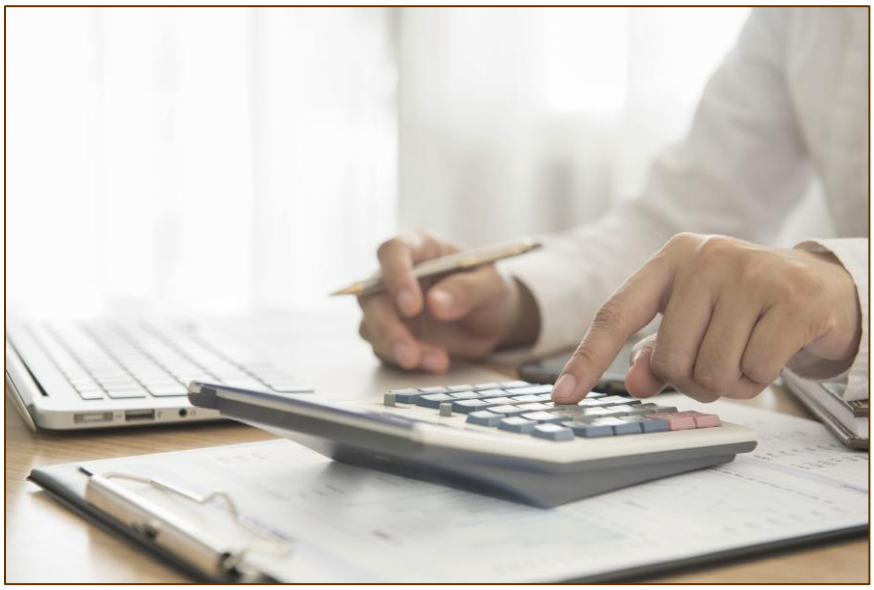
Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

This guidance applies to the U.S. Department of Agriculture's (USDA) meal patterns for grades K-12 and preschool (ages 1-5) in the National School Lunch Program (NSLP), School Breakfast Program (SBP), and Afterschool Snack Program (ASP) of the NSLP. The Seamless Summer Option (SSO) of the NSLP follows the NSLP, SBP, and ASP meal patterns.

For information on the meal patterns for the school nutrition programs, visit the Connecticut State Department of Education's (CSDE) Meal Patterns for Grades K-12 in School Nutrition Programs webpage, Meal Patterns for Preschoolers in School Nutrition Programs webpage, and the "Meal Patterns and Crediting" section of the ASP webpage. For information on the crediting requirements, visit the CSDE's Crediting Foods in School Nutrition Programs webpage and Crediting Documentation for the Child Nutrition Programs webpage.



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Overview of Crediting Requirements for Grains

To credit as the grains component, commercial grain products and foods made from scratch must be made with creditable grains. Creditable grains include whole grains, enriched grains, bran (such as oat bran, wheat bran, corn bran, rice bran, and rye bran), and germ (such as wheat germ). Bran and germ credit the same as enriched grains.

Creditable grain foods include commercial grain products and foods made from scratch that are whole grain-rich (WGR) or enriched. Creditable cooked and ready-to-eat (RTE) breakfast cereals include products that are WGR, enriched, or fortified; and meet the limit for added sugars (refer to the CSDE's resource, *Crediting Breakfast Cereals in the School Nutrition Programs*).

At least 80 percent of the weekly grains offered at breakfast, lunch, and afterschool snack must be WGR, based on the total oz eq of all offered grains in the menu. The weekly percentage of WGR menu items must be calculated separately for breakfast, lunch, and snack. For information, refer to the CSDE's resources, *Calculating the Weekly Percentage of Whole Grain-rich Menu Items in the Meal Patterns for Grades K-12* and *Guide to Meeting the Whole Grain-rich Requirement for the Meal Patterns for Grades K-12 in the School Nutrition Programs*.

Grains that are not WGR must be enriched. Enriched grains cannot exceed 20 percent of the grains offered in the weekly breakfast, lunch, or snack menu. Grain products that contain bran or germ as the primary grain ingredient count toward the weekly limit for enriched grains.

Guidance on identifying WGR and enriched grains for the meal patterns for grades K-12

Guidance on identifying WGR and enriched grains for the NSLP, SBP, and ASP meal patterns for grades K-12 is available in the CSDE's resources, *Guide to Meeting the Whole Grain-rich Requirement for the Meal Patterns for Grades K-12 in the School Nutrition Programs*, *Crediting Whole Grains in the School Nutrition Programs*, and *Crediting Enriched Grains in the School Nutrition Programs*.

Training on the grains component is available in modules 13-15 of the CSDE's training program, *What's in a Meal: Meal Patterns for Grades K-12 in the School Nutrition Programs*.

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Guidance on identifying WGR and enriched grains for the preschool meal patterns

Guidance on identifying WGR and enriched grains for the NSLP, SBP, and ASP preschool meal patterns is available in the CSDE's *Guide to Meeting the Whole Grain-rich Requirement for the Child and Adult Care Food Program* and the CSDE's resources, *Crediting Whole Grains in the School Nutrition Programs, Crediting Enriched Grains in the School Nutrition Programs*, *Crediting Enriched Grains in the School Nutrition Programs*, and *How to Identify Creditable Grains for the Preschool Meal Patterns of the School Nutrition Programs*.

Training on the grains component is available in module 7 of the CSDE's training program, *Preschool Meal Pattern Training for the School Nutrition Programs*.

