

# CONVERTING YOUR FOOD PRODUCT RECIPE TO A FORMULA



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Many entrepreneurs start their food businesses using a cherished family recipe that requires the maker to measure ingredients for a single batch using cups, teaspoons, tablespoons, or pieces. In some cases, ingredients are even measured using terms such as “a pinch” or “to taste.” While appropriate for the home chef, this approach is neither consistent nor scalable for the professional, commercial food manufacturer using larger scale production equipment.

A commercial food manufacturer must convert the home recipe into a formula using ingredient weights as a basis (also known as a weight percent-based formula or formulation). A formula is recognizable in that it is characterized by percentages that add up to 100%, independent of the actual ingredient weights.

## Why do I Need to Convert From a Recipe to a Weight-based Formula?

Professional food manufacturers all use weight-based formulas in their processes primarily to aid in scaling their operation:

- Many home recipes call for volume-based measurements such as “cups” or “tablespoons.” However, volume-based measurements do not take an ingredient’s density (weight per unit volume) into account. This means, for instance, that one cup of flour weighs more than one cup of grapes. This also means that one cup of grapes does not always have the same weight, depending on how that cup of grapes is packed into the cup. By using weight-based measurements, the manufacturer can assure consistent quality – in other words, the manufacturer will use the same amount of an ingredient every time in a formulation.
- Suppliers sell and deliver ingredients according to weight. Using weight-based measurements will allow the manufacturer to easily translate the quantity of an ingredient needed to a supplier.
- Using a weight-based formula allows the manufacturer to calculate the weight percent of ingredients in a formula. By simply adjusting the final batch weight, the manufacturer can calculate the amount of each ingredient in that new batch size using simple multiplication.

In addition to scalability, FDA-compliant ingredient labels and nutrition facts panels are reliant on weight-based formulations.

## How do I Convert from a Recipe to a Weight-based Formula?

To learn more about “how to” convert a food product recipe to a formula, please review [this](#) blog article hosted at PartnerSlate’s Online Learning Center.

**NOTE:** PartnerSlate is a marketplace focused on streamlining the product commercialization process by connecting brands and contract manufacturers through their platform.

## What do I Need to Convert From a Recipe to a Weight-based Formula?

Having established the “how” and “why” it is important to convert a food product recipe into a formula, having the right tools is essential to a successful conversion.

AURI recommends using a computer-based spreadsheet program, such as Microsoft® Excel® or the free Google® Sheets® program, to create weight-based formulas. A food business COULD create weight-based formulations using just a pencil, paper, and calculator, but this approach is not nearly as flexible as a spreadsheet program. You can download a template for these calculations at AURI.org.

Regardless of the calculation approach you take, the most important tool is an accurate scale that provides measurements in ounces, pounds, grams, or kilograms. Considerations for a scale include:

- Capacity (Maximum weight measured)
- Accuracy (Typically expressed as +/- a weight measurement, i.e., “+/- 2 grams” -indicating that the scale only measures within 2 grams of the actual weight)
- For small ingredient quantities, AURI recommends accuracy of +/- 0.5 grams or better
- For larger ingredient quantities, an accuracy of +/- 0.1 pounds may be sufficient
- Precision (How close multiple readings of the same weight are)
- Price (higher cost is typically an indicator of higher capacity and/or accuracy; prices can range from \$10 – 6,500 for a small business)
- Power Supply (battery-operated versus plug-in)
- Calibration (Procedure performed to ensure scale accuracy and precision – may need to be completed by a trained factory representative)
- Features (i.e., ability to tare / zero the scale for ingredient addition)
- Portability (scales are precision instruments that can easily be damaged with rough handling)
- Use Environment (accuracy and precision can be impacted by scale environment, i.e., placing a scale on a vibrating table or in an area subject to high air velocity will return poor results)

### **AURI recommended models include (follow links below for most up-to-date pricing):**

- [OHAUS™ Ranger™ 7000 Compact Scales](#) (\$2,804 – \$7921)
- [OHAUS™ Valor™ 7000 Compact Bench Scales](#) (\$1,019 – \$1,090)
- [Cole-Parmer IBS-200-15H Hi-Resolution Compact Industrial Bench Scale, Capacity 15kg](#) (\$252)
- [Small Capacity: Taylor TE21P Precision Digital Portion Control Scale, Capacity 1.3 lbs](#) (\$182)