



VST CoffeeTools™ for Windows

Quick Start Guide

Rev B

Comprehensive Measurement and Analysis Tools for the Coffee and Espresso Beverage and Equipment Design Industries

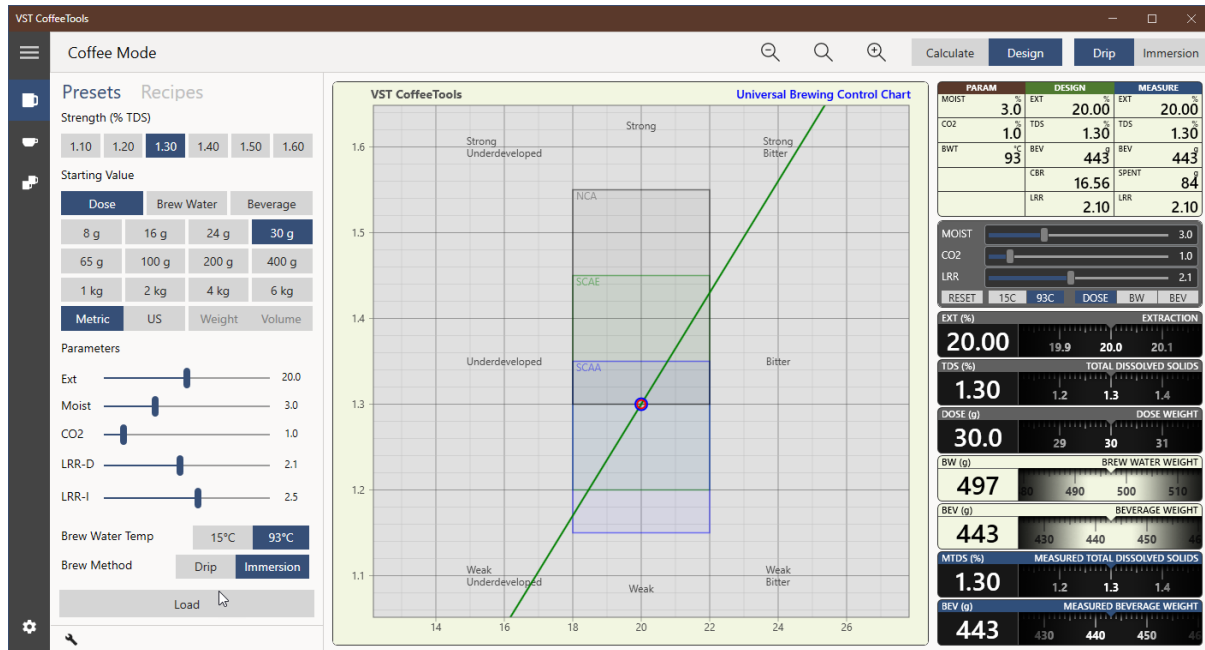
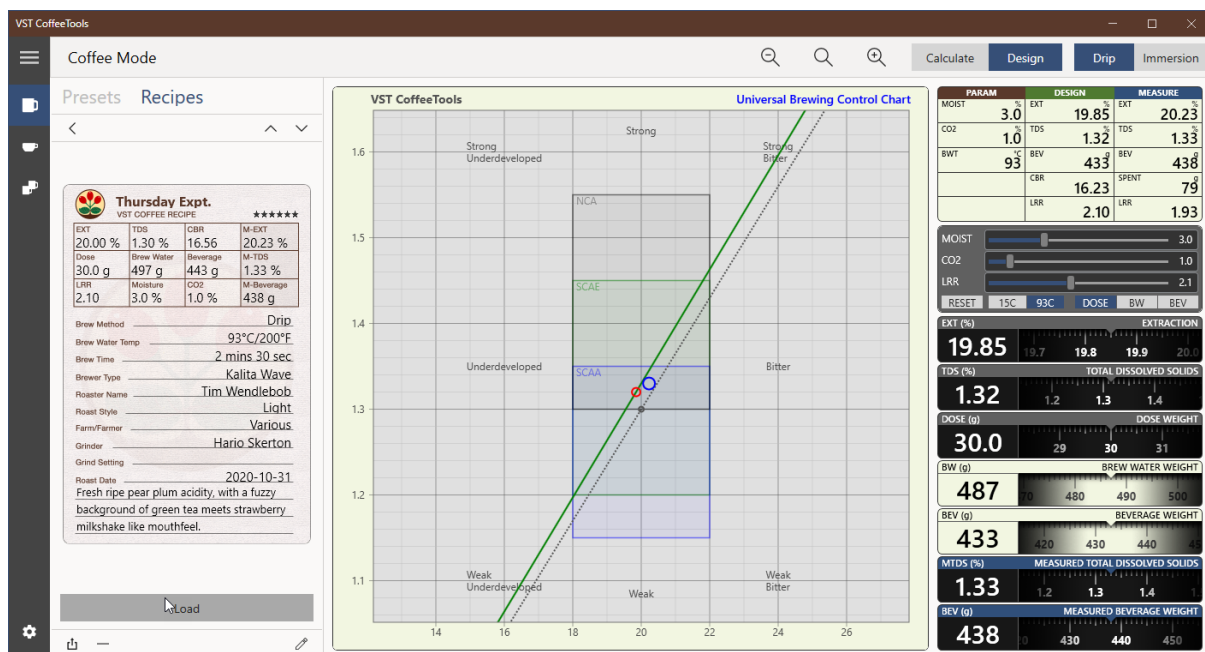