Overview of Ounce Equivalents (Oz Eq)

The required quantities for the grains component are in ounce equivalents (oz eq) for all school nutrition programs. The minimum creditable amount is ¼ oz eq.

The USDA allows two methods for determining the oz eq of creditable commercial grain products and standardized recipes. Before determining the oz eq per serving, SFAs should check that the commercial grain product or standardized recipe is WGR or enriched.

- Method 1 (weight or volume) is used for commercial grain products and may also be used for standardized recipes that indicate the weight of the prepared (cooked) serving.

- Method 2 (creditable grains) is used for standardized recipes and may also be used for commercial grain products that have a product formulation statement (PFS) indicating the weight of creditable grains per serving.

School food authorities (SFAs) may use either method but must document how the crediting information is determined for each grain product and standardized recipe. Method 2 must be used for certain commercial grain products. For more information, refer to "Choosing a Calculation Method" and "When Method 2 is Required for Commercial Products" in this document.

These methods are not required for commercial products with a Child Nutrition (CN) label. CN-labeled products credit toward the grains component based on the stated crediting information for grain oz eq. For more information on CN labels, refer to the CSDE's resource, Using Child Nutrition (CN) Labels in the School Nutrition Programs, and visit the "Child Nutrition Labels" section of the CSDE's Crediting Documentation for the Child Nutrition Programs webpage

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Method 1: Weights or Volumes (USDA's Exhibit A Chart)

Method 1 uses the USDA's chart, *Exhibit A: Grain Requirements for Child Nutrition Programs* (known as Exhibit A), to determine the required weight (groups A-G) or volume (groups H-I) for the grain group where the product or recipe belongs. The CSDE's resource, *Grain Ounce Equivalents Chart for the School Nutrition Programs*, indicates the applicable Exhibit A quantities and requirements for the NSLP, SBP, and ASP meal patterns for grades K-12 and preschool.

This method is used for commercial grain products and may also be used for standardized recipes if the menu planner knows the weight (grams or ounces) of the prepared (cooked) serving. Some commercial grain products require method 2 and the SFA must obtain a PFS (refer to "When Method 2 is Required for Commercial Products" in this document).

The amount of a creditable grain food that provides 1 oz eq varies because different types of foods contain different amounts of creditable grains. For example, to credit as 1 oz eq of the grains component, a roll (group B) must weigh 28 grams (1 ounce), a corn muffin (group C) must weigh 34 grams (1.2 ounces), and a blueberry muffin (Group D) must weigh 55 grams (2 ounces).

- **Groups A-G** (**baked goods)** include foods like crackers, breads, rolls, taco shells, muffins, waffles, pancakes, and grain-based desserts, e.g., cookies, cake, granola bars, and pastries. The amount of a food that provides 1 oz eq varies from 22 grams (0.8 ounce) for foods in group A to 69 grams (2.4 ounces) for foods in group E.

- **Group H (cereal grains)** includes foods like pasta, cooked breakfast cereals, and other cereal grains, e.g., amaranth, barley, buckwheat, cornmeal, corn grits, farina, kasha, millet, oats, quinoa, wheat berries, and rolled wheat. These foods require ½ cup cooked or 28 grams (1 ounce) dry to credit as 1 oz eq of the grains component. Cereal grains typically credit based on the cooked serving, but menu planners may choose to credit cereal grains using the dry uncooked weight. Dry cereal grains used as an ingredient in a standardized recipe (such as rolled oats in bread) require 16 grams of creditable grains to credit as 1 oz eq of the grains component. For guidance on crediting cooked breakfast cereals, refer to the CSDE's resource, *Crediting Breakfast Cereals in the School Nutrition Programs*.

- **Group I (RTE breakfast cereals)** includes cold breakfast cereals such as puffed cereals, round or flaked cereals, and granola. These foods require 1 ounce (28 grams) to credit as 1 oz eq of the grains component. A 1-ounce serving equals 1 cup of flaked or round cereal, 1¼ cups of puffed cereal, and ¼ cup of granola. For guidance on crediting

RTE breakfast cereals, refer to the CSDE's resource, *Crediting Breakfast Cereals in the School Nutrition Programs*.

Using method 1 for commercial products

The product's Nutrition Facts label or PFS must indicate the weight (ounces or grams) of the manufacturer's serving. The tools below help menu planners determine the oz eq contribution of creditable commercial grain products.

- **USDA's Exhibit A Grains Tool for commercial grain products:** The FBG's online *Exhibit A Grains Tool* determines the oz eq of commercial grain products.

- **CSDE's resource for using the Exhibit A Grain Chart:** The CSDE's resource, *How to Use the Grain Ounce Equivalents Chart for the School Nutrition Programs*, reviews the steps for using the Exhibit A quantities to determine the meal pattern contribution of three types of commercial products and standardized recipes. These include grain menu items in groups A-G that contain multiple small pieces per serving (e.g., crackers, hard pretzels, and animal crackers), multiple large pieces per serving (e.g., pancakes, slices of bread, and waffles), and one piece per serving (e.g., muffins, bagels, and rolls).

Using method 1 for foods made from scratch

SFAs must have a standardized recipe on file that indicates the weight of the prepared (cooked) serving. If the standardized recipe does not provide this information, SFAs could determine the average weight per serving by weighing several servings of the recipe. For more information, refer to the CSDE's *Yield Study Data Form for the Child Nutrition Programs*.

