

This possible fix for the fertiliser shortage has an unlikely source

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A company turning glass bottles into a silicon fertiliser has found new success amid the Middle East crisis, fielding calls from farmers looking for ways to get the most out of the limited supply of fertiliser already in Australia.

Out of a production facility north of Brisbane, MaxSil takes used glass from Queensland's container deposit scheme and processes it into an ultra-fine amorphous silica that, when added to plants, can improve uptake of fertiliser [<https://www.afr.com/markets/commodities/wartime-inflation-shock-catastrophic-as-fertiliser-plastics-soar-20260323-p5rnyu>].



A product that helps plants absorb nutrients is made from recycled glass. **Dan Peled**

Before launching the company, David Archer spent three decades building and operating fine grinding plants that primarily produced concrete additives. About 10 years ago, Archer trialled a glass-derived product in plants, but admits he was initially sceptical.

“It was a bit like *Jack and the Beanstalk*,” Archer said.

“I didn’t think it could happen. You don’t normally associate soda lime glass or bottle glass with plant growth.”

But the truth, he found, was that glass is one of the “most potent sources of soluble silicon in the world”. The company’s field trials have shown that when added to plants, the product can improve uptake of nitrogen, phosphorus and potassium, allowing farmers to do more with the fertiliser they have.

Archer patented the process and the product, and had primarily been selling the product to large-scale growers of sugar cane and rice, as well as mining companies for use in land rehabilitation.



David Archer says his product, made from old glass bottles, is helping farmers cut their fertiliser use in half. **Dan Peled**

Since the war broke out in the Middle East – blocking the Strait of Hormuz, which is a major global shipping channel for the fertiliser base product urea – the company has had a surge in interest from smaller farmers who have suddenly found themselves short of fertiliser before planting season

[<https://www.afr.com/companies/agriculture/winter-deadline-poses-nerve-racking-dilemma-for-farmers-20260406-p5zlns>].

“We started to get a bit of demand from farmers who then started to say, ‘Well, I might not get fertiliser this year, I might not get urea, I might not get phosphate. Can I use this?’ Archer said.

The answer was yes, and the product has allowed some farmers to reduce their urea inputs by 50 per cent, Archer said.

“Not only is this product good for the environment because it’s part of the circular economy ... farmers are getting a result,” Archer said. “They’re saving money on fertiliser and growing good crops.”

In late 2025, the company was acquired by Sustainable Concrete Group, a start-up turning glass into a more sustainable sand for concrete, which was helmed by Melbourne property entrepreneur Oscar Ledlin, who ranked 55th

[<https://www.afr.com/property/commercial/young-property-entrepreneur-gets-set-in-green-concrete-start-up-20251120-p5nh6p>] on last year’s Financial Review Young Rich List.

Plants need nitrogen to build proteins, but only between 30 and 50 per cent of nitrogen fertiliser applied to crops is absorbed by the plant.

How to get more of that nitrogen into the plant is a question Alison Bentley, deputy director of the CSIRO's agriculture and food research unit, has been looking to answer for some years.

The most promising research so far has focused on breeding and managing crops in a way that naturally slows down the speed at which nitrogen leaches away from the plant or is emitted as gases.

Ultimately, the research could help to significantly reduce farmers' reliance on imported fertiliser [<https://www.afr.com/politics/federal/this-war-could-mean-more-lentils-and-less-cotton-20260318-p5okur>] and get better results from the fertiliser they use.

Bentley said products like MaxSil were an exciting part of the equation for farmers, but to date, there has been minimal independent research into the efficacy of these products as a partial substitution for nitrogen fertiliser.

She hopes the current supply crisis will be a catalyst for more investment in the research.

"It's been hard to sell that as a research question: how would I do 5 per cent substitution? How would I do 10 per cent substitution?" Bentley said.

"When the price [of urea] is this high, it starts to look like a viable proposition."

There was also a regulatory gap, Bentley said, around products classified as biofertilisers and biostimulants, that would only close with further independent research.

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