G4G TECHNICAL GUIDELINES

Nutrient Analysis
G-Q-312

Choosing a software program

Armed Forces Recipe Service (AFRS) uses ESHA Genesis for nutrient analysis, and there are many nutrient-analysis software programs that provide the same capabilities. Since each installation might have different requirements, it's important to note key features to look for in a software program to ensure accurate nutrient analysis of recipes and menus.

- The foundation of the ingredients in the software program should come from the U.S. Department of Agriculture (USDA).
  - The program should automatically update nutrients with each release of the USDA Standard Release (SR).
- Ingredients must be clearly labeled as to whether they're raw or cooked. In addition, it's helpful if the software has a built-in, raw-to-cooked yield for each ingredient. This allows the person inputting the recipe to select the cooking method that most closely reflects the recipe. This feature is crucial when calculating the final nutrition on a cooked meat or poultry item due to fat loss during the cooking process. For example, a recipe calls for baking 20 pounds of raw chicken breast. The person inputting the recipe selects raw chicken breast and the method of cooking (baking, grilling, etc.) and inputs 20 pounds. The software should then automatically calculate the cooked nutrient content for a single chicken breast.
  - If the software doesn't have this capability, it's important to correct the yield to account for the nutrition lost during cooking. See next section for USDA reference.
- The software should allow for the user to:
  - Make background adjustments to nutrient yields to account for things like uptake of sodium from salt added to pasta cooking water or a certain amount of oil uptake for deep-fried items. See below for nutrient-yield adjustments used by AFRS.
  - Enter the nutrient data of a food item or basic ingredient from a Nutrition Facts label or a manufacturer's nutrient analysis report if USDA nutrition information is unavailable.
  - Enter, modify, and analyze recipes and menus.
  - Print reports such as nutrient composition, menus, and recipe analysis.

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Best practices for database management

AFRS has found some methods to work in the ESHA Genesis software. These practices might not be an option or might not be needed in other software programs. Make sure to familiarize yourself with the program before determining if the following practices are needed.

- Create a file of AFRS- (or your own organization) standard ingredients in the software program. This list of ingredients allows for consistency across all recipes. AFRS selects prepopulated ingredients—preferably sourced from the USDA nutrient database—that contain all of the necessary nutritional information and saves them to the AFRS ingredient file for easy selection when creating a new recipe. If there's no ingredient in the software for a specific item or no ingredient with the correct nutritional information, nutrients are manually entered from various references to create a new ingredient listing and are saved to the AFRS file. References include the USDA database, Nutrition Facts label on the ingredient itself, and manufacturer websites.
  - Review the USDA's FoodData Central web page because it's a good source of nutrition information: **https://fdc.nal.usda.gov/**.
  - Note required nutrition information: calories, carbohydrates, sugars, protein, fat, saturated fat, sodium, calcium, and fiber.
  - Create a schedule to review and update your nutrient links.
- Adjustments are made to nutrient yields to account for ingredients that aren't consumed by the diner such as salt in cooking water, a percentage of the seasonings on protein, and a percentage of oil on a griddle.
- Ingredients are entered in the raw form. If the software doesn't include a cooked-from-raw option, a yield factor adjustment is made. See the following USDA reference:
  - USDA Table of Cooking Yields for Meat and Poultry: **https://www.ars.usda.gov/ARSUserFiles/80400525/Data/retn/USDA_CookingYields_MeatPoultry.pdf**
- Ingredient values are entered in weight because weights provide the most accurate nutrition.
- It's recommended to sometimes check current food labels against the software database to confirm it's populating information based on the nutrition of the ingredients being used.





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Nutrient yield adjustments used by AFRS

Ingredients or Preparation Style	Preparation Procedures
Breading and dredging	80% yield factor is applied to all ingredients used for breading and dredging
Marinades	20% yield factor is applied for marinade ingredients when foods aren't cooked in the marinade
Glazes and basting sauces	50% yield is applied for basting sauces and glazes used during cooking
Dredged and pan-fried meat	50% yield for fat (for example, 1 cup of fat per 100 servings if 2 cups of fat are called for)
Deep-fat fried foods	If no fat is listed in the recipe calling for deep frying, it's added back for nutrient analysis: 1 pound per 100 servings
Egg washes	80% yield is applied to egg washes brushed on foods

Seasonings	Preparation Procedures
Salt or seasonings sprinkled on protein before cooking	75% yield is applied to all spice ingredients

Sandwich Recipes	Preparation Procedures
Well-greased skillet for grilling sandwiches	1 quart of oil per 100 servings and 80% yield applied to the oil
Lightly-greased skillet for grilling sandwiches	2 cups of oil per 100 servings and 80% yield applied to the oil

Rice, Pasta & Potato Recipes	Preparation Procedures
Potato recipes	3% yield applied to salt used in water for boiling
Pasta recipes	3% yield applied to salt used in water for boiling
Rice recipes	100% yield applied to salt used in water for cooking

Meat & Poultry	Preparation Procedures No oil used for grilling high-fat meats, and lightly oil the griddle for lean meats, applying a 20% yield to the oil.
Brined turkey	3% yield applied to salt when turkey is brined
Marinated pork tenderloin	6% yield applied to salt when pork is marinated

Griddle-prepared Recipes	Preparation Procedures
Moderately-oiled griddle for waffles and French toast	1 quart of oil per 100 servings and 80% yield applied to the oil