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Method 2: Creditable Grains

Method 2 determines the oz eq for creditable commercial grain products and standardized recipes by calculating the total grams of creditable grains per serving. The grams of creditable grains are obtained from the commercial product's PFS or calculated from the grain quantities in the SFA's standardized recipe. The required grams of creditable grains are different for enriched foods and WGR foods.

- **Enriched foods:** To credit as 1 oz eq of enriched grains, foods in groups A-G must contain 16 grams of creditable grains and foods in groups H-I must contain 28 grams of creditable grains.
- **WGR foods:** To credit as 1 oz eq of a WGR food, foods in groups A-G must contain 16 grams of creditable grains (including at least 8 grams of whole grains) and foods in groups H-I must contain 28 grams of creditable grains (including at least 14 grams of whole grains).

> There are some situations when SFAs must use method 2 to determine if a commercial product meets the crediting or WGR criteria for grain menu items. For more information, refer to "When Method 2 is Required for Commercial Products" in this document.

SFAs must obtain a PFS from the manufacturer that documents the weight of the creditable grains per serving.

Using method 2 for foods made from scratch

SFAs must have a standardized recipe on file that indicates the weight of each grain ingredient. The grams of creditable grains per serving are determined from the weight of each grain ingredient listed in the standardized recipe. For assistance with recipe calculations, such as converting fractions to decimals, refer to the Institute of Child Nutrition's (ICN) *Basics at a Glance Portion Control Poster* and the decimal equivalents of fractions in the "Introduction" section of the USDA's FBG.

If the standardized recipe lists grain ingredients by volume (e.g., cups and quarts) instead of weight (pound and ounces), each measurement must be converted to grams (refer to "Method 2 calculation for standardized recipes listing the volume of grain ingredients" in this document).

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Menu planners may use the FBG's online Recipe Analysis Workbook to search for ingredients, develop a standardized recipe, and determine the recipe's meal pattern contribution per serving. To access this tool, users must create a free account on the USDA's FBG website.

For more information on standardized recipes, refer to the CSDE's *Guide to Menu Documentation for the School Nutrition Programs*, and the USDA Recipe Standardization Guide for School Nutrition Programs, and visit the "Standardized Recipes" section of the CSDE's Crediting Documentation for the Child Nutrition Programs webpage.

When Method 2 is Required for Commercial Products

SFAs must use method 2 and obtain a PFS from the manufacturer if the ingredients statement and packaging do not provide sufficient information to determine if the product meets the crediting requirements or WGR criteria for the school meal patterns. A PFS is required for commercial products when any of the situations below apply.

> If the manufacturer will not supply a PFS or the PFS does not provide the appropriate documentation, the product cannot credit in reimbursable meals or afterschool snacks.

Note: When reviewing the first ingredient on the product's label, water is ignored. For combination foods such as pizza or breaded chicken nuggets, these requirements apply only to the grain portion.

1. The first ingredient is not a creditable grain, but the product contains more than one creditable grain. The PFS must indicate that the combined weight of all creditable grains is the greatest ingredient by weight.

2. *Applies only to WGR foods:* The first ingredient is not a whole grain, but the product contains more than one whole grain. The PFS must indicate that the combined weight of all whole grains is the greatest ingredient by weight.

3. *Applies only to WGR foods*: The first ingredient is a whole grain, and the product contains two or more enriched grains. The PFS must indicate that the weight of the whole grain is equal to more than the combined weight of the enriched grains.

4. *Applies only to WGR foods:* The first ingredient is a flour blend of whole and enriched flour. The PFS must indicate one of the following: the whole grain content is at least 8 grams per oz eq (groups A-G); or the weight of the whole grain in the flour blend is more than the first ingredient (excluding water) listed after the flour blend.

5. A combination food that contains a grain portion does not have a CN label. The PFS must indicate that creditable grains are the greatest ingredient by weight in the grain portion.

6. The manufacturer claims that the product's serving size is less than the required weight or volume in the USDA's Exhibit A chart. The PFS must indicate the grams of each creditable grain per serving and how the product provides that amount according to the FBG or USDA's regulations, guidance, or policies.

7. The product is not listed in the USDA's Exhibit A chart. The PFS must indicate the grams of each creditable grain per serving and how the product provides that amount according to the FBG or USDA's regulations, guidance, or policies.

The USDA requires that SFAs must verify PFS forms for accuracy prior to purchasing, serving, and claiming the grain product in reimbursable meals and afterschool snacks. For specific guidance and examples of each situation that requires a PFS and an example of how to evaluate a grain PFS, refer to the CSDE's resource, *When Commercial Grain Products Require a Product Formulation Statement to Credit in the School Nutrition Programs*.

Guidance for PFS forms

For more information on the requirements for PFS forms, refer to the CSDE's resources, *Using Product Formulation Statements in the School Nutrition Programs* and *Accepting Processed Product Documentation in the School Nutrition Programs*, and USDA Memo SP 05-2025, CACFP 04-2025, SFSP 02-2025: *Guidance for Accepting Processed Product Documentation for Meal Pattern Requirements*. Additional guidance is available on the CSDE's Crediting Documentation for the Child Nutrition Programs webpage.

For guidance on reviewing PFS forms, visit the USDA's Child Nutrition Programs: Tips for Evaluating a Manufacturer's Product Formulation Statement webpage. Guidance on how to review a grain PFS is available in the CSDE's resource, *When Commercial Grain Products Require a Product Formulation Statement to Credit in the School Nutrition Programs*.

