

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the Afterschool Snack Program

This guidance applies to the meal pattern for grades K-12 in the U.S. Department of Agriculture's (USDA) Afterschool Snack Program (ASP) of the National School Lunch Program (NSLP). For additional guidance on the ASP grains/breads component, see the Connecticut State Department of Education's (CSDE) guide, *ASP Handbook*.

The ASP meal pattern for grades K-12 refers to the grains/breads component instead of the grains component because the USDA's final rule (77 FR 4087), *Nutrition Standards for the National School Lunch and School Breakfast Programs*, does not change the ASP meal pattern requirements for grades K-12. The USDA has different requirements for the grains component in the meal patterns for grades K-12 in the NSLP, School Breakfast Program (SBP), and Seamless Summer Option (SSO) of the NSLP; and the meal patterns for preschoolers in the NSLP, SBP, SSO, and ASP. For more information, see the CSDE's handouts, *Calculation Methods for Grain Ounce Equivalents for Grades K-12 in the NSLP and SBP* and *Calculation Methods for Grain Servings for Preschoolers in the NSLP, SBP, and ASP*. For a comparison of the USDA's requirements for the grains component in the meal patterns for school nutrition programs, see the CSDE's handout, *Comparison of Meal Pattern Requirements for the Grains/breads component in the School Nutrition Programs*.



To credit as the grains/breads component in the ASP, grain menu items must be whole grain, enriched, or contain a blend of whole and enriched grains. Cooked and ready-to-eat (RTE) breakfast cereals must be whole grain, enriched, or fortified. Bran and germ credit the same as enriched and whole grains. **Note:** Bran and germ do not credit in the NSLP, SBP, and SSO meal patterns for grades K-12. For guidance on identifying whole and enriched grains, see CSDE's handouts, *Crediting Whole Grains in the NSLP and SBP* and *Crediting Enriched Grains in the NSLP and SBP*.

The required quantities for the grains/breads component are listed in servings. School food authorities (SFAs) have two options for calculating the serving sizes for creditable commercial products and foods made on site. Method 1 uses the weight (groups A-G) or volume (groups H-I) for the appropriate grain group in the USDA's grains/breads serving size chart. Method 2 calculates the total weight (grams) of creditable grains (whole and enriched) per serving.



SFAs are not required to use either method if a product has a Child Nutrition (CN) label. CN-labeled products credit based on the stated crediting information for grain ounce equivalents. Grain products (such as muffins, bagels, and rolls) are ineligible for CN labels, which are available only for main dish entrees that contribute to the meat/meat alternates component. However, CN-labeled products usually include the crediting information for grains, vegetables, and fruits that are part of

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the product. For more information, see the CSDE's handout, *Child Nutrition (CN) Labeling Program*. The USDA's [Authorized Labels and Manufacturers](#) webpage lists approved CN-labeled products and manufacturers.

SFAs may use either method, but must document how the crediting information was obtained. For more information, see "Choosing a Calculation Method" on page 10. In some situations, method 2 is required. For more information, see "When Method 2 is Required for Commercial Products" on page 3.

## Method 1: Serving Size Chart (Weights or Volumes)

Method 1 determines the serving size for creditable grain products using the weight (groups A-G) or volume (groups H-I) for the appropriate grain group in the USDA's grains/breads serving size chart. This chart is summarized in the CSDE's handout, *Servings for Grains/Breads for Grades K-12 in the ASP*, and groups foods based on the average grain content of similar products. For example, to provide 1 serving of the grains/breads component, a whole-wheat roll (group B) must weigh 25 grams (0.8 ounce) and a blueberry muffin (group D) must weigh 50 grams (1.8 ounces). The minimum creditable amount for all groups is  $\frac{1}{4}$  serving.