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Introduction

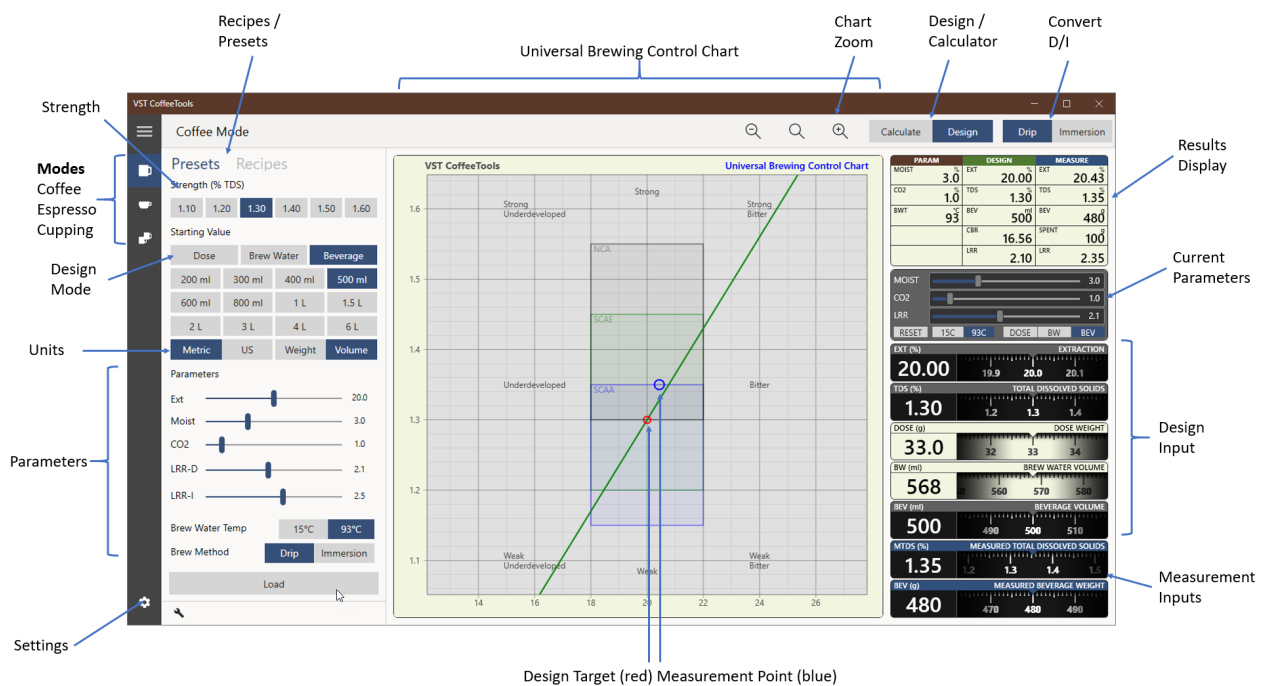
This guide will walk you through some basic functions of VST CoffeeTools. VST CoffeeTools is the latest coffee tools software application from VST. This tool is designed to allow coffee professionals to rapidly design coffee beverages to their chosen parameters in just a few steps. Users may then measure actual observed data to refine, record or communicate their recipes and parameters. VST CoffeeTools seamlessly converts between immersion and drip type brews, between metric and English units of measurement, between volume and mass based units, eliminating common mistakes and allowing the coffee professional to focus on the beverage quality, quickly and effectively.



The Main Screen

The VST CoffeeTools Screen is broken into several functional sections.

- The left top edge includes the Mode selection icons dropdown allowing users to switch between **coffee**, **espresso** and **cupping** modes.
- The Recipe / Presets panels allow users to either design a beverage from common presets or to sort, save, delete or recall and load a saved recipe.
- The primary center screen area is dedicated to the VST Universal Brewing Control Chart which dynamically charts designed and measured values for strength and extraction along the brew formula line. This chart can also be used for free-form drag-and-drop beverage design, an extremely fast and easy to use coffee design mode. The VST Universal Brewing Control Chart automatically normalizes extraction yield calculations for all common variables and provides accurate results for all modes, including drip coffee, infusion coffee, cupping and espresso modes.
- Other task bar functions include:
 - Toggle to switch from *Design* to *Calculator* modes
 - Zoom in/out to navigate charts
 - Settings
 - Convert a displayed recipe from or to **Drip** and **Immersion** methods



- The **Results Display** at the top right region contains data results, allowing users to view all computed design parameters as well as measured computations and relevant preference values.

- The **Measurement Inputs** highlighted in blue at the bottom right area is reserved for entering the actual measured results: Beverage weight and % TDS.
The **Design Input** area allows target values of brew water, dose and beverage, as well as target TDS and Extraction Yield.

Modes

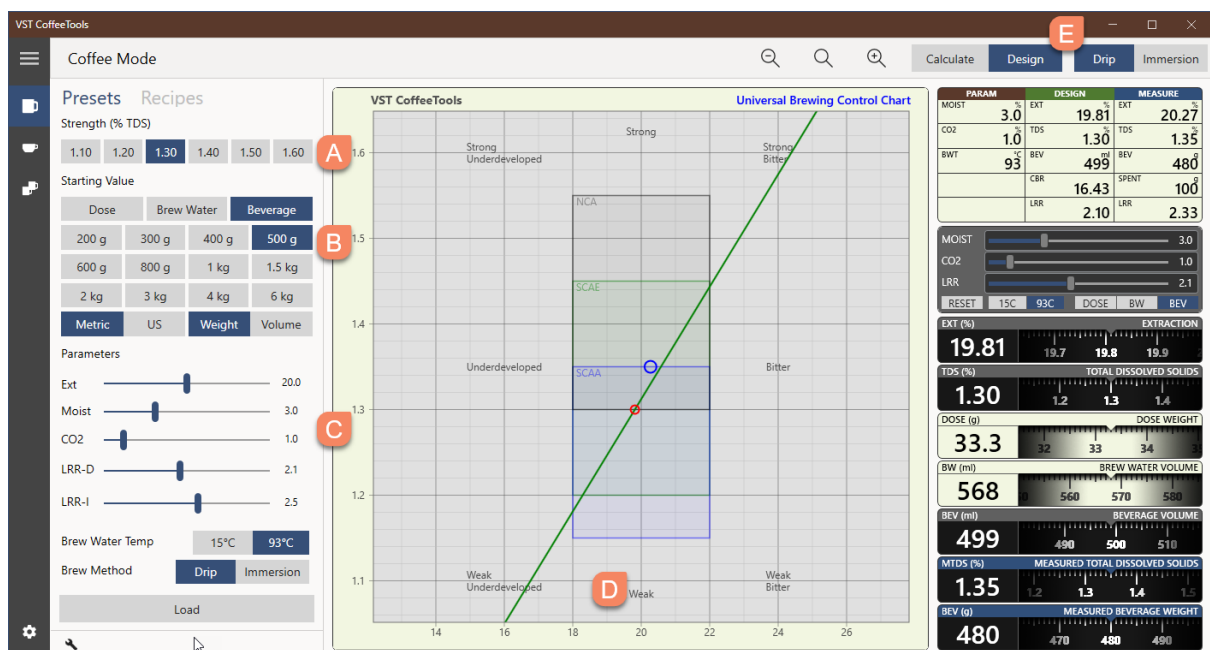
Modes (coffee, espresso and cupping) can be selected from the Modes menu on the left - top edge of the main screen.



