A GUIDE TO SERVING WALNUTS
IN SCHOOLS

CALIFORNIA WALNUTS
WALNUTS SET STUDENTS UP FOR SUCCESS

› KIDS LOVE WALNUTS

A whopping 70% of students who tried walnuts at the Greeley School District in Colorado said they would eat them again if they were served at school.¹ As a creditable heart-healthy* food, walnuts help schools meet National School Lunch Program guidelines while providing more vegetarian and vegan options for students.²

› THEY COUNT AS A MEAT/MEAT ALTERNATE

Walnuts credit as a meat/meat alternate (MMA) in the National School Lunch Program (NSLP) and as an additional grain in the School Breakfast Program (SBP).² One ounce of walnuts credits as 1 ounce equivalent (1 oz. eq.) of MMA. Walnuts, along with other nuts and seeds, may meet up to 50% of the MMA requirement in the NSLP and SBP. When paired with beans, tofu, cheese, yogurt, chicken or other protein sources, walnuts are also creditable. Walnuts can provide the entire MMA requirement in the after-school snack program.

HOW WALNUTS CREDIT

1 oz. walnuts (¼ cup or 28 grams) = 1 oz. eq. MMA

For example

1 oz. walnuts + ¼ cup black beans = 2 oz. eq. MMA
½ oz. walnuts + ⅛ cup black beans = 1 oz. eq. MMA

WALNUTS PACK A NUTRITIOUS PUNCH

Walnuts have been recognized as heart-healthy* by the Food and Drug Administration and bear the American Heart Association heart-check mark. Walnuts provide students with 4 grams protein, 2 grams dietary fiber and plant-based omega-3 alpha linolenic acid (ALA). One ounce of walnuts contains 2.5 grams of ALA, which provides 156-250% of the daily recommended intake of ALA for school aged children (1-1.6 g/day).³ Studies show that ALA may be as effective in reducing the risk of cardiovascular disease (CVD) as seafood-based omega-3s, EPA and DHA.⁴

Walnuts are a heart-healthy* plant-based protein with good fats and provide nutritional calories, rather than empty calories students could be getting at other points in the day.

Eric Span, Director of Nutrition Services, Sweetwater Union High School District in Chula Vista, CA

NUTRIENT FACTS

1 oz. walnuts (¼ cup)

- Calories: 190
- Total Fat: 18g
- Saturated Fat: 1.5g
- Trans Fat: 0g
- Cholesterol: 0mg
- Sodium: 0mg
- Total Carbohydrate: 4g
- Dietary Fiber: 2g
- Sugars: 1g
- Protein: 4g

¹Supportive but not conclusive research shows that eating 1.5 ounces of walnuts per day, as part of a low saturated fat and low cholesterol diet, and not resulting in increased caloric intake may reduce the risk of coronary heart disease. One ounce of walnuts provides 18g of total fat, 2.5g of monounsaturated fat, 13g of polyunsaturated fat, including 2.5g of alpha-linolenic acid, the plant-based omega-3.
KIDS COULD BE NUTTIER
The NSLP Guidelines recommend that meat/meat alternates be served from a variety of protein sources, including nuts and seeds. The Centers for Disease Control and Prevention data shows that on a given day only 32% of children eat nuts. When broken down by age group, nut consumption drops from 35% in 2 to 5-year-olds to 30% in 12 to 19-year-olds. Help students reverse this trend by offering nuts at school meals. Encourage kids to maintain their nut-eating habits to keep receiving their health benefits.

WALNUTS ARE ON TREND
The demand for plant-based meals is on the rise. Data has shown that 39% of Americans are interested in incorporating more plant-based protein into their diets. The same has been seen in schools. School foodservice directors have reported that plant-based meals are in demand. A recent survey indicates 86% of schools serve vegetarian meals. Students are interested in plant-based meals because they perceived them as being healthier.

WALNUTS ADD VARIETY
Finding new vegan and vegetarian options for school meals can be challenging, but walnuts can fulfill this need. With 4 grams of protein and 2 grams of dietary fiber per serving, walnuts are a nutritious addition to plant-based meals. School foodservice professionals see the value in adding walnuts to the menu.

