

Milk Matters

Anna M. Cason, RDN

Senior Extension Associate

Heather Norman-Burgdolf, PhD

Assistant Extension Professor

When you look in the dairy aisle at the grocery store, there are many kinds of milk to choose from. Dairy includes milk from cows to goats. However, in this same aisle you may see dairy alternatives, not made from animal products. You can also find milk in a different aisle on unrefrigerated shelves. It can be difficult to decipher which milk to choose. This publication will focus on cow's milk, popular plant-based milk alternatives, as well as shelf-stable options. After reading this publication, you will have a better understanding of which type of milk is best for you.



“Udderly” nutritious

Cow's milk has many varieties based on the amount of fat in it. These include whole milk (3.25% fat), reduced fat (2%), low fat (1%), and skim (0%). All cow's milk varieties have nine essential nutrients and provide 8 grams of protein per 8 oz. serving. Cow's milk also contains vitamins A, D, and B12, calcium, riboflavin, phosphorus, potassium, magnesium, and zinc.

Cow's milk is often fortified with vitamins and minerals to increase the nutrient content. Fortification is the addition of vitamins and/or minerals to increase the nutrient content. You can find these on the Nutrition Facts and ingredients labels. This happens with commonly eaten foods and beverages to help prevent nutrient deficiencies. “DHA,” an omega-3 fatty acid, is another fortified nutrient you may find in cow's milk.

Cow's milk goes through the process of pasteurization before it hits the grocery shelf. This important step uses heat to prevent the growth of bacteria and mold. This helps to reduce the risk of foodborne illness, prevents sour flavors, and helps extend the shelf life of milk.

Cow's milk varieties

Along with the main types of cow's milk commonly found in your dairy aisle, there are others that can accommodate health considerations and different preferences. These include lactose-free milk, organic milk, and flavored milk.

Lactose-free milk, as the name implies, does not contain lactose. It contains the beneficial nutrients of conventional milk and is great for those who have lactose intolerance. Organic milk comes from a dairy

farm that follows strict standards, from what cows eat to how farmers care for their cows.

Flavored milks are popular among children and are typically offered in school nutrition programs. These varieties provide several nutrients necessary for proper growth and development in children and adolescents. Although flavored milks contain added sugar, the amount has been found to be minimal compared to other sources like juices, sodas, and sports drinks. Studies have shown that the benefits of milk consumption outweigh the risks of the relatively small contribution of added sugars in flavored milks. As with any food or beverage with added sugar, it's best to prioritize the original item most of the time while allowing room for the sweeter option some of the time.

Plant-based “milks”

Some consumers choose to avoid dairy altogether. Plant-based milk alternatives are made from the liquid extracts of plant materials.

Two of the more common plant-based “milks” are soy and almond. Soy milk is high in protein, contains heart-healthy fats, and is closest to cow's milk in nutrients. Fortified soy milk is the only alternative milk that is included in the dairy food group of the Dietary Guidelines. Reach for unsweetened soy milk if you are watching your sugar intake. Almond milk is another popular dairy-free option. Unlike soy milk, almond milk is low in protein and fat. It is a good source of vitamin E. There are also unsweetened versions of almond milk.



If you are unable to use fresh milk before it expires, a shelf-stable option may provide the timeline you need. The taste may differ from fresh milk, but the nutritional benefits can be the same.

Oat milk is one of the newer “milks” on the shelf and is a great option for someone with a dairy, soy, or nut allergy. Oat milk is made with oats and may contain gluten. If you have a gluten allergy, ensure the oat milk is made from certified gluten-free oats. Oat milk falls in between almond and soy milk with protein and fat content. Because of its source, it contains more carbohydrates than cow’s milk, almond milk, or soy milk.

There are several other plant-based options on the shelves, including rice, pea, cashew, and coconut milk. These plant-based options tend to be more expensive than cow’s milk and can be difficult to find in some grocery stores, however they may be more suitable for some allergies.

Plant-based milk alternatives are typically lower than cow’s milk in some vitamins and minerals, so producers often fortify or enrich these “milks” with them. It is important to note that manufacturers add thickeners, preservatives, and flavorings to most plant-based milks to improve texture, shelf life, and flavor. If you are opting out of dairy, try to pick one that is unsweetened and fortified with calcium, vitamin D, and potassium.