- **Groups A-G (baked goods):** Baked goods (such as crackers, breads, rolls, taco shells, muffins, waffles, pancakes, and grain-based desserts, e.g., cookies, cake, granola bars, and pastries) require 14.75 grams of creditable grains (whole and enriched) to credit as 1 serving. The amount that provides 1 serving varies from 20 grams (0.7 ounces) for foods in group A to 115 grams (4 ounces) for foods in group G.
- **Group H (cereal grains):** Cereal grains (such as amaranth, barley, buckwheat, cornmeal, corn grits, farina, kasha, millet, oats, quinoa, wheat berries, and rolled wheat) require  $\frac{1}{2}$  cup cooked or 25 grams dry to credit as 1 serving. Cereal grains typically credit based on the cooked serving, but SFAs may choose to use the dry uncooked weight. **Note:** Dry cereal grains used as an ingredient in a recipe (such as rolled oats in bread) credit the same as groups A-G; they require 14.75 grams of creditable grains to credit as 1 serving. For guidance on the crediting and serving size requirements for cooked breakfast cereals, see the CSDE's handout, *Crediting Breakfast Cereals for Grades K-12 in the NSLP and SBP*.
- **Group I (RTE breakfast cereals):** RTE breakfast cereals require 1 ounce (28 grams) or  $\frac{3}{4}$  cup (whichever is less) to credit as 1 serving. If the appropriate volume of cereal weighs less than 28 grams, it still credits as 1 serving. For example,  $\frac{3}{4}$  cup of cereal that weighs 26 grams credits as 1 serving. For guidance on the crediting and serving size requirements for RTE breakfast cereals, see the CSDE's handout, *Crediting Breakfast Cereals for Grades K-12 in the NSLP and SBP*.

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The USDA's grains/breads serving size chart applies to all creditable commercial grain products. SFAs may also use this chart for creditable grain foods made on site, if the standardized recipe indicates the weight of the prepared (cooked) serving. If the standardized recipe does not provide this information, the SFA must calculate the average weight per serving by weighing at least four samples of the cooked product. For more information, see the CSDE's handout, *Yield Study Data Form*.

## Method 2: Creditable Grains

Method 2 determines the serving sizes for grain products and recipes by calculating the total weight (grams) of creditable grains (whole and enriched) per manufacturer's serving or recipe serving. A food in groups A-G of the USDA's grains/breads serving size chart must contain 14.75 grams of creditable grains to credit as 1 serving. A food in group H of the USDA's grains/breads serving size chart must contain 25 grams of creditable grains to credit as 1 serving.

- **Commercial products:** SFAs must obtain a manufacturer's product formulation statement (PFS) that indicates the weight of all creditable grains. This information cannot be determined from the product's Nutrition Facts label or packaging. For more information, see the CSDE's handouts, *Product Formulation Statements* and *Accepting Processed Product Documentation*, and the USDA's handouts, *Product Formulation Statement for Grains: Servings*, *Sample Completed Product Formulation Statement for Grains: Servings*, and *Tips for Evaluating a Manufacturer's Product Formulation Statement*.
- **Foods made on site:** SFAs must determine the amount of creditable grains per serving from the weights listed for each grain ingredient in the standardized recipe. If the recipe lists grain ingredients by volume (e.g., cups and quarts), the SFA must calculate the equivalent weight (grams) for each grain ingredient. For more information, see "Method 2 calculation for recipes listing the volume of grain ingredients" on page 13.

## When Method 2 is Required for Commercial Products

There are five situations when SFAs must use method 2 (instead of the USDA's grains/breads serving size chart) to determine the grains/breads servings of commercial grain products.

1. **Multiple creditable grains:** A creditable grain is not the first ingredient (excluding water), but the product contains more than one creditable grain. SFAs must obtain a PFS from the manufacturer to document that the **combined weight** of all creditable grains is more than the weight of the first ingredient, excluding water. For example, the yellow corn flour in the product below is not a creditable grain because it is not whole grain, enriched, or nixtamalized. To credit in the ASP meal pattern, the product's PFS must document that the combined weight of the two whole grains (whole-wheat flour and rolled oats) is more than

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the weight of the yellow corn flour (noncreditable grain).

Ingredients: *Yellow corn flour, whole-wheat flour, sugar, rolled oats*, wheat gluten. Contains 2% or less of each of the following: honey, salt, oat bran, yeast, molasses.

**Note:** Nixtamalization is a process in which dried corn is soaked and cooked in an alkaline (slaked lime) solution. If the product's PFS indicates that cornmeal or corn flour are nixtamalized, these ingredients are whole grain. For more information, see the CSDE's handout, [Crediting Whole Grains in the NSLP and SBP](#).