“I would be interested in eating a plant-based diet to be healthy.”
Student at Greeley-Weld County School District 6

“Plant-based diets are healthier.”
Student at Sweetwater Union High School District

“Kids [in our district] these days eat way too many carbohydrates, and if we can incorporate a plant-based protein like walnuts into school breakfasts or lunches in an innovative way, more kids will be reaching for better options in schools.”
Chef Matt Poling, Greeley-Weld County School District 6

“Some students and families are vegan or vegetarian, so it’s important to include options for these students. It is also more cost effective to offer more plant-based options.”
Eric Span, Director of Nutrition Services, Sweetwater Union High School District
WALNUTS ARE STUDENT APPROVED!

Students have spoken and walnuts are in!
Our Walnuts in Schools Pilot Programs have proven that students enjoy the taste of California walnuts in school meals. Students liked the crunch walnuts added to their meals and said they would eat the walnut recipes when they are served again.

- 70% of students at Greeley-Weld County School District 6 who tried walnuts said they would eat them again if they were served at school.¹
- More than 80% of parents and school administrators would like their school to continue offering walnuts.¹
- 95% of parents and school administrators are interested in having more plant-based options for students.¹

“Students enjoyed walnuts in their meals because they added variety, crunch, satiation, good flavor and it was an opportunity for them to try something new.”
Eric Span, Director of Nutrition Services, Sweetwater Union High School District

Taco Salad with Walnuts

We are placing greater focus on plant-based proteins for our vegetarian and vegan students.
Staff member at Greeley-Weld County School District 6

“Serving walnuts helped us overcome the challenges of offering our students more plant-based meat alternates.”
Eric Span, Director of Nutrition Services, Sweetwater Union High School District
ACHIEVE YOUR MEAT/MEAT ALTERNATE (MMA) REQUIREMENTS WITH WALNUTS

Use these ideas to add more plant-based protein to meals and offer more vegetarian and vegan options. Nuts and seeds may meet up to 50% of the meat/meat alternate requirement in school meals. Always pair ½ to 1 oz. of walnuts with ½ to 1 oz. eq. of another meat/meat alternate to meet National School Lunch Program (NSLP) Guidelines.

HOW TO SPICE UP WALNUTS IN THE KITCHEN

As a salad topper or in a protein pack, here’s how to add a punch of flavor to walnuts:

1. Preheat conventional oven to 350°F.
2. Toss 8 pounds (or 32 cups) walnuts lightly in vegetable oil (up to 1 cup).
3. Add seasoning blend of choice, such as Sriracha, wasabi, curry powder or cinnamon.
4. Mix and spread evenly over a baking sheet.
5. Toast for 8 to 10 minutes, then allow them to cool. Serve once cooled or store in an airtight container.

Makes 128 one-ounce servings.
**GO GLOBAL WITH CALIFORNIA WALNUTS**

Walnuts complement a variety of ethnic cuisines, such as Asian and Mediterranean dishes. Try **Thai Walnut and Edamame Bowl** or **California Walnut Pesto Alfredo** to add variety to your menu – and expand the vegetarian options! View these recipes and more at [walnuts.org/schools](http://walnuts.org/schools).

**A WEEK WITH CALIFORNIA WALNUTS**

Adding walnuts to your weekly menus is easy and delicious. Feature the **Walnut & Brown Rice Shaker Salad with Asian Dressing** on Meatless Monday, or the **Fresh Walnut Hummus** on Walnutty Wednesday!

**HOW TO PAIR WALNUTS IN PROTEIN PACKS**

Protein packs are becoming increasingly popular for school meals and as a la carte items. Add walnuts to protein packs to offer students more variety and provide more vegetarian and vegan choices like:

- Walnuts + cheese cubes + cranberries
- Walnuts + yogurt tube + granola
- Sriracha toasted walnuts + oven roasted garbanzo bean mix
- Walnuts + hummus + veggies
- Cinnamon spiced walnuts + apple slices + string cheese
- Wasabi or Southwest-flavored chopped walnuts + hard-boiled egg

Pair with foods from the USDA Foods Available List to keep costs low!
WHY ARE WALNUTS SO SPECIAL?
Harvesting walnuts is a long and rewarding journey, from planting a walnut orchard to delivering fresh, delicious walnuts to students.

GROWING
It takes four to five years for walnut saplings to mature into adult trees for harvesting. Walnuts grow in a shell covered by a green hull, which protects them from damage.