Coffee Mode

Coffee mode is designed to be used with brewed coffee beverages, both drip and immersion brew methods. There are several unique features of this mode, including:

- Strength presets have default values in the range 1.10 to 1.60.
- The starting value used can be dry coffee dose (in grams or ounces), beverage size (in any units of volume or weight), or brew water size (in any units of volume or weight), at either ambient/tap or brew temperature.
- Design parameters include preferred strength and extraction yield, beverage yield, brew water and ground coffee amounts, with preferences for ground coffee moisture and CO2 content, liquid retained ratio, drip or immersion method, and brew water temperature (when using volume measurements).
- The Brew Chart range defaults to approximately a 1.00 to 1.65 % strength region, and displays the SCAE, SCAA and NCA preferred regions of interest as well as the taste defect labels. The region of interest may be customized in *settings*. Users can drag the red design point and also drag the chart to PAN (re-position the chart), +/- to ZOOM the chart, and double-click to reset PAN & ZOOM.
- The user task bar in coffee mode allows users to switch between drip and immersion types.



Espresso Mode

Espresso mode is designed to be used with espresso coffee beverages. There are several unique features of this mode, including:

- Dry coffee amount **presets** (Size) default to 7, 14, and 21g doses.
- The concentration % TDS values default to traditional values.
- Design parameters include extraction yield, moisture content, CO2 content.
- The Brew Chart Panel defaults to approximately a 3.00 to 20.00 % strength region, and displays the regions of interest for lungo, normale and ristretto concentrations.
- Parameters allow changes to one or more preference variables, moisture, CO2 or LRR, and starting value).

Other notes:

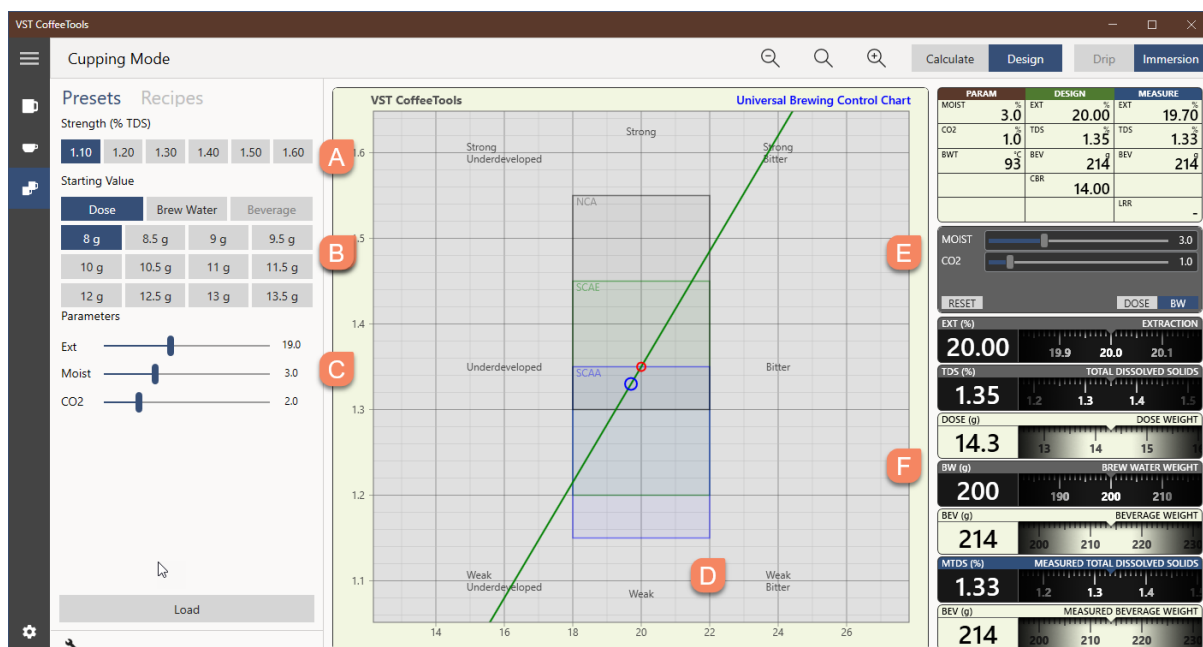
- Dose or Beverage may be changed while maintaining the current TDS and Extraction values by clicking on the Dose or Beverage (displayed amount) in the design input area.



Cupping Mode

Cupping mode is specifically designed to be used with cupping preparations. There are several unique features of this mode, including:

- Strength presets have default values in the range 1.20 to 1.45 (custom presets can also be defined).
- Brew Water or Dose amount shows traditional cupping values. These may be user defined to custom values using the custom pages buttons under the panel. Click and hold the underlined value to edit.
- Design parameters include extraction yield, moisture content, CO2 content, liquid retained ratio.
- The Brew Chart panel defaults to approximately a 1.00 to 1.60 % strength region, and displays the regions of interest selected in global setting for any one or more of SCAA, SCAE, NCA regions, as well as traditional taste defect labels.
- The parameters tool allows changing a single preference, such as CO2 or Moisture, or to change design mode to *Brew Water* or *Dose* amounts.
- The *Dose* or *Brew Water* amount may be changed in the design input panel.