2. **Combination foods:** A commercial combination food contains a grain portion from groups A-I of the USDA's grains/breads serving size chart. Examples include pizza crust in pizza, noodles in lasagna, and baked chicken coated with bread crumbs or crushed cereal flakes. SFAs must obtain a PFS from the manufacturer that documents the amount of creditable grains in the **grain portion** of the product.
3. **Manufacturer's crediting claim:** The manufacturer claims that a commercial product can provide the minimum creditable grains using a serving that is **less** than the minimum weight or volume specified for that product's group in the USDA's grains/breads serving size chart.
4. **Product not listed:** A commercial product does not belong to one of the nine groups listed in the USDA's grains/breads serving size chart.
5. **SFA credits a product differently:** The SFA wants to credit a commercial product differently from the serving size listed in the USDA's grains/breads serving size chart.

For each situation described above, SFAs must obtain a manufacturer's PFS that states the amount per serving of creditable grains (whole and enriched) and noncreditable grains, if applicable. The PFS must also demonstrate how the product provides those amounts according to the USDA's regulations, guidance, or policy. SFAs must verify the accuracy of the product's PFS prior to including the product in reimbursable meals, and must maintain all crediting documentation on file. The CSDE will review this information during the Administrative Review of school nutrition programs. **Note:** If the manufacturer will not supply a PFS, or the PFS does not provide the appropriate documentation, SFAs cannot use the product to credit as the grains/breads component.

## Sample Calculations for Commercial Products in Groups A-G

Table 1 shows a sample calculation using method 1 to determine the serving size of the grains/breads component for a commercial whole-wheat pancake product in group C. Table 2 shows a sample calculation for this same product using method 2. Each method results in a different crediting contribution for this



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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 obtained. For more information, see “Choosing a Calculation Method” on page 10.

With method 1, SFAs must use the weight (ounces or grams) of one serving from the commercial product’s Nutrition Facts label or the manufacturer’s PFS. If the product lists ounces and grams, SFAs may choose to use either one. To convert ounces to grams, multiply ounces by 28.35.

**Table 1. Using method 1 (USDA’s grains/breads serving size chart) to calculate the grains/breads serving for commercial products in groups A-G**

<b>Mini Whole-Wheat Pancakes</b>	
<b>Manufacturer’s serving size:</b> 5 pancakes (1.75 ounces)	<b>Group C (USDA’s grains/breads serving size chart):</b> 1 serving = 31 grams or 1.1 ounces
<b>Ingredients:</b> 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.	
1. List the weight of the manufacturer’s serving size from the product’s Nutrition Facts label or PFS (1 ounce = 28.35 grams).	<b>A</b> <b>1.75</b> ounces
2. List the required weight for 1 grains/breads serving for the product’s group (A-G) in the USDA’s grains/breads serving size chart. <sup>1</sup>	<b>B</b> <b>1.1</b> ounces
3. Determine the grains/breads servings in one serving of the product: Divide A by B.	<b>C</b> <b>1.59</b> grains/breads servings per manufacturer’s serving
4. Round down the number in C to the nearest ¼ grains/breads serving. For example, 1.49 and 1.27 round down to 1.25; and 1.24 rounds down to 1.	<b>D</b> <b>1.5</b> grains/breads servings per manufacturer’s serving (rounded)
<sup>1</sup> Calculations use the weights for groups A-G in the USDA’s grains/breads serving size chart. For more information, see the CSDE’s handout, <i>Servings for Grains/Breads for Grades K-12 in the ASP</i> .	

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

**Table 2. Using method 2 (creditable grains) to calculate the grains/breads servings for commercial products in groups A-G**

### Mini Whole-Wheat Pancakes

**Manufacturer’s serving size:**

5 pancakes (1.75 ounces)

**Group C (USDA’s grains/breads serving size chart):**

1 serving = 31 grams or 1.1 ounces

**Creditable grains per serving (from product’s PFS):**

Whole-wheat flour: 16 grams

Enriched flour: 14 grams

Noncreditable grains: 0 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.

1. List the combined weight (grams) of whole and enriched grains in one serving from the product’s PFS (1 ounce = 28.35 grams).<sup>1</sup>

16 grams of whole-wheat flour +  
14 grams of enriched flour =  
30 grams of creditable grains

<b>A</b>	<b>30</b> grams
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2. Determine the grains/breads serving in one serving of the product: Divide A by 14.75 (14.75 grams of creditable grains = 1 grains/breads serving for groups A-G).