Training on the requirements for PFS forms is available in Module 8: Meal Pattern Documentation for Crediting Commercial Processed Products of the CSDE's training program, *What's in a Meal: Meal Patterns for Grades K-12 in the School Nutrition Programs*.

Storing crediting documentation

SFAs must maintain all CN labels, PFS forms, standardized recipes, and other crediting documentation on file in accordance with the records retention requirements for the school nutrition programs. For more information, refer to the CSDE's resource, *Records Retention Requirements for the School Nutrition Programs*. This documentation must be current and will be reviewed by the CSDE during the Administrative Review of the school nutrition programs.

Choosing a Calculation Method

SFAs may use either method to determine the oz eq contribution of a grain menu item but must document which method is used for each grain menu item. For some commercial grain products, each method results in a different crediting contribution. For example, a 1-ounce whole-grain bagel might credit as 1 oz eq of the grains component using method 1 (USDA's Exhibit A chart) but might credit as 1½ oz eq using method 2 (creditable grains).

SFAs should use the same calculation method each time the same product is on the menu. For example, if the menu planner uses method 2 (creditable grains) to determine the crediting of a whole-grain bagel, that same bagel should always be credited using method 2. The CSDE strongly recommends choosing one calculation method for consistent crediting. This simplifies menu planning and assists SFAs with documenting compliance for the grains component.



Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Sample Calculations for Commercial Products in Group A-G

This section demonstrates how to calculate the oz eq of commercial grain products using the appropriate weight for groups A-G in the USDA's Exhibit A chart (method 1) or the weight of creditable grains per serving (method 2). SFAs may also use the USDA's Exhibit A Grains Tool to calculate this information automatically (refer to "Using Method 1 for commercial products" in this document).

- Example 1 shows how to use method 1 to calculate the oz eq of commercial grain products in groups A-G. To credit a commercial product using method 1, SFAs must know the weight of the serving. This example is for whole-wheat pancakes, a commercial product in group C.

- Example 2 shows a sample calculation for this same product using method 2. To credit a commercial product using method 2, SFAs must obtain a manufacturer's PFS stating the total weight (grams) of all creditable grains in the serving.

These examples show how each method can result in a different crediting contribution for the same product. For some products, each method results in the same crediting contribution. SFAs may use either method but must document how the crediting information was determined (refer to "Choosing a Calculation Method" in this document).

> To determine the meal pattern contribution of a commercial grain product using method 1, menu planners must use the weight (ounces or grams) of one serving from the product's Nutrition Facts label or PFS. If the product lists the serving size in ounces and grams, menu planners may choose to use either one. To convert ounces to grams, multiply ounces by 28.35.

For additional guidance on determining the oz eq contribution of a grain menu item in groups A-G, refer to the CSDE's resource, *How to Use the Grain Ounce Equivalents Chart for the School Nutrition Programs*.



Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Example 1: Using method 1 for commercial grain products in groups A-G

Whole-wheat Pancakes
Manufacturer's serving size:
1 pancake: 1 ounce (28 grams)

Group C (USDA's Exhibit A chart)
1 oz eq = 34 grams or 1.2 ounces

Ingredients: Water, whole-wheat flour, enriched flour (wheat flour, niacin, ferrous sulfate, thiamin mononitrate, riboflavin, folic acid), sugar, canola oil. Contains 2% or less of: leavening (baking soda, sodium aluminum phosphate, monocalcium phosphate), eggs, salt, buttermilk.

Steps to determine oz eq using method 1

1. **List the weight of the manufacturer's serving:** Refer to the product's Nutrition Facts label or PFS (1 ounce = 28.35 grams).
    - 1 ounce
2. **List the required weight for 1 oz eq of the applicable grain group in the USDA's Exhibit A chart:** Refer to the CSDE's resource, *Grain Ounce Equivalents Chart for the School Nutrition Programs*. Pancakes are in group C.
    - 1.2 ounces
3. **Determine the oz eq in one serving of the product:** Divide the weight of the manufacturer's serving (step 1) by the required weight for 1 oz eq (step 2).
    - 1 ounce divided by 1.2 ounces = 0.83 oz eq per serving (1 pancake)
4. **Meal pattern contribution (oz eq):** Round down the oz eq in step 3 to the nearest ¼ oz eq. For example, 1.49 and 1.27 round down to 1.25 and 1.24 rounds down to 1.
    - 0.83 oz eq rounds down to 0.75 oz eq per serving (1 pancake)

Example 2: Using method 2 for commercial grain products in groups A-G

Whole-wheat Pancakes
Manufacturer's serving size:
1 pancake: 1 ounce (28 grams)

Creditable grains per serving (from product's PFS)
Whole-wheat flour: 9 grams
Enriched flour: 8 grams

Ingredients: Water, whole-wheat flour, enriched flour (wheat flour, niacin, ferrous sulfate, thiamin mononitrate, riboflavin, folic acid), sugar, canola oil. Contains 2% or less of: leavening (baking soda, sodium aluminum phosphate, monocalcium phosphate), eggs, salt, buttermilk.