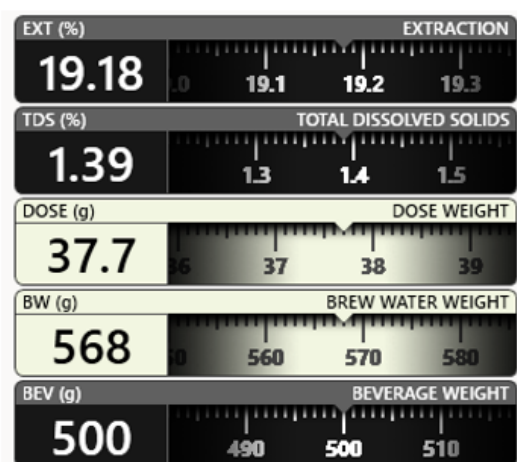
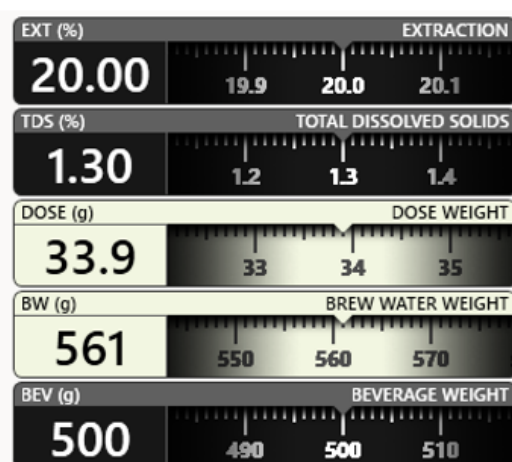
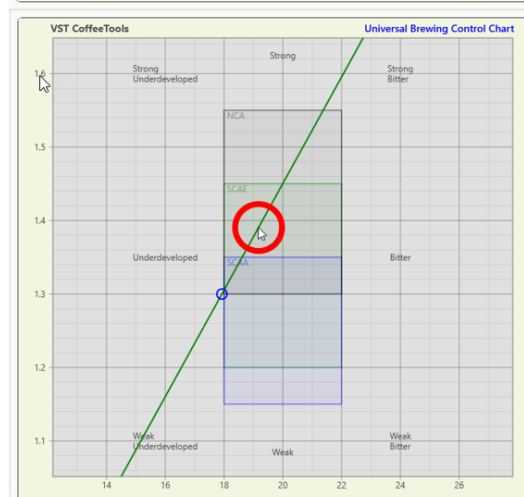
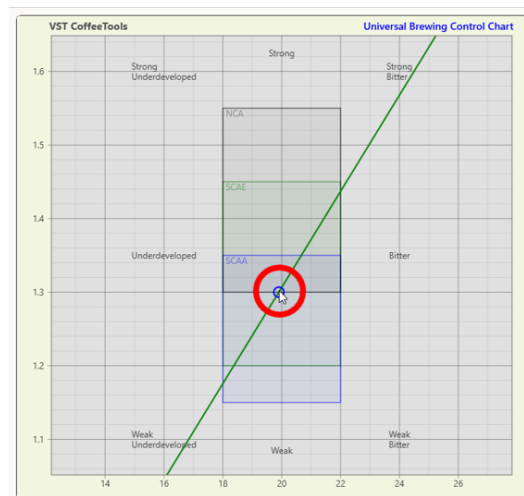


Freeform Design –Simple 2-Step Process

VST CoffeeTools allows design brew parameters to be set entirely using simple drag-and-drop data entry on the VST Universal Brewing Control Chart.

Step One

- First click and hold the red brew design circle. The circle will expand when selected.
- Drag the circle to the desired point on the Universal Brewing Control Chart.
- When you have reached your desired position for strength and extraction, unclick, and the circle will snap into space at your selected point.
- Note: If Snap To Grid is turned **on** in the **General Preferences** menu, then the circle will be moved in increments of 0.05% TDS and 0.1% for Extraction Yield.
- Brew parameter values will be dynamically computed on the user dashboard as the brew design circle is moved.



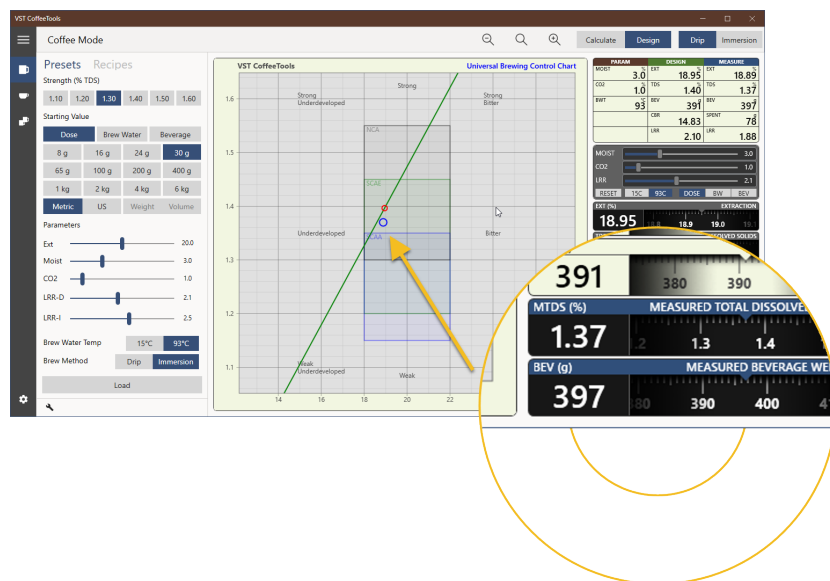
Step Two

- Select **Dose**, **Beverage Amount**, or **Brew Water** amount, as the **control** variable (Starting Value), then desired Units of Weight or Volume.
- VST CoffeeTools does all the rest, displaying results in the display dashboard.



Add Measurements:

- After brewing, measurement data may be added by entering measured TDS and final Beverage weight to display actual results, which are then plotted on the same chart, displayed as a blue circle.
- This recipe can be saved and additional detail added by creating a new recipe. (see Section "Recipes" below).



