

SECTION 1 FACT CHECK ALMOND DRINK

Conventional dairy farming is considered a climate killer. Industrial agriculture, factory farming, and feed production harm the environment. Many are therefore looking for alternatives and switching to plant-based drinks. But is this really more sustainable?

Fact check ALMOND DRINK



This popular milk alternative is based on a small proportion of roasted ground almonds and water (approx. 2-7% almonds per 100 ml water). It provides fat and sugar, is practically free of potentially allergenic substances and contains hardly any nutrients, as these are partly lost in the manufacturing process. The drink is slightly sweet and nutty in taste and is well suited for mueslis, smoothies or desserts.

Most of the almonds sourced (around 50% of global production) come from dry growing areas in California. Due to the irrigation of the plantations, water consumption is significantly higher than for oat or soy drinks. Similarly, almond cultivation in California requires the industrial use of bees, which is why it has been blamed for contributing to bee mortality. Some manufacturers source their almonds from Spain. This is probably less harmful from a sustainability perspective, but there is no clear evidence.

Almond drink is a form of cereal milk. It is made from almonds. In the EU, it may therefore not be sold as milk, but is marketed as an almond "drink," among other things. In terms of price, almond drink is in the upper league of cow's milk alternatives at around 2 \$ per liter.

As far as their eco-balance is concerned, experts disagree as to whether the almond drink is now the better or even worse alternative to cow's milk...

- A direct comparison between cow's milk and almond drink with almonds from California shows: The production of almond drink requires only one-tenth of the land and
- causes only one tenth of the greenhouse gases.
- The water requirement is very high at around 370 L per m², and artificial irrigation is needed.

Compare the tables in the DATA SHEET (SECTION 2). These values come from studies by the Water Footprint Network, the Öko-Institut and Statista. Other sources include the work of Mekonnen & Hoekstra (2010) and Poore & Nemecek (2018).

TASKS:

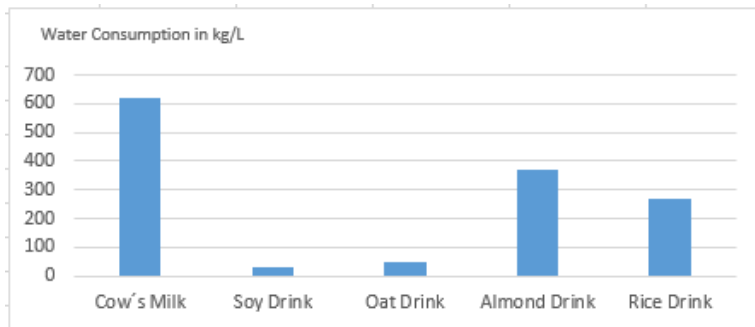
Collect further information on the almonds in order to complete tasks 1-4.

1. In which countries are almonds produced? What is the production volume in tons? Uses the world map.
2. Describes the growing conditions. Are fertilizers and/or pesticides used?
3. Who exports almonds? Describes the world trade.
4. How is almond drink produced? Outlines the technical process.

SECTION 2 DATA SHEET (key data on water consumption, CO₂ footprint and land use)

Water consumption of cow's milk and plant-based drinks compared 2018

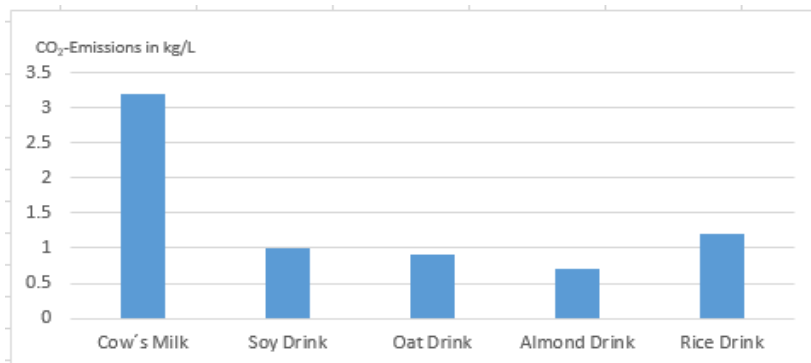
In terms of water consumption, plant-based drinks achieve a better eco-balance than cow's milk. While around 623 liters of water were consumed for one liter of cow's milk in 2018, the water consumption for the production of soy drink was only 28 liters.



