

Algae Clears The Way For Sustainable Nutrition

A microscopic freshwater algae might be the future of sustainable farming.

“Chlorella vulgaris is a single-celled green microalga,” says Dr. Helen Onyeaka, Deputy Director for the Birmingham Institute for Sustainability and Climate Action (BISCA). “It’s distinctive for two reasons: nutrient density and production flexibility. Nutritionally, it can be a concentrated source of macronutrients (notably protein), micronutrients, and natural green pigments like chlorophyll and carotenoids.”

This prized algae is commonly found in freshwater and land environments, including caves, deserts, farms, forests and grasslands, as well as shorelines and wetlands.

“Chlorella vulgaris isn’t tied to traditional farmland,” Onyeaka says. “It’s cultivated in controlled aquatic systems where light, nutrients and growth conditions can be tuned to influence yield and composition.”

From an environmental perspective, Chlorella’s advantages come from its capacity to be produced at large scale without using prime arable land.

“In principle, microalga efficiently convert light and carbon dioxide into biomass,” Onyeaka says. “There’s ongoing interest in integrating cultivation with circular systems like nutrient recovery. However, the real environmental benefit depends heavily on how it’s produced. Harvesting and drying algae can be energy-intensive, and the sustainability profile varies based on the system. Open ponds versus closed photobioreactors, for instance.”

Onyeaka’s own research emphasizes the significance of growth conditions.

“Variables like light intensity, nitrogen source, and micronutrients can shift growth performance and the biochemical profile.”

Despite recent attention, Chlorella has been used as a dietary supplement for 15 years and appears ready to meet the growing demand for sustainable food sources. Still, Onyeaka remains cautious about overstating its potential as a superfood.

“While ‘superfood’ is a useful media shorthand, scientifically it can oversimplify,” she says. “It’s better to describe Chlorella as a high-value biomass with multiple potential roles across food systems, nutrition, ingredients, feed and agricultural inputs. The biggest opportunity is not a ‘magic bullet’ claim; it’s using Chlorella as a functional ingredient to boost nutrient density and diversify protein sources.”

She’s not expecting widespread acceptance anytime soon, citing obstacles such as taste, color intensity, price and overall consumer trust in something so new. Instead, she predicts that mainstream “hidden uses for Chlorella vulgaris will grow in the next five years.” These include blended foods and beverages, animal feed, aquaculture,



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and agricultural inputs like algae-based biostimulants or extracts.

“In five years, I’d expect Chlorella to be more common as an ingredient in blended products, not always visible, but increasingly present,” Onyeaka says. “The fastest growth may be in feed, aquaculture and agricultural inputs, where the value proposition can be more straightforward than consumer supplements.”

For readers interested in trying edible algae, Onyeaka recommends using reputable, food-grade Chlorella powder or tablets.

“Start with small amounts in familiar foods because the flavor and color can be strong (like earthy green tea with slight seaweed overtones),” she says. “Maybe blended into smoothies, yogurt, soups or doughs.”

Although it’s technically possible to grow Chlorella at home, Onyeaka advises against eating the final product.

“Consider it an educational or non-food project unless you have the right controls and testing in place.”

Farms may find success (and funding) through pilot partnerships, which allow for production under the guidance of technology providers and universities.

“Quality matters,” Onyeaka says. “Microalgae can concentrate substances from their growth environment, meaning that the industry’s credibility depends on robust strain control, clean cultivation, and transparent contaminant testing. If we get those fundamentals right, Chlorella has a credible place in more sustainable and resilient food systems.”

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Old parachutes were used to create a weatherproof cover to continue construction.

Repurposed Parachutes Extend Construction Season

A monastery 20 miles west of Meeteetse, Wyo., has used old parachutes to extend its construction season.

“We’re monks working on constructing our own monastery,” says Brother Joseph, project representative. “We do as much of the work ourselves to make it possible. We’re inspired by Gothic architecture and are working on the grand finale, the most beautiful part of the structure, our monastery chapel. When you do things for God, you pull out all the stops.” Harsh winters in the Rockies shorten the annual building season.

“I’ve always dreamed of a way to extend our building time,” he says. “Over the past 10 years, I’ve tried several strategies, only to watch them blow away in our infamous Rockies windstorms.”

Brother Joseph pondered his dilemma until inspiration struck.

“I began to wonder about the tarps that truckers use going down the interstate. A couple of Google searches revealed the answer was vinyl and parachute.”

He connected with Damon Carson of repurposedMATERIALS and sourced approximately 40 13-ft. by 27-ft. parachutes

for \$90 each.

“I sewed a two-section with eight parachutes, a section for the inside drop, and a 13-parachute craziness for the roof,” Brother Joseph says. “The idea is to have a temporary roof so I can work, but still have access with the tower crane to get materials into the vaults. We’ll see.”

So far, the structure has survived a 60-mph windstorm, though Brother Joseph is quick to admit that’s only half the wind intensity the region can experience.

“At this point, it’s working smoothly,” he says. “But I did stop to set in lifting eyes with 1-in. web strapping, again from Damon, to make it easier to place with the tower crane. We’ll have to see how it actually stands the test of the wind to know if it’ll work long term. But I love the ‘rip-stop weave’ on the parachute. And so far, even if it starts getting a hold, it doesn’t shred like the plastic or tarps I have used in the past.”

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Volleyball Post Bases Made From Combine Pulley

Roger Gutschmidt made a set of volleyball or badminton net bases using a pulley salvaged from an old New Holland combine his dad owned.

“I made the bases from an old pulley that I split apart,” says Gutschmidt. “Before adding concrete, I welded short lengths of pipe to them for outriggers.”

The pulley was 6 in. thick. Gutschmidt ground off the rivets that held the two halves together and welded short lengths of pipe to the centers of the pulley halves.

“The pipes were sized to slip the net poles into,” he says. “I cut 4-ft. pipes for

outriggers. When setting it up, you just slide them into the pipes in the base.”

Gutschmidt welded handles onto the bases so they can be carried like suitcases once the outrigger pipes are removed.

“They’re easy to set up and easy to store,” he says. “My neighbor saw them and said he had to have them, so I sold them to him for \$100.”

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