SECTION 1 FACT CHECK OAT 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 OAT DRINK

Oat drink is obtained from the grain oats and in most cases enriched with water, salt and some sunflower oil. However, when processed into a drink, the oat loses most of its healthy properties, but shines with a high content of satiating fiber and a low fat content. It contains special forms of sugar - glucans - which regulate digestion. As a result, the oat drink has a light and natural sweetness and comes closest to cow's milk in its consistency and foam stability. With about 40 calories per 100 ml, the oat drink is unfortunately not one of the lowest calorie drinks.

Oat drink contains neither lactose, nor milk protein or soy components, which would make it the ideal milk substitute for allergy sufferers, were it not for the gluten it contains! This gluten protein from oats is not tolerated by sensitive people. The missing calcium is - as with most plant-based milk alternatives - added industrially.

Oats are a native crop and can be grown in large parts of Europe in a climate-friendly way. In addition, oat cultivation can largely do without genetic engineering and pesticides. Transport distances are shorter and the quantities of water required are lower.

Oat drink is a form of cereal milk. It is made from oats. In the EU, it may therefore not be sold as *milk,* but is marketed as an oat "drink," among other things. The price of oat drinks varies between €0.95 and €2.30, depending on the manufacturer.

As for the eco-balance....

A direct comparison between cow's milk and oat drink shows:

- The production of oat drink requires 80% less land and
- produces 72% fewer greenhouse gases.
- The water requirement is very low, 43 L per m², the natural rain is sufficient.
- Compared to cow's milk, oat drink consumes 60% less energy in production.

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:

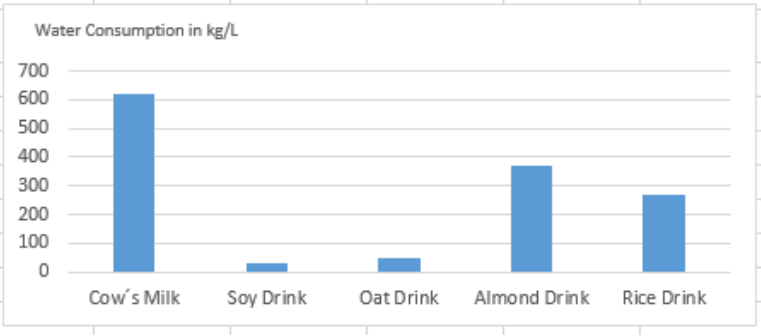
Collect further information on the oat crop in order to complete tasks 1-4.

1. In which countries are oats 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 oats? Describes the world trade.
4. How is oat drink produced? Outlines the technical process.

SECTION 2 **DATA SHEET** (key data on water consumption, CO_2 footprint and land use)

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

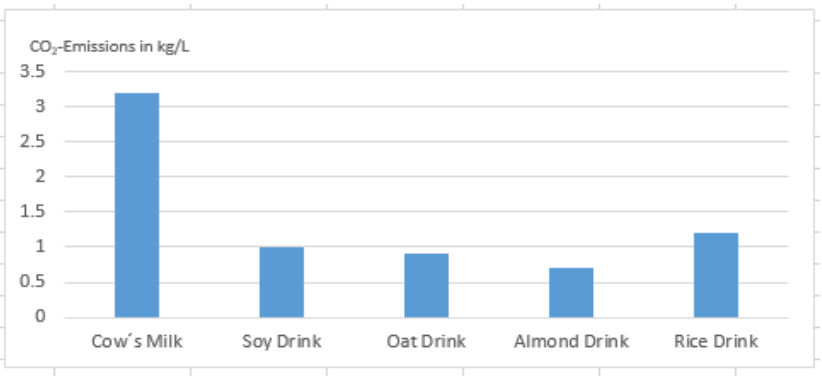
In terms of water consumption, plant-based drinks achieve a better eco-balance than cow's milk. While around 623 liters of water were consumed for one liter of cow's milk in 2018, the water consumption for the production of soy drink was only 28 liters.



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

CO_2 emissions of cow's milk and plant-based drinks in comparison 2018

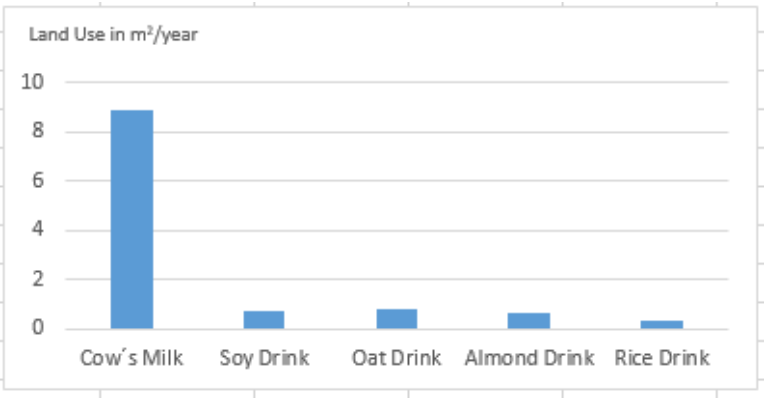
In terms of CO_2 emissions, plant-based milk achieves a better eco-balance than cow's milk. While around 3.2 kilograms of carbon dioxide were emitted in 2018 for one liter of cow's milk, CO_2 emissions in the production of almond drink were 0.7 kilograms.



	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	
OAT 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.