<b>B</b>	<b>2.03</b>	grains/breads servings per manufacturer’s serving
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3. Round down the number in B to the nearest ¼ grains/breads serving. For example, 1.49 and 1.27 round down to 1.25; and 1.24 rounds down to 1.

<b>C</b>	<b>2</b>	<b>grains/breads servings per manufacturer’s serving (rounded)</b>
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<sup>1</sup> To credit a commercial product using method 2, SFAs must obtain a PFS from the manufacturer. For information on PFS forms, see the CSDE’s handouts, *Product Formulation Statements* and *Accepting Processed Product Documentation*; the “Crediting Commercial Processed Products” section of the CSDE’s *Crediting Foods in School Nutrition Programs* webpage; and the USDA’s handouts, *Product Formulation Statement for Grains: Servings*, *Sample Completed Product Formulation Statement for Grains: Servings*, and *Tips for Evaluating a Manufacturer’s Product Formulation Statement*.

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

## Sample Calculations for Commercial Products in Group H

Table 3 shows a sample calculation using method 1 to determine the grains/breads servings for a commercial whole-grain pasta product in group H. Table 4 shows a sample calculation for this same product using method 2.

Each method results in a different crediting contribution for this product. For some products, each method results in the same crediting contribution. SFAs may use either method 1 or 2, but must document how the crediting information was obtained. For more information, see “Choosing a Calculation Method” on page 10.

**Note:** Cereal grains in group H typically credit based on the **cooked** serving (i.e.,  $\frac{1}{2}$  cup credits as 1 serving of grains/breads), but SFAs may choose to calculate the product’s grains/breads servings based on the dry uncooked weight (1 ounce credits as 1 grains/breads serving). With method 1, SFAs must use the weight (ounces or grams) of one serving from the commercial product’s Nutrition Facts label or the manufacturer’s PFS. If the product lists ounces and grams, SFAs may choose to use either one.



# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

**Table 3. Using method 1 (USDA’s grains/breads serving size chart) to calculate the grains/breads servings for commercial products in group H**

<b>Whole-grain Pasta</b>	
<b>Manufacturer’s serving size:</b> 32 grams (½ cup cooked)	<b>Group H (USDA’s grains/breads serving size chart):</b> 1 serving = ½ cup cooked or 25 grams dry
<b>Ingredients:</b> Whole grain durum wheat flour.	
1. List the weight of the manufacturer’s serving size from the product’s Nutrition Facts label or PFS (1 ounce = 28.35 grams).	<b>A</b> <b>32</b> grams
2. List the required uncooked (dry) weight for 1 grains/breads serving for group H in the USDA’s grains/breads serving size chart. <sup>1</sup>	<b>B</b> <b>25</b> grams
3. Determine the grains/breads servings in one serving of the product: Divide A by B.	<b>C</b> <b>1.28</b> grains/breads servings per manufacturer’s serving
4. Round down the number in C to the nearest ¼ grains/breads serving. For example, 1.49 and 1.27 round down to 1.25; and 1.24 rounds down to 1.	<b>D</b> <b>1.25</b> <b>grains/breads servings per manufacturer’s serving (rounded)</b>
<sup>1</sup> Calculations use the weights for group H in the grains/breads serving size chart. Group H requires ½ cup cooked or 25 grams dry to provide 1 serving of the grains/breads component. For more information, see the CSDE’s handout, <i>Servings for Grains/Breads for Grades K-12 in the ASP</i> .	





# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

**Table 4. Using method 2 (creditable grains) to calculate the grains/breads servings for commercial products in group H**

## Whole-grain Pasta

**Manufacturer’s serving size:**

32 grams (½ cup cooked)

**Group H (USDA’s grains/breads serving size chart):**

1 serving = ½ cup cooked or 25 grams dry

**Creditable grains per serving (from product’s PFS):**

Whole-wheat flour: 15 grams

Enriched flour: 14 grams

Noncreditable grains: 0 grams

**Ingredients:** Whole grain durum wheat flour.

1. List the combined weight (grams) of whole and enriched grains in one serving from the product’s PFS (1 ounce = 28.35 grams).<sup>1</sup>

15 grams of whole-wheat flour +  
14 grams of enriched flour =  
29 grams of creditable grains

**A**     **29**     grams

2. Determine the grains/breads servings in one serving of the product: Divide A by 25 (25 grams of creditable grains = 1 grains/breads serving).