Design By Using Presets

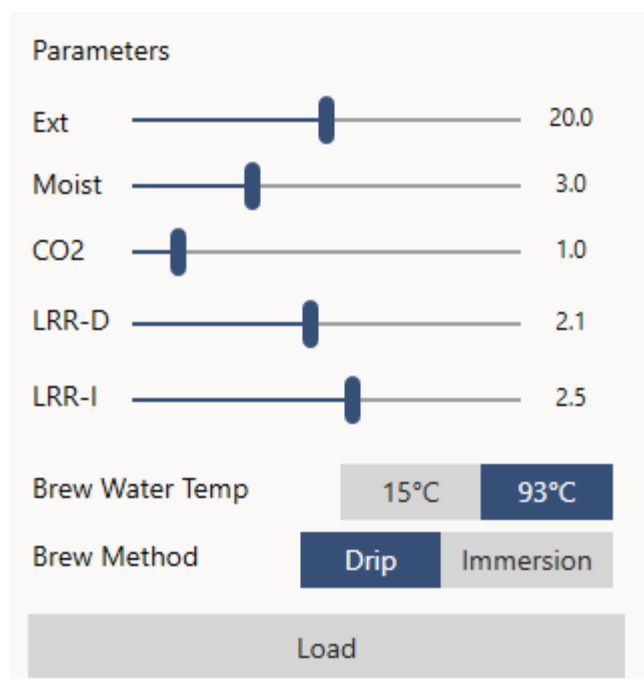
Click the desired strength.



Click the desired Beverage, Brew Water or Dose amount. Both metric and English units of volume or weight are available in the page selection buttons in the bottom banner.

Check Preset Parameters to verify Ext Yield, Moisture and CO₂, LRR, Brew Method and BW temp (if using BW in volume).

Click the **Load** button to execute. The required coffee recipe is displayed, and all related results appear in the dashboard panel.



Custom Presets

To select custom values for presets within Coffee, Espresso or Cupping modes, the following procedure applies.

Preset value for Strength and Starting Value of Dose, Beverage Amount or Brew Water Amount are customizable. In this example we will set a preset of 13.5g Coffee Dose in Coffee Mode.

- A. In Presets select "Dose" as your starting parameter.
- B. To edit one of these presets buttons, click and hold the button until a keypad appears.
- C. Choose your desired units (in this case grams) and key in your desired value (13.5). Click "Done" when complete to close the keypad.



Recipes

Save Recipe

Once you have completed your measurements and input your values for actual TDS and actual measured Beverage, you can choose to record these values with additional details as a Recipe for future replication, comparison, or communication. To do so, select the "Recipes" in the Recipe/Presets pane.

To create a new recipe, press the "+" symbol. This will open a blank recipe form of the currently displayed and charted values and will allow the user to enter detail values. Note: espresso mode contains unique variables specific to espresso brewing (for example, pressure, and preinfusion).

Recipe name is the only required field, other fields are optional depending on your requirements.

A screenshot of the "Add Recipe" dialog box. The title bar says "Add Recipe". The form contains the following fields:

- Name:
- Score:
- Brewer Type:
- Brew Time: mins secs
- Roaster Name:
- Roast Style:
- Farm/Farmer:
- Grinder:
- Grind Setting:
- Roast Date:
- Note:

At the bottom right, there are "Ok" and "Cancel" buttons.

Once complete click “Ok” to save the recipe. Clicking “Cancel” will return you to the list of recipes.

Load Recipe

To display a previously saved recipe, click the “Recipes” tab or button on the Recipes/Presets panel. This will display a list of saved recipes. Click the recipe **name** to plot the brew formula line (in gray) for that recipe. Click again to remove the plot. Click the “>” button to display the recipe details.

Add Recipe

Name: Thursday Expt.