Stepping outside of the dairy aisle

Powdered milk, also known as dry milk, is a shelf-stable milk option found in the middle of the grocery store. This is a form of milk that has the water fully evaporated. Dry milk is shelf-stable while in its dry form which can help prevent food waste and save you food dollars in the long run. By mixing it with water, you can reconstitute it to its true milk form.

Fortified dry milk has the same beneficial nutrients as conventional milk; however, the taste and texture may differ. It is a great option for baking and cooking, as well as for smoothies, shakes, coffee, and tea.

Evaporated milk has some of the water evaporated but not all of it. It is a concentrated form of cow’s milk. When you add equal parts water, it returns to a product like cow’s milk. If fortified, it has the same nutritional benefits as cow’s milk. This is another shelf-stable option for drinking, cooking, or baking. Condensed milk is a version of evaporated milk with added sugar. The texture and sweet taste make this milk ideal for dessert preparation.

Along those shelves, you may see other shelf-stable varieties of the milks mentioned above. These milk options have been processed and packaged, usually in smaller amounts than their refrigerated counterparts, to last longer on shelves. It is important to note that when you open these options, you must store them in the refrigerator and use them within seven days. These options have the added convenience of a longer shelf life before opening, so they may be good for those who buy in bulk.

If you are unable to use fresh milk before it expires, a shelf-stable option may provide the timeline you need. The taste may differ from fresh milk, but the nutritional benefits can be the same.

So, which milk is the milk for me?

The decision of what milk to buy comes down to many factors. The many milks available offer different nutrients and someone else’s needs may be

different from yours. Consider any decisions related to your health — allergies, diet modifications, and nutrient content. Cost may also be an important consideration. Choose a milk or milk alternative that fits in your budget and that you can use in time to prevent food waste and save food dollars. Lastly, flavor and taste are important. The milk for you is the milk you'll use. Just because a new "milk" has popped up does not mean it is a better choice. As an informed consumer, you can make the right choice for you.

References

Olson, R., Gavin-Smith, B., Ferraboschi, C., & Kraemer, K. (2021). Food Fortification: The Advantages, Disadvantages and Lessons from *Sight and Life* Programs. *Nutrients*, 13(4), 1118. <https://doi.org/10.3390/nu13041118>

Office of Dietary Supplements - Vitamin D. (n.d.). Retrieved from <https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional>

Gleason, M. (2020, July 21). *Non-Dairy Milks: How Nutritious Are They?* Trinity Health. <https://www.trinityhealth.org/non-dairy-milks-how-nutritious-are-they>

Original Oatmilk. (2023). Planetoat.com. <https://planetoat.com/products/original-oatmilk>

U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Retrieved 14, September 2023, from [DietaryGuidelines.gov](https://www.dietaryguidelines.gov)

Labensky, S. R., Hause, A. M., & Martel, P. (2015). *On cooking: a textbook of culinary fundamentals*. Pearson.

Brown, A. C. (2014). *Understanding food: principles and preparation*.

Virginia Department of Health. (2021). *Pasteurization – Environmental Health*. Virginia.gov. <https://www.vdh.virginia.gov/environmental-health/food-safety-in-virginia/milk-safety/pasteurization>

National Institute of Health. (2017). *Office of Dietary Supplements - Omega-3 Fatty Acids*. Nih.gov. <https://ods.od.nih.gov/factsheets/Omega3FattyAcids-HealthProfessional>

Ricklefs-Johnson, K., & Pikosky, M. A. (2023). Perspective: The Benefits of Including Flavored Milk in Healthy Dietary Patterns. *Advances in Nutrition*, 14(5), 959–972. <https://doi.org/10.1016/j.advnut.2023.06.002>

Office of the Commissioner. (2023, February 22). *Milk and Plant-Based Milk Alternatives: Know the Nutrient Difference*. FDA. <https://www.fda.gov/consumers/consumer-updates/milk-and-plant-based-milk-alternatives-know-nutrient-difference>

FoodData Central. (n.d.). Fdc.nal.usda.gov. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/174116/nutrients>

FoodData Central. (n.d.). Fdc.nal.usda.gov. Retrieved November 20, 2023, from <https://fdc.nal.usda.gov/fdc-app.html#/food-details/171942/nutrients>

FoodData Central. (n.d.). Fdc.nal.usda.gov. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/2257044/nutrients>

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.