Steps to determine oz eq using method 2

1. **List the total weight (grams) of all creditable grains (whole, enriched, bran, and germ) in one serving:** Refer to the product's PFS.
    - 9 grams whole wheat flour plus 8 grams enriched flour = 17 grams of creditable grains

2. **Determine the oz eq in one serving of the product:** For group C, 16 grams of creditable grains equal 1 oz eq. Divide the total weight (grams) of all creditable grains (step 1) by 16.
    - 17 grams divided by 16 = 1.06 oz eq per serving (1 pancake)

3. **Meal pattern contribution (oz eq):** Round down the oz eq in step 3 to the nearest ¼ oz eq. For example, 1.49 and 1.27 round down to 1.25 and 1.24 rounds down to 1.
    - 1.06 oz eq rounds down to 1.0 oz eq per serving (1 pancake)

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Sample Calculations for Commercial Products in Group H

This section demonstrates how to calculate the oz eq of commercial grain products using the appropriate weight or volume for groups H in the USDA's Exhibit A chart (method 1) or the weight of creditable grains per serving (method 2). SFAs may also use the USDA's Exhibit A Grains Tool to calculate this information automatically (refer to "Using Method 1 for commercial products" in this document).

- Example 3 shows how to use method 1 to calculate the oz eq for a commercial whole-grain pasta product in group H. To credit a commercial product using method 1, SFAs must know the weight of the dry serving or the volume of the cooked serving.

- Example 4 shows a sample calculation for this same product using method 2. To credit a commercial product using method 2, SFAs must obtain a manufacturer's PFS stating the total weight (grams) of all creditable grains in the serving.

These examples show how each method can result in the same crediting contribution for a commercial grain product. For some products, each method results in a different crediting contribution. SFAs may use either method but must document how the crediting information was determined (refer to "Choosing a Calculation Method" in this document).

Cereal grains in group H typically credit based on the cooked serving, i.e., ½ cup of cooked cereal credits as 1 oz eq of the grains component. However, the menu planner may choose to calculate the product's oz eq based on the dry uncooked weight, i.e., 1 ounce (28 grams) of dry cereal grains credits as 1 oz eq of the grains component. The weight (ounces or grams) of one serving must be determined from the commercial product's Nutrition Facts label or the manufacturer's PFS. If the product lists the serving size in ounces and grams, the menu planner may choose to use either one.



Example 3: Using method 1 for commercial grain products in group H

Whole-grain Pasta
Manufacturer's serving size:
32 grams dry (½ cup cooked)

Group H (USDA's Exhibit A chart)
1 oz eq = ½ cup cooked or 28 grams dry

Ingredients: Whole-grain durum wheat flour, enriched wheat flour.

Steps to determine oz eq using method 1

1. **List the weight of the manufacturer's serving from the product's Nutrition Facts label or PFS:** To convert ounces to gram or grams to ounces, use the conversion factor of 1 ounce equals 28.35 grams.
    - 32 grams
2. **List the required weight for 1 oz eq of the applicable grain group in the USDA's Exhibit A chart:** Refer to the CSDE's resource, *Grain Ounce Equivalents Chart for the School Nutrition Programs*. Pasta is in group H.
    - 28 grams
3. **Determine the oz eq in one serving of the product:** Divide the weight of the manufacturer's serving (step 1) by the required uncooked (dry) weight for 1 oz eq (step 2).
    - 32 grams divided by 28 = 1.14 oz eq per serving (½ cup cooked pasta)
4. **Meal pattern contribution (oz eq):** Round down the oz eq in step 3 to the nearest ¼ oz eq. For example, 1.49 and 1.27 round down to 1.25 and 1.24 rounds down to 1.
    - 1.14 oz eq rounds down to 1.0 oz eq per serving (½ cup cooked pasta)

Example 4: Using method 2 for commercial grain products in group H

Whole-grain Pasta
Manufacturer's serving size:
32 grams dry (½ cup cooked)

Creditable grains per serving (from product's PFS)
Whole-wheat flour: 14 grams
Enriched flour: 12 grams

Ingredients: Water, whole-wheat flour, enriched flour (wheat flour, niacin, ferrous sulfate, thiamin mononitrate, riboflavin, folic acid), sugar, canola oil. Contains 2% or less of: leavening (baking soda, sodium aluminum phosphate, monocalcium phosphate), eggs, salt, buttermilk.

Steps to determine oz eq using method 2

1. **List the total weight (grams) of all creditable grains (whole, enriched, bran, and germ) in one serving:** Refer to the product's PFS.
    - 14 grams whole wheat flour plus 12 grams enriched flour = 26 grams of creditable grains
2. **Determine the oz eq in one serving of the product:** For group H, 28 grams of creditable grains equal 1 oz eq. Divide the total weight (grams) of all creditable grains (from step 1) by 28.
    - 26 grams divided by 28 = 0.93 oz eq per serving (½ cup cooked pasta)
3. **Meal pattern contribution (oz eq):** Round down the oz eq in step 3 to the nearest ¼ oz eq. For example, 1.49 and 1.27 round down to 1.25 and 1.24 rounds down to 1.
    - 0.93 oz eq rounds down to 0.75 oz eq per serving (½ cup cooked pasta)

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Sample Calculations for Foods Made from Scratch

SFAs must have standardized recipes on file to document the meal pattern contribution of grain foods made from scratch, such as breads, rolls, muffins, pizza dough, and pancakes. This section demonstrates how to calculate the oz eq of standardized recipes using the weight of creditable grains per serving (method 2).

SFAs may also use the USDA's Recipe Analysis Workbook to calculate this information automatically (refer to "Using method 2 for foods made from scratch" in this document). For information on standardized recipes, visit the "Standardized Recipes" section of the CSDE's Crediting Documentation for the Child Nutrition Programs webpage.