Score: 6 - Like - Slightly

Brewer Type: Kalita Wave

Brew Time: 2 mins 30 secs

Roaster Name: Tim Wendlebob

Roast Style: Light

Farm/Farmer: Various

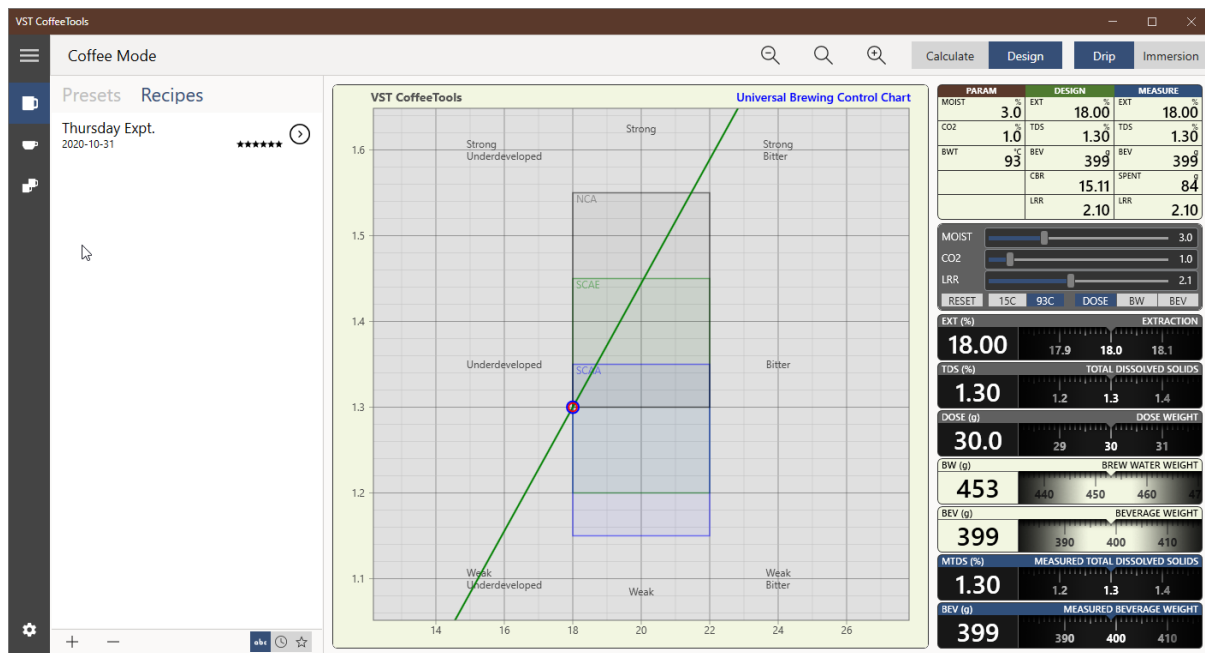
Grinder: Hario Skerton

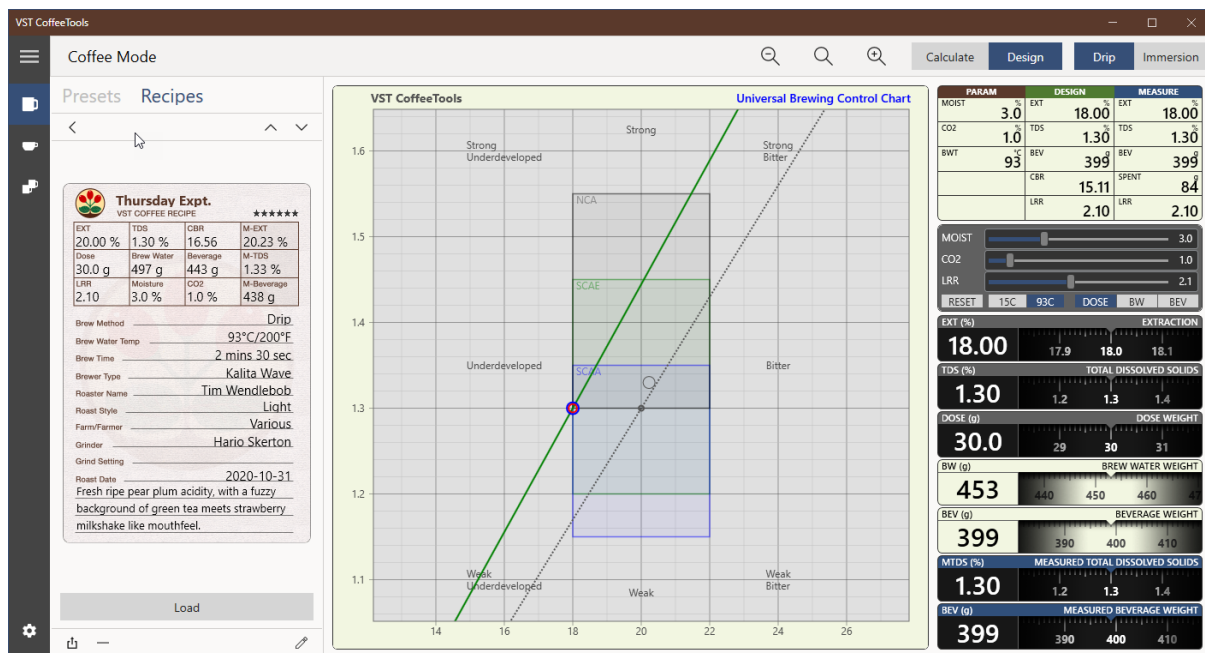
Grind Setting:

Roast Date: 31/10/2020

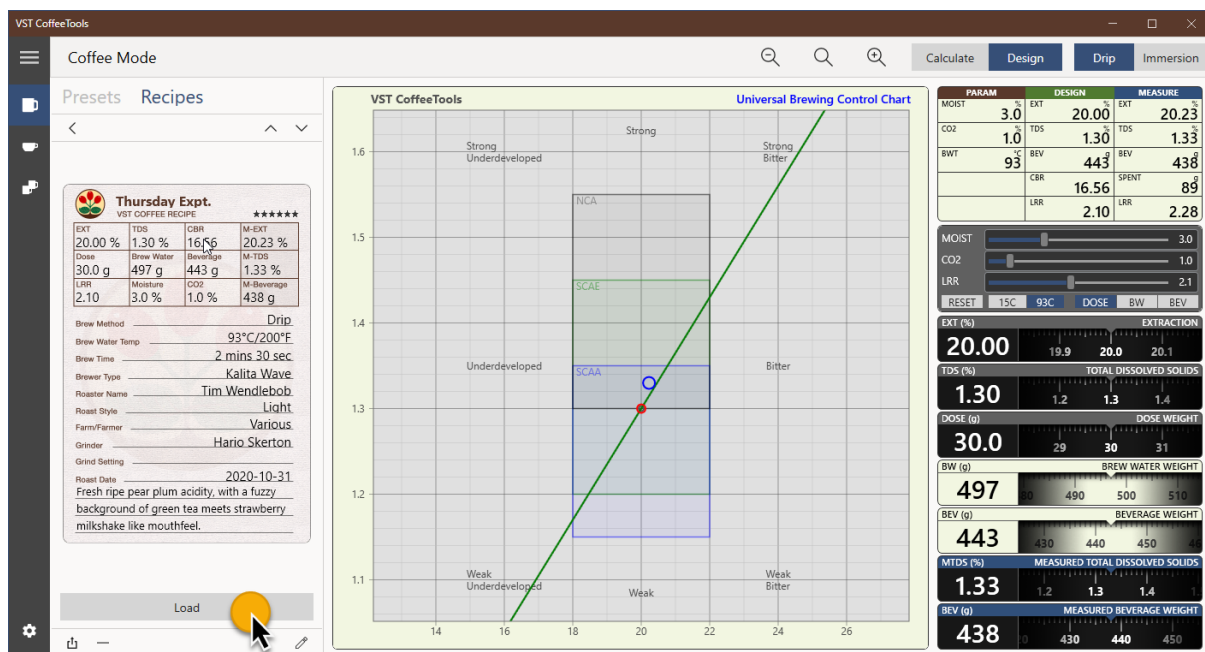
Note: Fresh ripe pear plum acidity, with a fuzzy background of green. Refreshing. Unmistakeable!

