Tuesday 21 March 2023. Delivered weekdays at 6:30am London time. No preparation. Print friendly.

THEDAY Build a better world

NEWS DETECTIVES

TODAY'S BIG STORY

Yum yum. The slimy superfood of the future

Should we live on algae? Scientists have suggested that to feed everyone sustainably, we need to look to the sludge that grows on the surface of the sea.

Green foods: Algae such as spirulina are one of the most eco-friendly protein sources.

Does your mouth water when you see green sludge floating in the river?

The answer is probably no! But you might be looking at the future of food all the same.

Climate change, **urbanisation** and damage to soil mean that less and less farmland is available to feed more and more people.

One solution that scientists point to is eating more algae.

This is a **term** for a group of plantlike **organisms** that grow in water, including kelp, seaweed and pond scum.

THE STORY SO FAR

People have eaten algae for hundreds of years, including Nori seaweed, which is a staple of Japanese food. The Aztecs ate spirulina, which is now often sold as a nutritional supplement.

Like plants, algae produce energy from sunlight. Unlike plants, they do not have roots, stems or leaves.

This means that they are more **nutrient dense** than most plants. They contain more **protein** and fatty acids. Some even classify them as a "superfood".

Algae can be grown using wastewater and using one tenth of the land needed for more common crops.

At the moment, for example, much of the protein needed for both humans and livestock comes from soybeans. But growing soybeans needs huge amounts of water and is often linked to cutting down trees in the Amazon.

Algae does not need space and it actually absorbs CO_2.

According to the **UN**, 828 million people went hungry in 2021. While companies are still working out the best ways to grow algae, it seems clear that we will need it to deal with the growing food challenges of the future.

KEY WORDS

Urbanisation: Movement to cities

Term: Name

Organisms: Living creatures

Nutrient: Substance needed to live and grow

Dense: Contains a lot of something in a small space

Protein: The building blocks of muscle

UN: United Nations

Ancient: Very old

YOU DECIDE

Should we live on algae?

YES. Eating algae has **ancient** roots and we need to move to a sustainable food system.

NO. It may be efficient, but some think it tastes bad. We need to do better than sludge.

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THE DETECTIVE ZONE

SPOT THE FAKE

One of these three news stories is fake. Which one?

Toronto dog park backs down on barking ban

Man with world's longest tongue breaks Jenga record

City of Pisa on hunt for band of poodle bandits

Build THE Change

Algae will need to be grown in special aquaculture facilities. Your job is to design a farm on the sea for growing this algae.

Step 1: Think about your design! Have a look at some real examples and come up with your own design. How will you make sure your farm looks good and does not harm any animals?

Step 2: Create your design! You could draw a picture of it, or if you have time, you could use LEGO® bricks or other craft materials to make a real life version of your algae farm.

Share your genius
Show your work to your class!

Upload a photo of your work to the Build the Change gallery by scanning the QR code and have your work displayed to inspire real-world change.

Did you know?

If you swallow a single drop of ocean water you would be swalling thousands of microscopic algae. There are more algae in the oceans than stars in the Universe.

Talking point

Do people have a right to food that tastes good?

Amaze someone

Japan needed more food after World War Two. So they began farming Nori seaweed rather than just harvesting it naturally.

In Wales, a traditional seaweed flour called laverbread is part of the full Welsh breakfast.

THE EXTRA PAGE

The next thing on your dinner plate? Algae

Blooming: Algae is predicted to be a growth industry in an age of food crises.

As the world's population continues to increase, the need for food also increases. However, research shows we are quickly running out of farmable land.

According to the Food and Agriculture Organization of the United Nations, the world may lose up to 250 million crop production acres by 2050 due to urbanisation, soil degradation, and climate change.

Researchers are now looking for sustainable alternatives, and some believe algae may be the answer.

What are algae?

Algae are naturally occurring water-based, simple photosynthetic organisms. They grow in all types of natural bodies of water, both fresh and saltwater.

Like all plants, algae live by using photosynthesis to create their own nutrients and add oxygen to the air and water around them. Unlike other aquatic plants, algae do not have any leaves, roots, or stems.

Algae can range from extremely small microalgae to large colonies of seaweed.

What makes algae nutritious?

According to Dr Stephen Mayfield, a professor of biology at the University of California, San Diego, algae are, biochemically speaking, a superfood.

That is because of their high content of protein, essential fatty acids, minerals and vitamins.

"Part of that is because algae don't have to have stems, roots, or branches to hold themselves up, so they dedicate all of their energy to making more protein, fatty acids, etc, rather than cellulose," Dr. Mayfield explained.

What makes algae sustainable?

According to Dr. Mayfield, we need to look for alternative protein sources as the world needs more protein right now.

"And we do not have additional cropland to grow more soybeans or other legumes, which are plants rich in protein," he told us. "We can grow algae on non-arable land using non-potable water and it produces protein at up to 20 times the amount as soybean, our current protein-producing champion."

Challenges

Growing algae as a food source still faces some challenges.

"The main challenge is getting it to world scale, and with that scale should come economies of scale, that will bring the price down — which is the main challenge right now," Dr. Mayfield emphasised.

In some forms the taste and smell can also be off putting.

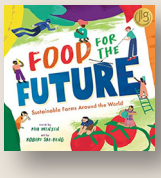
Getting algae into your diet

Algae can already be found in options like seaweed, dried seaweed snacks, and nori sheets, and can be found in supplements, powders, or meat replacement products. ■

Read more on this topic

Ocean by Helene Druvert

Thames and Hudson
£19.99



Food for the Future: Sustainable Farms Around the World by Mia Wenjen

Barefoot Books
£7.99

Answer to spot the fake

City of Pisa on hunt for band of poodle bandits

Build THE Change

This week's challenge is part of the LEGO® Build the Change programme. It can be done at school or as homework, and parents can help upload photos of pupils' work to the online gallery.

Visit the gallery at https://bit.ly/btcgallery and feel free to use it as discussion point in class.