> Method 1 cannot be used for foods made from scratch in groups A-G unless the SFA knows the serving weight. If the standardized recipe does not provide this information, SFAs could determine the average serving weight by weighing several portions (refer to the CSDE's *Yield Study Data Form for the Child Nutrition Programs*). If the serving weight cannot be determined, the creditable grains method must be used to determine the standardized recipe's oz eq contribution.

SFAs do not need to calculate oz eq for grain foods prepared from the USDA's standardized recipes for Child Nutrition Programs. These standardized recipes specify the meal pattern crediting information per serving. For links to the USDA's recipes, visit the Institute of Child Nutrition's (ICN) Child Nutrition Recipe Box and the "Recipes for Child Nutrition Programs" section of the CSDE's Menu Planning for Child Nutrition Programs webpage.

Method 2 calculation for standardized recipes listing the weight of grain ingredients

Example 5 shows how to use method 2 to calculate the oz eq for a standardized multi-grain bread recipe that lists the weight of the grain ingredients. Bread is in group B of the USDA's Exhibit A chart and requires 16 grams of creditable grains to credit as 1 oz eq of the grains component. To credit as 1 oz eq of a WGR food, the 16 grams of creditable grains must include at least 8 grams of whole grains.

Note: Dry cereal grains (such as rolled oats and cornmeal) used as an ingredient in a standardized recipe credit the same as groups A-G; 16 grams credit as 1 oz eq of the grains component.



Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

Example 5: Using method 2 for recipes listing the weight of grain ingredients

Multi-grain bread recipe
Yield: 100 servings
Serving size: 1 piece

Grain ingredients
Whole-wheat flour: 8 ounces (0.5 pound)
Rolled oats: 1 pound 2 ounces (1.125 pounds)
Enriched flour: 1 pound
Enriched cornmeal: 8 ounces (0.5 pound)

Steps to determine oz eq using method 2

1. **Determine the total weight (pounds) of all creditable grains in the recipe:** Convert ounces to pounds (16 ounces = 1 pound). Convert fractions to decimals, e.g., 1¾ pounds = 1.75 pounds.
    - **Whole grains:** 0.5 pound whole-wheat flour plus 1.125 pounds rolled oats = 1.625 pounds
    - **Enriched grains**: 1 pound enriched flour plus 0.5 pound enriched cornmeal = 1.5 pounds
    - **Total creditable grains** = 3.125 pounds
2. **Determine the total grams of creditable grains in the recipe:** One pound equals 453.6 grams. Multiply the total pounds of creditable grains (step 1) by 453.6.
    - 3.125 pounds multiplied by 453.6 = 1417.5 grams of creditable grains
3. **List the number of servings in the recipe (yield):**
    - 100 servings
4. **Determine the grams of creditable grains per recipe serving:** Divide the total grams of creditable grains (step 2) by the number of servings (step 3).
    - 1417.5 grams divided by 100 servings = 14.174 grams of creditable grains per serving (1 piece)

5. **Determine the oz eq per recipe serving:** For creditable grains in recipes, 16 grams = 1 oz eq. Divide the grams of creditable grains per serving (step 4) by 16.
    - 14.174 grams divided by 16 = 0.89 oz eq per serving (1 piece)
6. **Meal pattern contribution (oz eq):** Round down the oz eq in step 5 to the nearest ¼ oz eq. For example, 1.49 and 1.27 round down to 1.25 and 1.24 rounds down to 1.
    - 0.89 oz eq rounds down to 0.75 oz eq per serving (1 piece)

Method 2 calculation for recipes listing the volume of grain ingredients

Standardized recipes list ingredients by volume (e.g., cups and quarts) and weight (e.g., pounds and ounces). Weight is the most accurate measure. Recipes that are not standardized (such as recipes used at home) typically list ingredients only by volume. SFAs may use any of the methods below to convert the volume of a recipe's grain ingredients to weight (grams).

1. **Nutrition Facts label:** Use the manufacturer's serving size information on the Nutrition Facts label for the grain ingredient, e.g., whole-wheat flour, enriched flour, or whole-grain cornmeal. Multiply the grams per cup (indicated on the Nutrition Facts label) by the number of cups used in the standardized recipe. The example below shows how to use the Nutrition Facts label to determine the weight of the grain ingredients in a standardized recipe that contains 2 cups of whole-wheat flour and 2 cups of enriched flour.
    - **Whole wheat flour:** The Nutrition Facts label for the whole-wheat flour states that ¼ cup weighs 32 grams, which equals 128 grams per cup. Multiply the grams per cup (128 grams) by the number of cups used in the standardized recipe (2 cups) to determine the total weight of the grain ingredient in the standardized recipe (256 grams).
    - **Enriched flour:** The Nutrition Facts label for the enriched flour states that ¼ cup weighs 30 grams, which equals 120 grams per cup. Multiply the weight per cup (120 grams) by the amount of enriched flour used in the standardized recipe (2 cups) to determine the weight of the enriched flour used in the standardized recipe (240 grams).

2. **Nutrient database:** Search the USDA's FoodData Central nutrient database for grain ingredients, such as whole-wheat flour or yellow cornmeal. Enter "1" in the data field for the cup measurement, and the database will provide the weight of 1 cup of that ingredient.