Ok Cancel



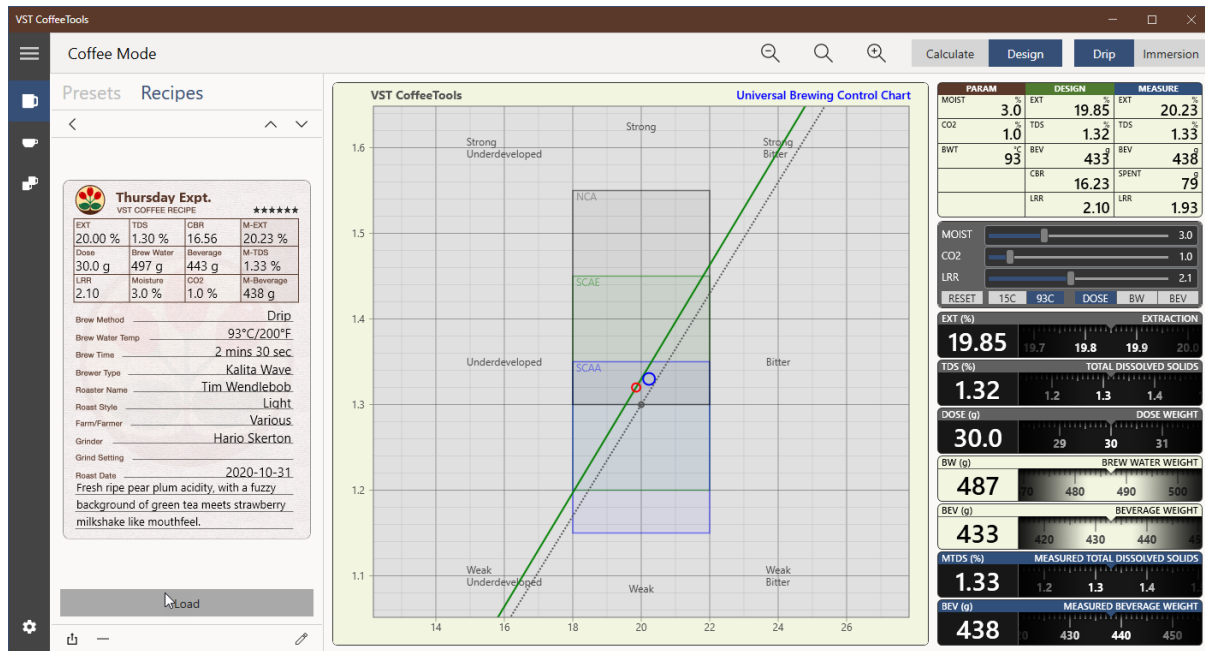


When a previously saved recipe is displayed its grey brew formula line appears on the universal brewing control chart representing the brew recipe, as well as the design and measurement values. These will not affect the currently set brew parameters, and are provided as a reference for comparison.



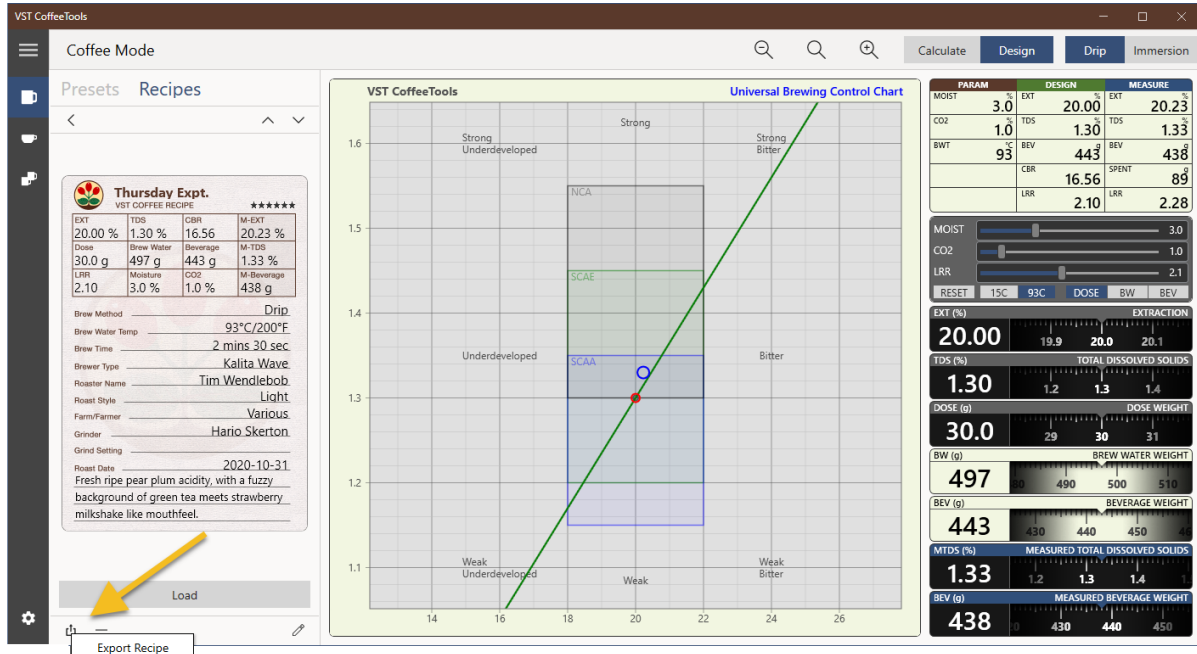
To load the selected and displayed recipe click the “Load” button, and the brew parameters will snap to the original design values of the recipe, and computed values will be updated in the dashboard panel.

The greyed-out design and measured circles will still persist and can be used to compare the recipe with subsequent design changes.

