

# Plant-Based Milk

## *So Many Alternatives!*

Plant-based milks are gaining popularity, with more options on the market than ever before. Plant-based milks, however, are not really milk. They are milk alternatives, made by soaking and grinding various plants, such as grains, legumes and nuts, and straining the liquid to create a beverage that resembles milk.

There are a variety of reasons people choose to consume a milk alternative in place of cow's milk. These include allergies, lactose sensitivity, animal or environmental concerns, and health or lifestyle choices. Product characteristics, such as taste, nutrition profile, functional properties and cost, can influence selection of one type of milk alternative over another. So which beverage is the best?

### PROS AND CONS OF COW'S MILK

Cow's milk, the "gold standard" of milks, is a source of many vitamins and minerals, such as calcium, potassium, B vitamins, vitamin A and vitamin D. Milk is a rich source of protein. It also provides carbohydrates and fat (primarily saturated fat), in a range of concentrations. Despite its nutrients, this dairy product is not for everyone. Cow's milk allergy is the most common food allergy in infants and children and the second most common in adults. Cow's milk also contains lactose, a carbohydrate or milk sugar that can be difficult to digest. Plant-based milks are a good option for people who suffer from lactose malabsorption — nearly 40% of the United States population.



### HOW DO PLANT-BASED "MILKS" COMPARE?

Plant-based milks are commonly made from soy, oats, rice, almonds, coconuts or pea protein, though other plants are used as well. Many of these plant products are fortified with vitamins and minerals to more closely resemble nutrient levels in cow's milk. Still, the nutrition profile across plant-based milks can vary widely depending on the brand and the base plant ingredient. While there are many variations on the market, a sample of those available in Louisiana has been identified for comparison based on key nutrients and costs (Figure 1). Characteristics related to purpose, whether drinking, cooking or baking, also have been considered.

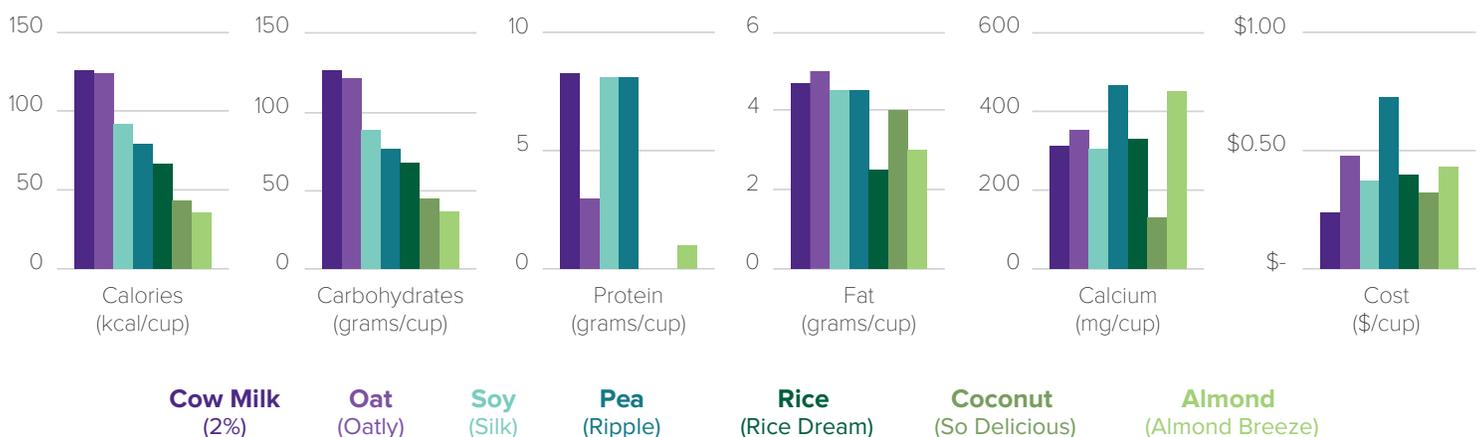


Figure 1: Comparison of milk and milk alternative products commonly available in Louisiana.

### Calories

The energy value (calories) in one 8-ounce cup of plant-based milk ranges from approximately 30 to 140 kcal. Many unsweetened plant-based milks are lower in calories than traditional milk, although oat milk is an exception. At 120 calories per cup, it is comparable to 2% milkfat cow's milk. Coconut and almond milk are lower-calorie options. To enhance flavor, some brands add sugar to their products, resulting in higher calories.

### Protein

While dairy foods are an excellent source of protein, finding this macronutrient in plant-based milk can be more challenging. Legumes are naturally high in protein, and soy milk and pea protein milk are comparable in protein to 2% milk. Coconut milk contains no detectable protein; however, some plant-based milk manufacturers add other plant-based protein sources to offset this drawback.

### Fat

When it comes to fat content, it is important to consider quantity as well as quality. Rice milk is nearly half the fat of 2% milk, with almond milk coming in second place. While other options may contain close to the same amount of fat as dairy, plants are generally much lower in saturated fat (except for coconut milk) and instead contain polyunsaturated fats, which is a healthier choice for most people.

### Calcium

For those looking to increase their dietary calcium without the dairy, plant-based milks can be a great alternative. Many are fortified to provide as much or more calcium than is found in dairy. Coconut milk is the exception, but even its lower levels are considered a good source of the mineral.