3. **Volume equivalent chart:** Use volume equivalent charts that list the weight of 1 cup of grain ingredients. Table 1 shows the weight per cup for some commonly used grain ingredients.

4. **Yield study:** Determine the average weight of 1 cup of the grain ingredient by measuring and weighing several samples. For more information, refer to the CSDE's *Yield Study Data Form for the Child Nutrition Programs*.

Table 1. Weights of 1 cup of commonly used grain ingredients

The use of brand-name products is solely for clarification regarding serving sizes and does not constitute approval or endorsement by the USDA or CSDE. The actual weight of 1 cup may be more or less than the weights in this chart, depending on the measuring method used, e.g., stirred or unstirred, sifted or unsifted, spooned or dipped, and coarsely or finely crushed. For the most accurate conversion of volume to weight, calculate the average weight of 1 cup of the ingredient by measuring and weighing several samples. For more information, refer to the CSDE's *Yield Study Data Form for the Child Nutrition Programs*.

Food item	Weight (grams) per cup
Barley, flour or meal [1]	148
Barley, hulled [1]	184
Barley, pearled, uncooked [1]	200
Barley, pearled, cooked [1]	157
Breadcrumbs, dry, grated, plain [1]	108
Breadcrumbs, plain, dry, grated, seasoned [1]	120
Breadcrumbs, plain soft, white [1]	45
Bulgur, uncooked [1]	140
Bulgur, cooked [1]	182

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Food item	Weight (grams) per cup
Cereal, General Mills Cheerios [2]	28
Cereal, General Mills Corn Chex [2]	31
Cereal, General Mills Rice Chex [2]	27
Cereal, General Mills Wheat Chex [2]	47
Cereal, General Mills Wheaties [2]	36
Cereal, Kellogg's All-Bran Bran Buds [3]	90
Cereal, Kellogg's All-Bran Original [3]	62
Cereal, Kellogg's Corn Flakes crumbs [3]	88
Cereal, Kellogg's Corn Flakes, whole [3]	28
Cereal, Kellogg's Rice Krispies [4]	26
Cereal, Quaker Puffed Rice [4]	14
Cereal, Quaker Puffed Wheat [4]	28
Cornmeal, enriched, uncooked, yellow, degerminated [1]	157
Cornmeal, enriched, uncooked, yellow, whole grain [1]	122
Cracker crumbs, graham, crushed [1]	84
Cracker crumbs, snack, standard snack-type, regular, crushed [1]	52
Flour, buckwheat, whole groats [1]	120
Flour, corn, whole grain, yellow [1]	117
Flour, rice, brown [1]	158
Flour, rice, white [1]	158
Flour, rye, dark [1]	128
Flour, rye, light [1]	102

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Food item	Weight (grams) per cup
Flour, wheat, white, all-purpose enriched, bleached [1]	125
Flour, wheat, white, all-purpose enriched, unbleached [1]	125
Flour, wheat, white, bread, enriched [1]	137
Flour, wheat, white, cake, enriched, unsifted, dipped [1]	137
Flour, wheat, white, self-rising, enriched [1]	125
Flour, wheat, whole grain [1]	120
Wheat germ, uncooked, plain [1]	88
Wheat germ, toasted, plain [1]	115
Oat bran, raw [1]	94
Oat bran, cooked [1]	219
Oats, rolled, quick, uncooked [1]	81
Oats, rolled, regular, uncooked [1]	81

[1] USDA's FoodData Central database (Standard Reference (SR) Legacy Data): https://fdc.nal.usda.gov/
[2] General Mills Cereals: https://www.generalmills.com/food-we-make/brands
[3] Kellogg's Cereals: https://www.wkkellogg.com/en-us/our-foods/our-brands.html
[4] Quaker Cereals: https://www.quakeroats.com/products

Example 6 shows how to use method 2 to calculate the grains/breads servings for a recipe that lists the grain ingredients in cups, using the weights from table 1.

Example 6: Using method 2 for recipes listing the volume of grain ingredients

Multi-grain bread recipe
Yield: 25 servings
Serving size: 1 piece
Whole-wheat flour, 2 cups

Grain Ingredients
Rolled oats, ¾ cup
All-purpose enriched flour, 2 cups
Enriched cornmeal, ¼ cup

Steps to determine oz eq using method 2

1. **Determine the total weight (grams) of all creditable grains in the recipe:** Use any of the following: Nutrition Facts label; nutrient database; volume equivalent chart; or yield study (refer to "Method 2 calculation for recipes listing the volume of grain ingredients" in this document). Convert fractions to decimals if needed, e.g., 1¾ pounds = 1.75 pounds. The chart below uses a volume equivalent chart (table 1) to determine the grams per cup for each ingredient.

