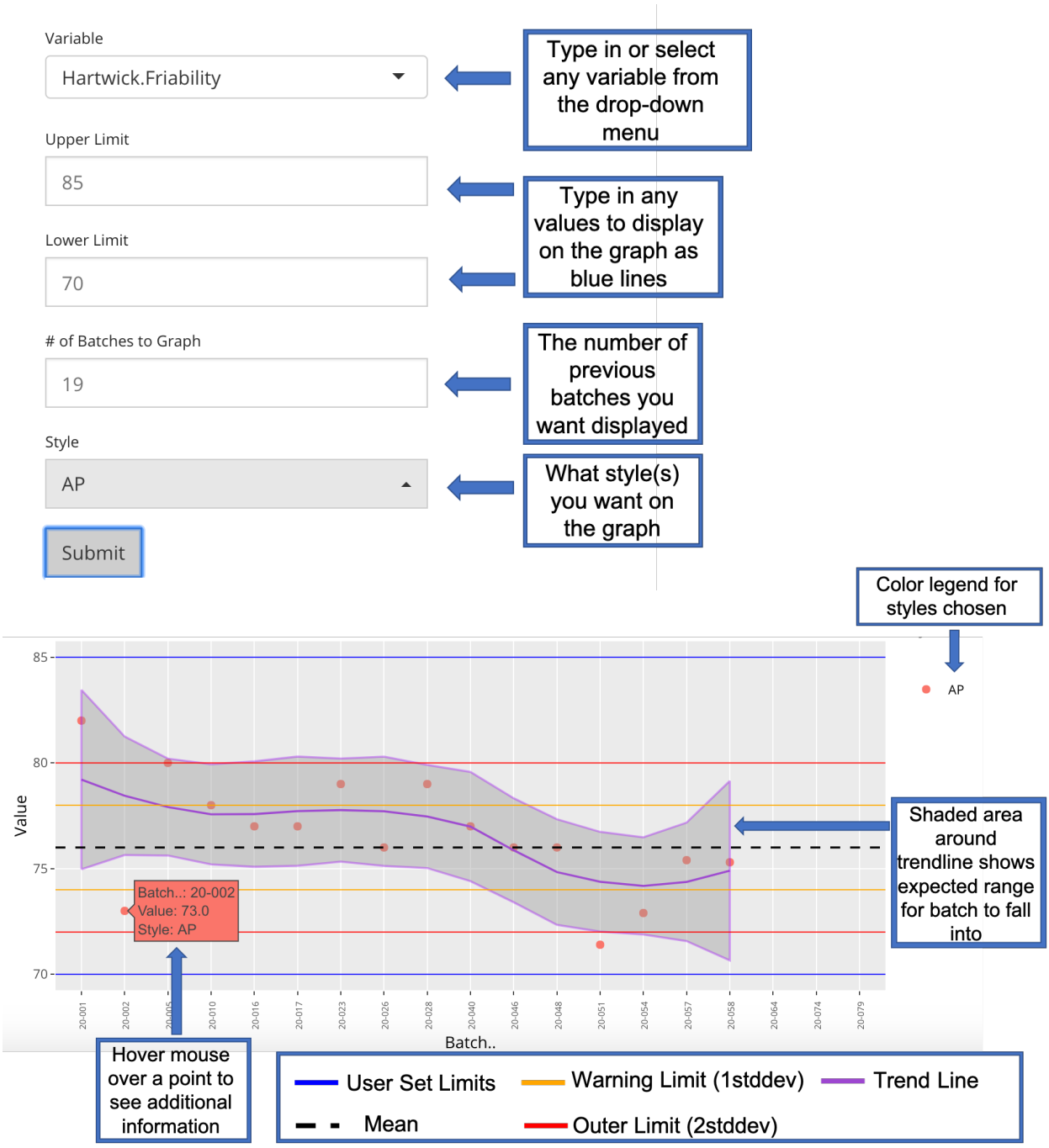
The batch typed in shows up as blue on the graph. The orange dots represent the ideal range and the red dots are limits that should not be passed. The small black dots show the values for other batches in that same style.