HARVESTING
Harvest begins when the outer green hulls start to split, usually late August through late November.

1. Mechanical shakers vigorously shake each tree to drop walnuts to the ground.
2. They are then carefully picked up by mechanical harvesters.
3. The outer green husk is removed, the nut is washed and then stored until needed for shelling.
4. Walnuts are then shelled and graded by color.
5. Shelled walnut kernels are then screened and separated into different sizes.

99% of walnuts grown in the United States are from Central California. Here are facts straight from the orchard to teach your students about how walnuts get from trees to their plates!

ORIGIN + GROWING

ORIGIN
Walnut Tonnage By County

- More than 80,000 tons per year
- 10,000 to 80,000 tons per year
- Less than 10,000 tons per year

- More than 80,000 tons per year
- 10,000 to 80,000 tons per year
- Less than 10,000 tons per year

SUSTAINABILITY
Our farmers are focused on continuous improvements to lessen our impacts on the environment while growing the world’s highest quality walnuts. This approach has helped the California walnut industry grow, thrive and continue to be sustainable for generations to come.
MEET SOME OF THE FARMERS

The California walnut industry is made up of 4,800 walnut growers, many of whom are multigenerational family farmers, and more than 90 handlers who pack and ship walnuts.

Norene Ranches, Inc., Rio Oso, CA

“I love managing resources that provide jobs for families, a habitat for a wide range of wildlife, and plants, and support for our local communities.”

Davin Norene

Ramos Farms, Winters, CA

Ramos Farms was established by Carmelo and Mary Ramos in 1930. They began with 10 acres and grew the business to 300 acres of orchards. Today, the Ramos Family farms 700 acres of walnuts.

“My three children love to eat walnuts directly from the farm! Personally, I love walnuts coated in dark chocolate.”

Todd Ramos

Carriere Family Farms, Glenn, CA

Carriere Family Farms has been growing walnuts since the 1890s. Walnuts are a staple in Bill Carriere’s diet and his kids love them too.

“Since he was 3, my son Sean has loved Banana Walnut Bread. Now that he’s 17, we have to watch him so he doesn’t eat the whole loaf in one day.”

Bill Carriere
WALNUTS FOR ALL AROUND HEALTH

Walnuts have a unique nutrition profile in a kid-friendly package. They contain thiamine, vitamin B6, folic acid, phosphorous, magnesium and copper, and are naturally gluten, sodium and cholesterol-free.* Years of research has uncovered the many health benefits of walnuts making them a nutrient-dense addition to school meals.

NUT-EATERS MAY BE BETTER EATERS

According to NHANES, U.S. children and adults who ate at least ¼ ounce of nuts per day on average had higher intakes of energy, monounsaturated and polyunsaturated fats, dietary fiber, copper and magnesium, and lower intakes of carbohydrates, cholesterol, and sodium and higher overall diet quality than those who didn’t eat nuts. Another study assessed what the American child’s diet would look like if they replaced typical snacks with nuts. They found that the theoretical diet, in which kids snacked on nuts, was higher in dietary fiber, magnesium, potassium and heart-healthy unsaturated fats, including plant-based omega-3s. It was also lower in empty calories, added sugars and sodium.

WALNUTS ARE A PLANT-BASED PROTEIN

Protein provides the building blocks for growing bones, muscles, skin, blood and many other cells in the body. The 2015-2020 Dietary Guidelines for Americans and the National School Lunch Program encourage children to consume protein from a variety of plant and animal sources, including nuts and seeds.5,13 Serving walnuts can help schools meet these recommendations.

WALNUTS FILL BELLIES

A study of 20 adults over four days found a breakfast with 48 grams (or about 1 ¾ oz.) of walnuts increased the feeling of being satisfied and sense of fullness by the third day when compared to breakfast without walnuts that had the same number of total calories.14 A study of 26 adults over seven days showed that a diet high in polyunsaturated fatty acids (PUFAs), like the fats found in walnuts, is positively linked to markers of hunger and satiety, although more research is needed to determine the long-term effects.16

*One ounce (¼ cup) of walnuts contain 8% Daily Value vitamin B1, 10% Daily Value vitamin B6, 8% Daily Value DFE folate, 8% Daily Value phosphorous, 10% Daily Value magnesium and 50% Daily Value copper.