	Water Consumption in kg/L
Cow's Milk	623
Soy Drink	28
Oat Drink	48
Almond Drink	371
Rice Drink	270

CO₂ emissions of cow's milk and plant-based drinks in comparison 2018

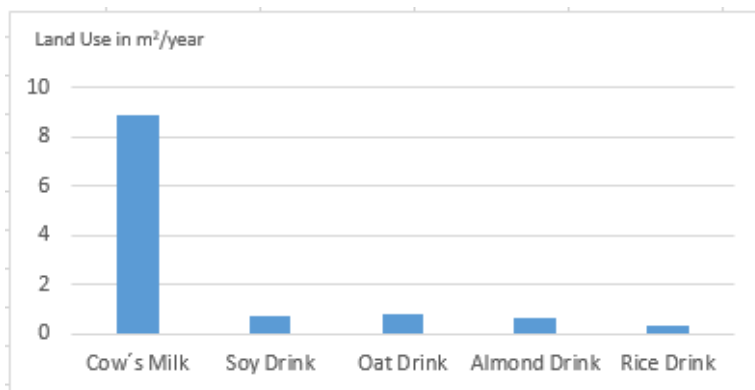
In terms of CO₂ emissions, plant-based milk achieves a better eco-balance than cow's milk. While around 3.2 kilograms of carbon dioxide were emitted in 2018 for one liter of cow's milk, CO₂ emissions in the production of almond drink were 0.7 kilograms.



	CO ₂ -Emissions in kg/L
Cow's Milk	3.2
Soy Drink	1
Oat Drink	0.9
Almond Drink	0.7
Rice Drink	1.2

Land consumption of cow's milk and plant-based alternatives in comparison 2018

In terms of land consumption, plant-based milk achieves a better eco-balance than cow's milk. While around 8.9 square meters were required for one liter of cow's milk in 2018, the land required for the production of soy drink was only 0.7 square meters.



	Land Use in m ² /year
Cow's Milk	8.9
Soy Drink	0.7
Oat Drink	0.8
Almond Drink	0.6
Rice Drink	0.3

TASK: Create an overview chart for the 5 products and discuss their life cycle assessments. The reference value should be one liter of cow's milk or plant-based drinks.

These values come from studies by the Water Footprint Network, the Öko-Institut, FAOSTAT and Statista.



SECTION 3 FACTS TABLE WITH GROUP DISCUSSION - EXPERT ROUND TABLE

Cow's Milk substitutes: What the plant-based alternatives can do

In some refrigerators, plant-based milk alternatives have now displaced classic cow's milk. In any case, cow's milk is ahead in terms of price. While it is sometimes offered for as little as 78 cents, consumers often think twice about whether they really need the almond drink e.g. for around 2 \$. Obviously, cow's milk consumption continues to be a subject of debate.

We want to shed some light on the subject and present some representatives of milk alternatives. From a purely legal point of view, only animal milk from cows, goats or horses is entitled to the name "milk". Most plant-based milk representatives therefore adorn themselves with the title "drink," which not infrequently causes additional confusion among consumers.

Overview of arguments pro / contra milk and plant-based alternatives	
ALMOND DRINK	
Animal Welfare	
Factory farming	
Handling calves	
Life expectancy	
Attitudes	
other	
ecological reasons	
Land consumption	
Water consumption	
other	
Health	
Vitamin B12	
Calcium	
Allergies	
World population, hunger	
economic reasons	

Other arguments:

The great advantage of the vegetable alternatives is the absence of cholesterol and lactose. In terms of taste, some products are not convincing in their natural form. Manufacturers often add sugar, additives and flavorings, which quickly turns the supposedly healthy drink into a calorie bomb. In this case, it is worth taking a look at the nutritional information on the packaging. The missing calcium is now also added industrially to most milk alternatives.