**B**     **1.16**     grains/breads servings per manufacturer’s serving

3. Round down the number in B to the nearest ¼ grains/breads serving. For example, 1.49 and 1.27 round down to 1.25; and 1.24 rounds down to 1.

**C**     **1**     grains/breads servings per manufacturer’s serving (rounded)

<sup>1</sup> To credit a commercial product using method 2, SFAs must obtain a PFS from the manufacturer. For information on PFS forms, see the CSDE’s handouts, *Product Formulation Statements* and *Accepting Processed Product Documentation*; the “Crediting Commercial Processed Products” section of the CSDE’s *Crediting Foods in School Nutrition Programs* webpage; and the USDA’s handouts, *Product Formulation Statement for Grains: Servings*, *Sample Completed Product Formulation Statement for Grains: Servings*, and *Tips for Evaluating a Manufacturer’s Product Formulation Statement*.

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

## Choosing a Calculation Method

Calculation methods 1 and 2 may result in a different crediting contribution for the same product, or may result in the same crediting contribution for the product. For example, a 1-ounce bagel might credit as 1 serving using method 1 (USDA's grains/breads servings chart), but might credit as 1½ servings using method 2 (creditable grains indicated in the manufacturer's PFS). SFAs may choose to use **either** method for all foods in the USDA's grains/breads serving size chart, but must document which method is used for each product.

When using method 2 for commercial products, SFAs must obtain a PFS from the manufacturer that documents the weight of all creditable grains per serving. When using method 2 for foods made on site (groups A-G), SFAs must have a standardized recipe on file that lists the weight of all creditable grains. If the recipe is not standardized and lists only the volume of grain ingredients, the SFA must calculate the weight equivalent (grams) of each grain ingredient. For more information, see "Method 2 calculation for recipes listing the volume of grain ingredients" on page 13.

When SFAs choose a calculation method for a specific product, the USDA requires that same calculation method must be used each time that same product is on the menu for that same age group. For example, if the SFA uses method 2 to determine the crediting of a whole-grain bagel for grades K-12, that same bagel on any snack menu must 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 with the ASP meal pattern requirements for the grains/breads component.



# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

## Sample Calculations for Foods Made on Site

SFAs must have standardized recipes on file to document the meal pattern contribution of foods prepared on site, such as breads, rolls, muffins, pizza dough, and pancakes. SFAs must determine the grains/breads servings in one serving of the standardized recipe by using either the appropriate weight (groups A-G) or volume (groups H-I) in the USDA's grains/breads serving size chart (method 1), or the weight of creditable grains per serving (method 2). The CSDE encourages SFAs to use method 2 for recipes in groups A-G because it provides more accurate crediting information. Group H (cereal grains) typically credit based on the cooked serving, i.e.,  $\frac{1}{2}$  cup credits as 1 serving.

For information on standardized recipes, see section 2 of the CSDE's guide, [Menu Planning Guide for School Meals for Grades K-12](#), chapter 4 of the USDA's [Menu Planner for School Meals](#), the CSDE's [Standardized Recipe Form](#), and the "Crediting Foods Prepared On Site" section of the CSDE's [Crediting Foods in School Nutrition Programs](#) webpage.

**Note:** SFAs do not need to calculate grain servings for foods prepared from the USDA's 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 ICN's [Child Nutrition Recipe Box](#) and the CSDE's [Menu Planning for Child Nutrition Programs](#) webpage.

### Using method 1 (serving sizes chart) for foods made on site

To use the USDA's grains/breads serving size chart for school-made foods in groups A-G, SFAs must know the **weight** of the prepared serving of the standardized recipe after cooking or baking. If the standardized recipe does not provide this information, the SFA must calculate the average weight per serving by weighing at least four samples of the cooked product. For more information, see the CSDE's handout, [Yield Study Data Form](#).

### Using method 2 (creditable grains) for foods made on site

Standardized recipes list measurements for grain ingredients in weight (pounds and ounces) and volume (e.g., cups and quarts). SFAs must use the recipe's **weight** measurements to determine the creditable grains per serving. For assistance with recipe calculations, such as converting fractions to decimals, review the ICN's [Basics at a Glance Portion Control Poster](#) and the decimal equivalents of fractions in the "Introduction" section of the USDA's [Food Buying Guide for Child Nutrition Programs](#).