California Walnut Street Tacos
Fiber Promotes a Healthy Weight
Walnuts contain two grams of fiber per one ounce serving.\(^7\) A study has linked fiber intake to a lower risk of obesity in kids ages 2-18, although more research is needed. When compared to the 33% of children with the lowest fiber consumption, the 33% of kids who reportedly consumed the most fiber had a 21% lower risk for overweight/obesity.\(^8\)

Walnuts May Set Students Up for Lifelong Health
While preventing chronic diseases is typically not on students’ radars, school meals can help kids adopt healthy eating patterns that promote good health into adulthood. Research has found that eating walnuts regularly may help maintain healthy cholesterol, lower risk for heart disease and certain cancers, as well as reduce inflammation.\(^4\) Other studies have linked overall nut consumption with beneficial health outcomes. One study analyzed women ages 25-74 and found that consuming nuts, dietary fiber, vegetable protein and vegetable fat during adolescence was associated with a reduced risk of breast cancer.\(^9\)

Walnuts Support Brains
Research shows that eating walnuts may improve mood as well as cognitive function in young adults and adults.\(^20-22\) In a study of 64 college students, non-depressed healthy young men seemed to have some improvement in their mood disturbance score when eating a diet containing 60g of ground walnuts in banana bread over eight weeks.\(^20\) A study of adults found significantly better results in all cognitive test scores among those with higher walnut consumption leading to the conclusion that daily walnut intake may be a simple beneficial dietary behavior among adults.\(^21\)

Walnuts Are Heart-Healthy
Walnuts are the only nut that provides a significant amount of plant-based omega-3 alpha-linolenic acid (ALA) (2.5g/oz), an essential fatty acid. This amount is 156 - 250% of the daily recommended intake for school-aged children. A literature review has found ALA may be as effective in reducing the risk of cardiovascular disease (CVD) as seafood-based omega-3s, EPA and DHA.\(^4\)

Add walnuts to breakfast menus to further support learning in the classroom. Studies show that students who participated in school breakfast programs are more likely to perform better in math and have better attendance records.\(^23\)
IN A NUTSHELL:
BUYING, STORING & USING CALIFORNIA WALNUTS

WALNUT BUYING GUIDE

<table>
<thead>
<tr>
<th>FOOD AS PURCHASED, AP</th>
<th>PURCHASE UNIT</th>
<th>SERVING PER PURCHASE UNIT, EP</th>
<th>SERVING SIZE PER MEAL CONTRIBUTION</th>
<th>PURCHASE UNITS FOR 100 SERVINGS</th>
<th>ADDITIONAL INFORMATION</th>
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<tr>
<td>TREE NUTS, WALNUTS</td>
<td>Pound</td>
<td>16</td>
<td>1 oz. nuts*</td>
<td>6.30</td>
<td>1 lb. = about 3 3/4 cups English walnut pieces</td>
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<td>30 lb. Package</td>
<td>480</td>
<td>1 oz. nuts*</td>
<td>0.21</td>
<td>1 lb. = about 3 3/4 cups English walnut pieces</td>
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Adapted from Team Nutrition Initiative of USDA Food and Nutrition Service. Food Buying Guide for Child Nutrition Programs

*Note that walnuts, like other nuts and seeds, may meet up to 50% of the meat/meat alternate requirement in school meals.

STORING WALNUTS FOR MAXIMUM FRESHNESS AND BEST TASTE

KEEPM AIR OUT
If you buy walnuts in sealed packaging, you can store them in their original packaging. If you buy walnuts in bulk, or open their sealed bag, transfer them to an airtight container to maintain freshness.

COLD STORAGE = FRESH TASTE
The best place to store walnuts is in the refrigerator, if you’re planning to use them right away. If you’ll be storing walnuts for a month or longer, store them in the freezer. Walnuts can absorb flavors of other foods so keep them away from items with strong odors.

Six Months in the Refrigerator
Walnuts can be stored in the refrigerator (32°F to 41°F at 65% relative humidity) for up to six months.

A Year in the Freezer
For storage of walnuts for longer than six months, freeze them at 0°F.

PREP AS NEEDED
Chop or grind walnuts as needed the day of or day before service. This will help maintain great flavor.