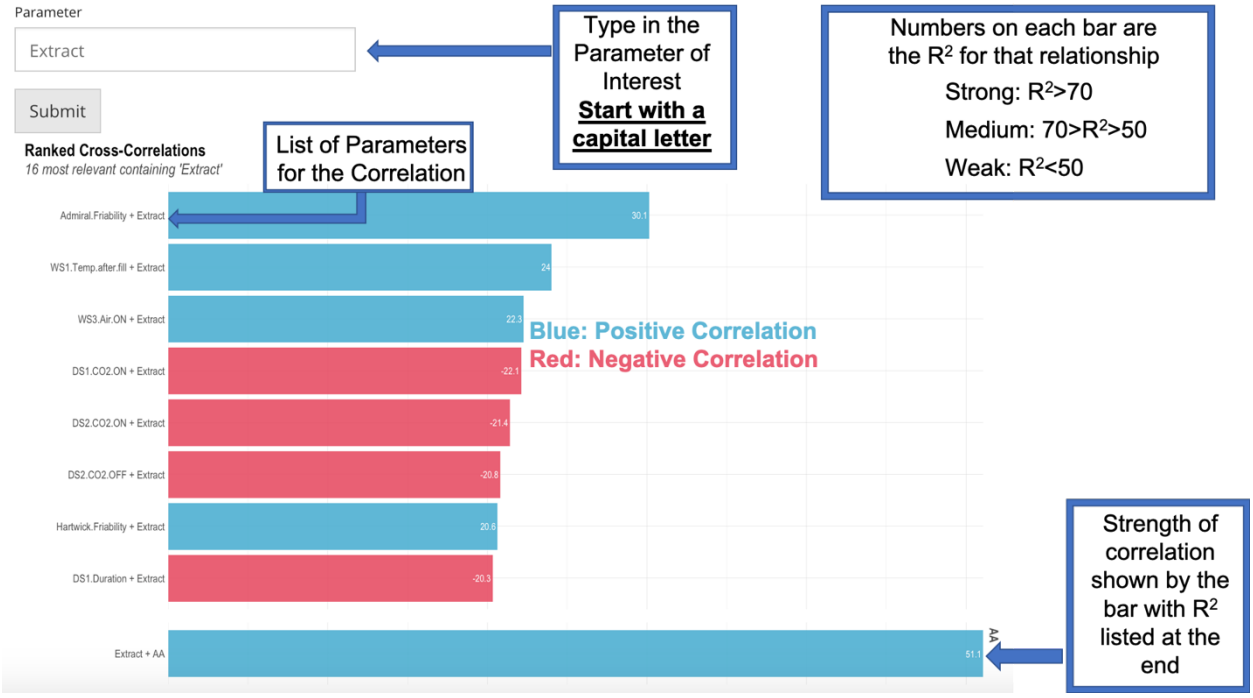
QC Plot

The QC Plot helps you see trends in the data for any parameter. Select or type in the variable that you want to look at first and then select the style(s) you want to see. Additionally, you can set the number of recent batches you want to see. Lastly, you can place lines on the graph using the limit inputs to help see specific values on the graph. Hover the mouse over any point on the graph to see information on it. Hover the mouse over the right side of the graph to see the value of the mean, limits, etc. The trend line drawn on the graph shows the expected value for that batch based on the data. The grey area around the line shows the area that the batch was predicted to be in. You can use the grey are to predict where the next batch may be.



Parameter Correlations

The Parameter correlations tab helps troubleshoot or learn more about a variable. If something is causing a trend in the data, you should see it here. Type in the parameter you want to see. ***<u>The first letter must be capitalized!!!</u>*** The y-axis labels will tell you what other parameter the correlation is for. The R^2 value for the correlation is listed on the bar. You want to choose correlations that have the highest R^2 value, best if greater than 60. The label on the Y axis is what you will use for the Visualize tab.



Visualize

After all of that, you have made it to the visualize tab. Pick the variables using the strongly correlated specs from the Parameter Correlations tab. It will graph the data for you for any amount of styles. A line of best fit is drawn on the graph to see an overall trend. The results of this tab can help set limits on a parameter (i.e. steep time, germ temps, moisture content, hydration index, etc.).