Grain ingredient	Measure	Grams per cup (table 1)	Weight (grams)
Whole-wheat flour	2 cups	X 120 =	240.00
Rolled oats	¾ cup	X 81 =	60.75
Enriched flour	2 cups	X 125 =	250.00
Enriched cornmeal	¼ cup	X 122 =	30.5

Total weight (grams): 581.25

2. **List the number of servings in the recipe (yield):**
    - 25 servings
3. **Determine the grams of creditable grains per serving:** Divide the total grams of creditable grains (step 1) by the number of servings (step 2).
    - 581.25 grams divided by 25 servings = 23.25 grams of creditable grains per serving (1 piece)
4. **Determine the oz eq per serving:** For creditable grains in recipes, 16 grams = 1 oz eq. Divide the grams of creditable grains per serving (step 3) by 16.
    - 23.25 grams divided by 16 = 1.45 oz eq per serving (1 piece)
5. **Meal pattern contribution (oz eq):** Round down the oz eq in step 4 to the nearest ¼ oz eq. For example, 1.49 and 1.27 round down to 1.25 and 1.24 rounds down to 1.
    - 1.45 oz eq rounds down to 1.25 oz eq per serving (1 piece)

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Resources

Accepting Processed Product Documentation in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/accepting_processed_product_documentation_snp.pdf

Basics at a Glance Portion Control Poster (Institute of Child Nutrition):
https://theicn.org/icn-resources-a-z/basics-at-a-glance/

Child Nutrition Programs: Tips for Evaluating a Manufacturer's Product Formulation Statement (USDA webpage):
https://www.fna.usda.gov/cn/labeling/tips-evaluating-pfs

Crediting Breakfast Cereals in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/credit_cereals_snp.pdf

Crediting Documentation for the Child Nutrition Programs (CSDE webpage):
https://portal.ct.gov/sde/nutrition/crediting-documentation-for-the-child-nutrition-programs

Crediting Enriched Grains in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/credit_enriched_grains_snp.pdf

Crediting Whole Grains in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/credit_whole_grains_snp.pdf

Exhibit A Grains Tool of the Food Buying Guide (USDA):
https://www.fna.usda.gov/tn/fbg/webtool

Exhibit A: Grain Requirements for Child Nutrition Programs (USDA):
https://foodbuyingguide.fns.usda.gov/Content/TablesFBG/Exhibit_A_Grain_Requirements_For_Child_Nutrition_Programs.pdf

Food Buying Guide for Child Nutrition Programs (USDA):
https://www.fna.usda.gov/tn/fbg

FoodData Central (USDA):
https://fdc.nal.usda.gov/

Grain Ounce Equivalents Chart for the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/grain_oz_eq_snp.pdf

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Grains Component (CSDE's Crediting Foods in School Nutrition Programs webpage):
https://portal.ct.gov/sde/nutrition/crediting-foods-in-school-nutrition-programs/grains

Guide to Meeting the Whole Grain-rich Requirement for the Child and Adult Care Food Program (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/cacfp/crediting/wgr_requirement_cacfp.pdf

Guide to Meeting the Whole Grain-rich Requirement for the Meal Patterns for Grades K-12 in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/guide_wgr_requirement_snp_grades_k-12.pdf

How to Use the Grain Ounce Equivalents Chart for the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/how_to_use_ounce_equivalents_chart_snp.pdf

Product Formulation Statements (CSDE's Crediting Documentation for the Child Nutrition Programs webpage):
https://portal.ct.gov/sde/nutrition/crediting-documentation-for-the-child-nutrition-programs/product-formulation-statements

Recipe Analysis Workbook (RAW) for Standardized Recipes (USDA):
https://www.fna.usda.gov/tn/fbg/webtool

Records Retention Requirements for the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/records_retention_snp.pdf

Standardized Recipes (CSDE's Crediting Documentation for the Child Nutrition Program webpage):
https://portal.ct.gov/sde/nutrition/crediting-documentation-for-the-child-nutrition-programs/standardized-recipes

USDA Memo SP 05-2025, CACFP 04-2025, and SFSP 02-2025: Guidance for Accepting Processed Product Documentation for Meal Pattern Requirements:
https://www.fna.usda.gov/cn/labeling/guidance-accepting-processed-product-documentation

Using Child Nutrition (CN) Labels in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/cn_labels_snp.pdf

Using Product Formulation Statements in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/product_formulation_statements

Calculation Methods for Grain Ounce Equivalents for the Meal Patterns for School Nutrition Programs

What's in a Meal Module 8: Meal Pattern Documentation for Crediting Commercial Processed Products (CSDE's Training Program, What's in a Meal: Meal Patterns for Grades K-12 in the School Nutrition Programs):
https://portal.ct.gov/sde/nutrition/meal-pattern-training-materials#module8

What's in a Meal Module 13: Grains Component (CSDE's Training Program, What's in a Meal: Meal Patterns for Grades K-12 in the School Nutrition Programs):
https://portal.ct.gov/sde/nutrition/meal-pattern-training-materials#module13

What's in a Meal Module 14: Whole Grain-rich Requirement (CSDE's Training Program, What's in a Meal: Meal Patterns for Grades K-12 in the School Nutrition Programs):
https://portal.ct.gov/sde/nutrition/meal-pattern-training-materials#module14

What's in a Meal Module 15: Grains Ounce Equivalents (CSDE's Training Program, What's in a Meal: Meal Patterns for Grades K-12 in the School Nutrition Programs):
https://portal.ct.gov/sde/nutrition/meal-pattern-training-materials#module15

When Commercial Grain Products Require a Product Formulation Statement to Credit in the School Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/when_commercial_grain_products_require_pfs_snp.pdf

Yield Study Data Form for the Child Nutrition Programs (CSDE):
https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/yield_study_form.pdf

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For more information, visit the CSDE's Crediting Foods in School Nutrition Programs webpage or contact the school nutrition programs staff at the Connecticut State Department of Education, Bureau of Child Nutrition Programs, 450 Columbus Boulevard, Suite 504, Hartford, CT 06103-1841.This document is available at https://portal.ct.gov/-/media/sde/nutrition/nslp/crediting/grain_calculation_snp.pdf.

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