### Costs

The price tag for some of the plant-based milks available in Louisiana is higher than for cow's milk. The budget friendly options include coconut and soy, while leading pea protein milk brands are three times more expensive than cow's milk. One option is to make your own plant-based milk at home using your blender and a cheese cloth. An oat milk recipe is included in this guide.

### Qualities and Characteristics

When it comes to qualities such as sweetness, viscosity and overall taste, each of these dairy alternatives has its pros and cons.

- It is generally agreed that these products do not taste like traditional milk. While taste can be subjective, it is a major driver of consumer choice; consumer trends indicate that overall, almond milk is the most popular of the plant-based milks followed by oat milk.
- Oat milk and coconut milk are known for their smooth, creamy texture. Both can make a rich dairy-free latte; however, coconut milk doesn't blend quite as easily as oat milk in your morning cup of joe.
- Pea protein milk and soy milk are also creamy and have a mild taste.
- Almond milk and rice milk both tend to be a bit thin and watery.
- Rice milk has a naturally sweet taste, making it a pleasant addition to tea.
- Soy milk functions well for dairy-free baking; its mild flavor and protein content affects the browning and structure of baked goods.

## ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

Plant-based milks have a significantly smaller environmental footprint than traditional milk; however, that impact varies greatly among plants (Figure 2). Almond milk has the lowest greenhouse gas emissions, but almond trees require a lot of water to grow, a contentious issue in the drought-prone areas where they are farmed. Producing a single cup of almond milk takes over 17 gallons of water, the equivalent of what is used during the average shower. Rice milk, though less costly and readily available, requires a large amount of water and produces a high level of greenhouse gas emissions. Soy, pea protein and oat milks use substantially less water but have higher emissions than almond milk. These emissions, which are associated with widespread environmental and health effects, are still only about one-third that of traditional milk. Coconut milk's environmental impact is relatively small in comparison, but there are concerns over exploitation and unfair wages among coconut farmers in foreign countries.

### *Homemade Oat Milk Recipe*

#### INGREDIENTS:

½ cup whole rolled oats  
3 cups water  
½ tsp vanilla extract (optional)  
1 tsp maple syrup (optional)  
1/8 tsp salt

#### STEPS:

Combine and blend for 30 seconds. Use a fine mesh strainer or cheese cloth to strain liquid into a large bowl. Chill in refrigerator. Shake before use and enjoy within 5 days. Tip: For a creamier oat milk, use more oats or less water!

#### NUTRITION (1 CUP)

Calories: 79 g  
Carbohydrates: 14 g  
Protein: 4 g  
Fat: 1.5 g

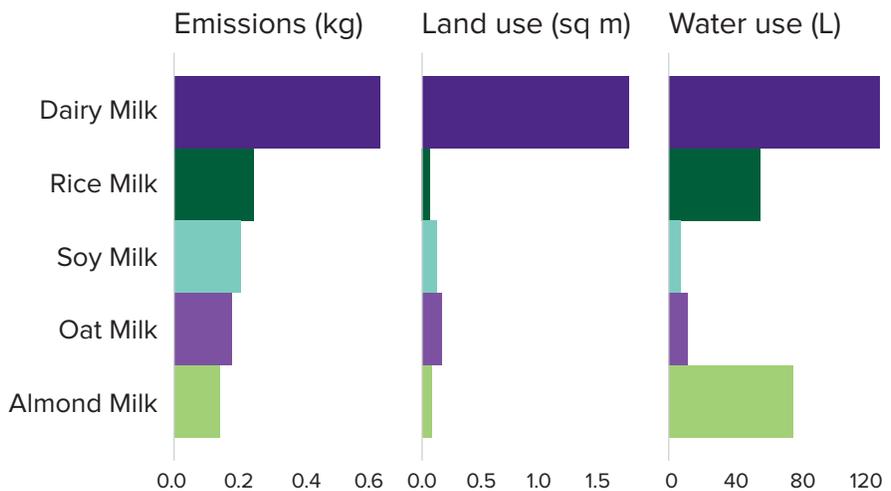
#### APPROXIMATE COST: 7 CENTS / CUP

## HEALTH, DISEASE AND PLANT-BASED MILKS

Plant-based milks can be part of a healthy diet, assisting in weight management and reducing risk of chronic disease. Making the switch to plant-based milk can help lower intake of saturated fats, which may reduce your risk of heart disease. Although some plant-based milks have added sugars, choosing unsweetened, low-calorie, plant-based milks can help support a healthy weight, which further reduces risk of chronic diseases. Some of the plant-based milk products have higher sodium levels than others, an important factor for many. Plant-based milk products made from soy or nut must be avoided by those with a soy or nut allergy. When shopping for a plant-based milk, be sure to read the nutrition facts as well as the ingredients list. This will provide information to help you determine if the product is a healthy choice for you.

Plant-based milks can be a beneficial alternative to dairy, and there are many plant-based milk products to choose from. The best option for you will depend on your motivation, taste preferences and budget. You might select a plant-based milk to drink by the glass, pour over your cereal, color your coffee or mix into your favorite recipes. Over time, you might choose to try an array of plant milks for a variety of purposes. Whether you consume plant milk alternatives routinely or just once in a while, most plant-based milks are a healthy choice for you and our environment.

Environmental impact of one glass (200ml) of different milks



Source: Poore & Nemecek (2018), Science. Additional calculations, J. Poore



(Note: 200 ml is approximately 7 ounces milk; kg =kilograms; sq m = square meter; L = liter).

Figure 2: Environmental impact of milk/milk alternatives.

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