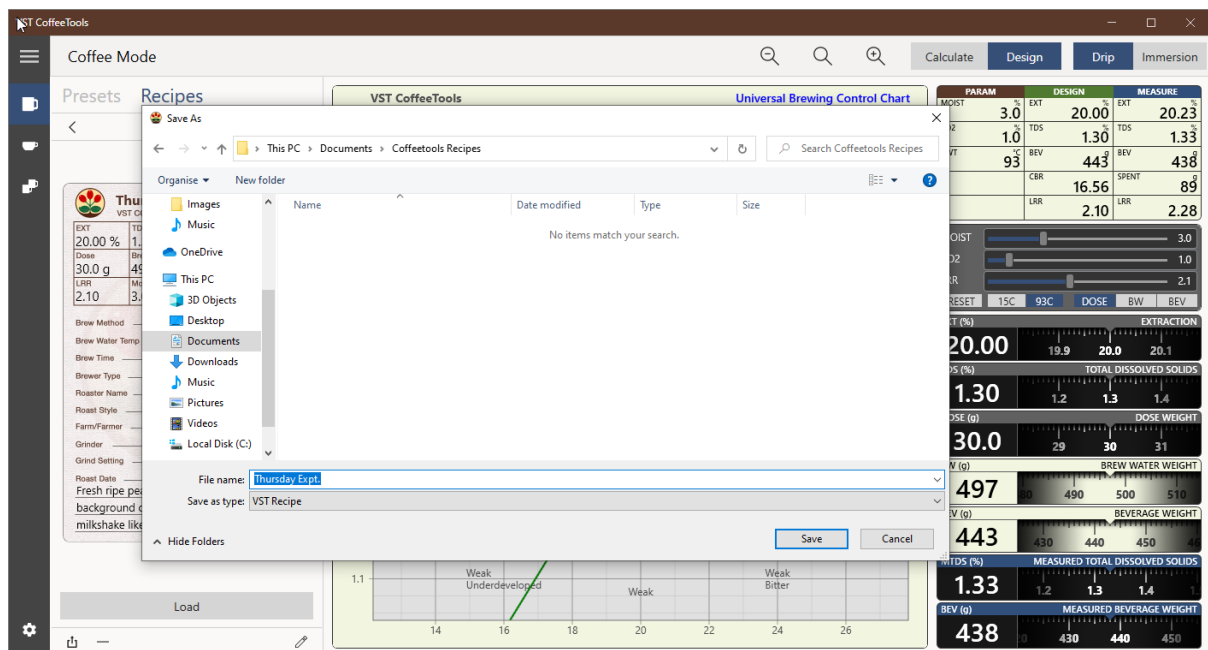


Sharing / Exporting Recipes

To export or share a recipe file, first select the recipe of interest, then in the bottom left corner click on the "Export Recipe" button.



A system dialog will open allowing saving of the recipe file to a specific location and with a user-defined filename.



This file can be shared via email or other file sharing means and can be imported to any VST CoffeeTools platform.

Brew Method

In Coffee Mode the brewing method can fall into two parent categories, Immersion or Drip.

Examples of Drip Methods include:

- Drip and Auto Drip brewers, most home and commercial models
- Commercial bypass brewers
- Pour over brewers such as
 - Hario
 - Clever Dripper – when used with pre-infusion followed by drip
 - Chemex
 - Melitta
 - Kalita~Wave

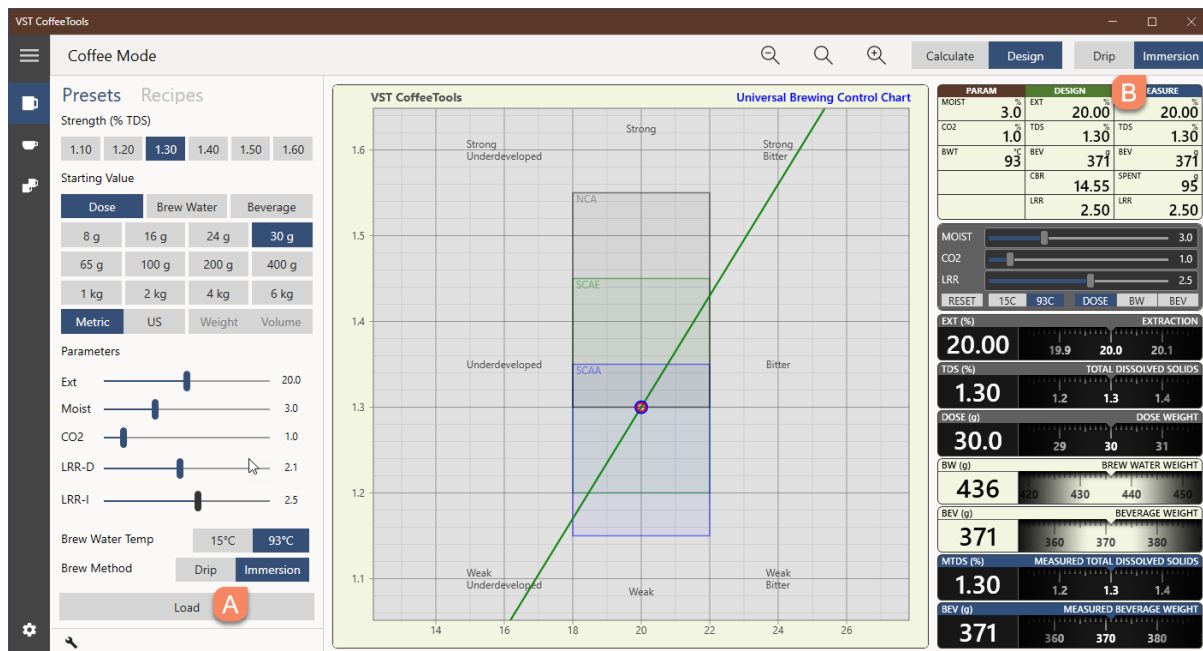
Examples of Infusion, Steeping & Immersion Methods include:

- Vac Pot
- Clever Dripper – when used as immersion only
- Trifecta (both commercial and home models)
- French Press (or any Press Pot)
- Aero Press
- Clover
- Bkon
- Eva Solo
- Cupping

For a given design, the required coffee to water ratio using either an Immersion or Drip brew method will vary greatly. VST CoffeeTools can dynamically change a recipe to use Immersion or Drip parameters. This can be done in two locations:

- A. In the presets pane, under parameters, select “Drip” or “Immersion” and click Load. Depending on your starting parameter Dose, Beverage, or Brew Water the other values will automatically change.

- B. In the user dashboard, at the top right corner, pressing “Drip” or “Immersion” will immediately change the values to match the brew method.



Notes:

Compared to infusion methods, the drip method is inherently more efficient, requiring approximately 16-18% less ground coffee to produce the same beverage amount at comparable strength and extraction levels. Drip methods require careful attention to uniformly wetting and extracting from the entire bed of ground coffee. Some brewers do this better than others.

Immersion or infusion/steeping processes are primarily limited to single-cup sizes and offer inherently more uniform extraction from the ground coffee, while requiring more ground coffee for a given beverage amount, strength and extraction yield. Different infusion methods retain different levels of retained liquid in the spent grounds. Enter the final beverage weight to determine the liquid retained [ratio] for a particular method, and reset the preferences for that method to achieve more accurate target beverage calculations.

CO2 and Moisture together can account for 3.5-5.0% of the ground coffee weight. Preferences are set for typical levels assuming fresh roasted coffee consumed within 21-days of roast, and are set separately for typical levels in each mode, and may be adjusted separately for each mode.