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

Table 5 shows how to use method 2 to calculate the serving sizes for a standardized recipe that lists the weight (pounds and ounces) of grain ingredients. A standardized recipe for a food in groups A-G must contain 14.75 grams of creditable grains to credit as 1 serving.

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

**Table 5. Using method 2 (creditable grains) to calculate the grains/breads servings for recipes listing the weight of grain ingredients**

### WGR standardized recipe for multi-grain bread

**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)



1. Determine the total weight (pounds) of all creditable grains in the recipe (16 ounces = 1 pound). Convert fractions to decimals, e.g.,  $1\frac{3}{4}$  pounds equals 1.75 pounds.

1.625 pounds of whole grains (whole-wheat flour and rolled oats) +  
1.5 pounds of enriched grains (enriched flour and enriched cornmeal) =  
3.125 pounds of creditable grains

**A**

**3.125**

pounds of creditable grains

2. Determine the total grams of creditable grains in the recipe: Multiply A by 453.6 (1 pound = 453.6 grams).

**B**

**1417.5**

grams of creditable grains

3. List the number of servings in the recipe.

**C**

**100**

servings per recipe

4. Determine the grams of creditable grains per recipe serving: Divide B by C.

**D**

**14.175**

grams of creditable grains per recipe serving

5. Determine the serving sizes per recipe serving: Divide D by 14.75 (1 grains/breads serving = 14.75 grams of creditable grains).

**E**

**0.96**

grains/breads servings

6. Round down the number in E to the nearest  $\frac{1}{4}$  serving For example, 1.49 and 1.27 round down to 1.25; and 1.24 rounds down to 1.

**F**

**0.75**

**grains/breads servings (rounded)**

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

## Method 2 calculation for recipes listing the volume of grain ingredients

To determine the grains/breads servings of the recipe, SFAs must first convert the volume (e.g., cups and quarts) of all grain ingredients to weight (grams). SFAs may use any of the methods below for this calculation.

- Use the manufacturer's serving size information on the Nutrition Facts label for the grain ingredient. For example, a recipe contains 2 cups of enriched flour. The product's Nutrition Facts label states that  $\frac{1}{4}$  cup of enriched flour weighs 30 grams. Multiply the weight of the manufacturer's serving (30 grams) by the amount of the ingredient used in the recipe (2 cups) to determine the weight of the ingredient used in the recipe (240 grams).
- Search the USDA's [FoodData Central](#) nutrient database for grain ingredients, such as whole-wheat flour or yellow corn meal. Enter "1" in the data field for the cup measurement, and the database will provide the weight of 1 cup of that ingredient.
- Use volume equivalent charts that list the weight of 1 cup of grain ingredients. Table 6 shows the weight per cup of some commonly used grain ingredients.
- Determine the average weight of 1 cup of the grain ingredient by measuring and weighing several samples. For more information, see the CSDE's [Yield Study Form](#).

Table 7 shows how to use method 2 to calculate the ounce equivalents per serving for a non-standardized recipe that lists the grain ingredients in volume (cups).

To determine the grains/breads servings of the recipe, SFAs must first convert the volume (e.g., cups and quarts) of all grain ingredients to weight (grams). SFAs may use any of the methods below for this calculation.



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**Table 6. Weights of 1 cup of commonly used grain ingredients <sup>1</sup>**