KNOW WHEN THEY’VE GONE BAD
Walnuts can go rancid when exposed to warm temperatures for long periods of time. If your walnuts have a sour odor, it’s time to throw them away!

Store Walnuts at 32°F to 41°F
TIPS FOR COOKING WITH WALNUTS

Walnuts’ versatile and mild flavor allows them to be used at breakfast, lunch and snack in both sweet or savory dishes.

- Toast walnuts in the oven before adding to salads, pesto or baked goods to enhance their flavor.
- Coat walnuts with a starch, like flour, or gum before adding to wet batter when making muffins or breakfast bars to keep them from sinking to the bottom of the pan.
- Use walnut meal as a gluten-free flour replacement in baked goods. Naturally gluten-free, walnuts are a perfect starting point for gluten-free baked goods.
- When serving walnuts to younger students, consider using walnut pieces or chopped walnuts, which are easier for them to chew.

SAFELY SERVING WALNUTS IN SCHOOLS

The California Walnut Board is committed to helping schools safely serve walnuts, a tree nut, so students can enjoy them and their benefits while keeping their friends safe. Students depend on foodservice staff and menus to answer questions about food ingredients and potential allergens. It is important to keep students and staff nut-aware.

According to a 2008 survey, tree nut allergies are found in approximately 1.1% of children. In the U.S., tree nut allergies are found in approximately 0.4-0.6% of the entire population.

Allergic reactions can be prevented. The most important aspect to food allergy management is adequate and consistent training. All members of foodservice teams, lunchroom monitors, nurses and educational staff should participate routinely. Teams should develop a food allergy management action plan to detail what needs to happen in the event of an allergic reaction. Staff should:

- Be able to identify common allergens, like tree nuts.
- Be knowledgeable about food that contains allergens.
- Recognize and react to signs of an allergic reaction.

FOOD ALLERGY MANAGEMENT

Here are general tips to help you and your staff safely serve nuts.

Avoid cross contamination
- Use colored cutting boards to separate food groups or allergens
- Always label foods with their name, date and any allergens they might contain
- Prepare foods with allergens last to avoid contact with other foods

Follow good food safety practices
- Wash your hands frequently
- Keep work surfaces clean
- Clean preparation equipment thoroughly

Manage allergens on the line
- Use separate utensils for each dish you serve
- Keep each item separate from one another
- Label all allergens in each item
- Be the expert on ingredients and your operation’s recipes
- Consider serving foods containing major allergens in a closed container. For example, serve walnuts in a pre-packaged salad or protein pack instead of open on the salad bar

Empower students to be nut-aware
- Walk students through the cafeteria to teach them where to look for information about allergies and what to avoid
Walnuts are a student-approved plant-based meat/meat alternate that’s easy to add to school menus. The California Walnut Board is committed to helping you make school meals nuttier! Get recipes, resources and lesson plans to help you dish up walnuts at breakfast, lunch and snack at walnuts.org/schools.

› RECIPES

Use the California Walnut School Foodservice Recipe Collection to give your students a new school meal favorite.

› AG IN THE CLASSROOM LESSON PLANS

From farm to school: walnuts are a U.S. grown food. Help your students learn where and how walnuts are grown and harvested with these lesson plans for grades 2-3, 4-5 and 6-8. Download the lesson plans at walnuts.org/schools.

› HANDOUTS AND POSTERS

Share Fun Facts About California Walnuts with students. Provide staff with how walnuts credit in the school meal pattern and inspiration for building lunchtime grain bowls.

10z. WALNUTS = 10z. EQ. MEAT/MEAT ALTERNATE

One ounce (or ¼ cup) of walnuts offers:

- 4 Grams of PLANT-BASED PROTEIN
- 2 Grams of FIBER
- 2.5 Grams of PLANT-BASED OMEGA-3 ALPHA-LINOLENIC ACID (ALA)*

*Not all nuts contain omega-3s and walnuts are the only nut to contain a significant amount of this beneficial nutrient.
REFERENCES

7. Nielsen, Homescan Panel Survey Protein. April 2017 (U.S.)
15. Brennan AM, Sweeney LL, Liu X, Mantzoros CS. Walnut consumption increases satiation but has no effect on insulin resistance or the metabolic profile over a 4-day period. Obesity (Silver Spring). 2010, 18(6):1176-82.