Food item	Weight (grams) per cup
Barley, flour or meal <sup>2</sup>	148
Barley, hulled <sup>2</sup>	184
Barley, pearled, uncooked <sup>2</sup>	200
Barley, pearled, cooked <sup>2</sup>	157
Bread crumbs, dry, grated, plain <sup>2</sup>	108
Bread crumbs, plain, dry, grated, seasoned <sup>2</sup>	120
Bread crumbs, plain soft, white <sup>2</sup>	45
Bulgur, uncooked <sup>2</sup>	140
Bulgur, cooked <sup>2</sup>	182
Cereal, General Mills Cheerios <sup>3</sup>	28
Cereal, General Mills Corn Chex <sup>3</sup>	31
Cereal, General Mills Rice Chex <sup>3</sup>	27
Cereal, General Mills Wheat Chex <sup>3</sup>	47
Cereal, General Mills Wheaties <sup>3</sup>	36
Cereal, Kellogg's All-Bran Bran Buds <sup>4</sup>	90
Cereal, Kellogg's All-Bran Original <sup>4</sup>	62
Cereal, Kellogg's Corn Flakes crumbs <sup>4</sup>	88
Cereal, Kellogg's Corn Flakes, whole <sup>4</sup>	28
Cereal, Kellogg's Rice Krispies <sup>5</sup>	26
Cereal, Quaker Puffed Rice <sup>5</sup>	14
Cereal, Quaker Puffed Wheat <sup>5</sup>	28
Cornmeal, enriched, uncooked, yellow, degerminated <sup>2</sup>	157
Cornmeal, enriched, uncooked, yellow, whole grain <sup>2</sup>	122
Cracker crumbs, graham, crushed <sup>2</sup>	84
Cracker crumbs, snack, standard snack-type, regular, crushed <sup>2</sup>	52

## Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

**Table 6. Weights of 1 cup of commonly used grain ingredients <sup>1</sup>, continued**

Food item	Weight (grams) per cup
Flour, buckwheat, whole groat <sup>2</sup>	120
Flour, corn, whole grain, yellow <sup>2</sup>	117
Flour, rice, brown <sup>2</sup>	158
Flour, rice, white <sup>2</sup>	158
Flour, rye, dark <sup>2</sup>	128
Flour, rye, light <sup>2</sup>	102
Flour, wheat, white, all-purpose enriched, bleached <sup>2</sup>	125
Flour, wheat, white, all-purpose enriched, unbleached <sup>2</sup>	125
Flour, wheat, white, bread, enriched <sup>2</sup>	137
Flour, wheat, white, cake, enriched, unsifted, dipped <sup>2</sup>	137
Flour, wheat, white, self-rising, enriched <sup>2</sup>	125
Flour, wheat, whole grain <sup>2</sup>	120
Wheat germ, uncooked, plain <sup>2</sup>	88
Wheat germ, toasted, plain <sup>2</sup>	115
Oat bran, raw <sup>2</sup>	94
Oat bran, cooked <sup>2</sup>	219
Oats, rolled, quick, uncooked <sup>2</sup>	81
Oats, rolled, regular, uncooked <sup>2</sup>	81

<sup>1</sup> 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, see the CSDE's *Yield Study Form*.

<sup>2</sup> USDA's FoodData Central database (Standard Reference (SR) Legacy Data):

<https://fdc.nal.usda.gov/>

<sup>3</sup> General Mills Cereals: <https://www.generalmills.com/en/Brands/Cereals>

<sup>4</sup> Kellogg's Cereals: [https://www.kelloggs.com/en\\_US/home.html](https://www.kelloggs.com/en_US/home.html)

<sup>5</sup> Quaker Cereals: <https://www.quakeroats.com/products>

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

**Table 7. Using method 2 (creditable grains) to calculate the grains/breads servings for recipes listing the volume of grain ingredients**

### Multi-grain bread

25 servings		Convert cups to grams	
Grain ingredient	Measure	Grams per cup <sup>1</sup>	Weight (grams)
Whole-wheat flour	2 cups	X 120 =	240.00 grams
Rolled oats <sup>2</sup>	$\frac{3}{4}$ cup	X 181 =	60.75 grams
All-purpose enriched flour	2 cups	X 125 =	250.00 grams
Enriched cornmeal	$\frac{1}{4}$ cup	X 138 =	34.50 grams
<b>Total weight of creditable grains:</b>			<b>585.25 grams</b>

1. Determine the combined weight (grams) of all creditable grains in the recipe.
- 300.75 grams of whole grains (whole-wheat flour and rolled oats) + 284.5 grams of enriched grains (all-purpose enriched flour and enriched cornmeal) = 585.25 grams of creditable grains

<b>A</b>	<b>585.25</b> grams
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2. List the number of servings in the recipe.

<b>B</b>	<b>25</b> servings
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3. Determine the grams of creditable grains per serving: Divide A by B.

<b>C</b>	<b>23.41</b> grams
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4. Determine the serving sizes per serving: Divide C by 14.75 (1 grains/breads serving = 14.75 grams of creditable grains).<sup>2</sup>

<b>D</b>	<b>1.59</b> grains/breads servings
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5. Round down the number in D to the nearest  $\frac{1}{4}$  ounce equivalent. For example, 1.49 and 1.27 round down to 1.25, and 1.24 rounds down to 1.

<b>E</b>	<b>1.5</b> grains/breads servings (rounded)
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<sup>1</sup> The grams per cup are from the USDA's [FoodData Central](#) database (Standard Reference (SR) Legacy Data).

<sup>2</sup> Dry cereal grains used as an ingredient in a recipe (such as rolled oats in bread) credit the same as groups A-G; they require 14.75 grams of creditable grains to credit as 1 serving.



# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

## Resources

ASP Handbook (CSDE):

<http://portal.ct.gov/-/media/SDE/Nutrition/ASP/ASPHandbook.pdf>

ASP Meal Pattern for Grades K-12 (CSDE):

<http://portal.ct.gov/-/media/SDE/Nutrition/ASP/ASPmealpatternK12.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 (CN) Labeling Program (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CNlabel.pdf>

Comparison of Meal Pattern Requirements for the Grains Component in the School Nutrition Programs (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/ComparisonGrainCrediting.pdf>

Crediting Breakfast Cereals for Grades K-12 in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CreditCereals.pdf>

Crediting Enriched Grains in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CreditEnrichedGrains.pdf>

Crediting Foods in School Nutrition Programs (CSDE webpage):

<https://portal.ct.gov/SDE/Nutrition/Meal-Patterns-School-Nutrition-Programs>

Crediting Whole Grains in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CreditWholeGrains.pdf>

Food Buying Guide for Child Nutrition Programs (USDA):

<https://www.fns.usda.gov/tn/food-buying-guide-for-child-nutrition-programs>

FoodData Central (USDA):

<https://fdc.nal.usda.gov/>

Grain Ounce Equivalents for Grades K-12 in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/Grainsozeq.pdf>

Product Formulation Statement for Grains: Servings:

[https://fns-prod.azureedge.net/sites/default/files/resource-files/PFS\\_Documenting\\_Grains\\_Breads\\_Servings.pdf](https://fns-prod.azureedge.net/sites/default/files/resource-files/PFS_Documenting_Grains_Breads_Servings.pdf)

Product Formulation Statements (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/PFS.pdf>

Sample Completed Product Formulation Statement for Grains: Servings:

[http://https://fns-prod.azureedge.net/sites/default/files/resource-files/PFS\\_Samples\\_Grains\\_Breads\\_Servings.pdf](http://https://fns-prod.azureedge.net/sites/default/files/resource-files/PFS_Samples_Grains_Breads_Servings.pdf)

Servings for Grains/Breads for K-12 in the Afterschool Snack Program (CSDE):

<http://portal.ct.gov/-/media/SDE/Nutrition/ASP/ASPgrainsbreadsK12.pdf>

# Calculation Methods for Grains/Breads Servings for Grades K-12 in the ASP

Standardized Recipe Form (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/StdRecipeSchools.doc>

USDA Memo SP 34-2019, CACFP 15-2019 and SFSP 15-2019: Crediting Coconut, Hominy, Corn Masa, and Masa Harina in the Child Nutrition Programs:

<https://www.fns.usda.gov/cn/crediting-coconut-hominy-corn-masa-and-masa-harina-child-nutrition-programs>

Yield Study Form (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/YieldStudy.pdf>



For more information, review the CSDE's *ASP Handbook* and visit the CSDE's [ASP](#) webpage, or contact the [school nutrition programs staff](#) in the CSDE's Bureau of Health/Nutrition, Family Services and Adult Education, 450 Columbus Boulevard, Suite 504, Hartford, CT 06103-1841.

This document is available at <http://portal.ct.gov/-/media/SDE/Nutrition/ASP/GrainCalcASP.pdf>.

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- (1) mail: U.S. Department of Agriculture  
Office of the Assistant Secretary for Civil Rights  
1400 Independence Avenue, SW  
Washington, D.C. 20250-9410;
- (2) fax: (202) 690-7442; or
- (3) email: [program.intake@usda.gov](mailto:program.intake@usda.gov).

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