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Could the marriage of microbes and AI deliver healthy crops and sustainable soils?

COULD THE MARRIAGE OF MICROBES AND AI DELIVER HEALTHY CROPS AND SUSTAINABLE SOILS?

 AGRICULTURE & ENERGY

A platform is delivering bespoke bio-inoculants designed to improve soil health and reduce the use of synthetic fertilisers

Spotted: It has been [estimated](#) that around half the world's population is supported by synthetic nitrogen fertilisers. At the same time, the use of these fertilisers has led to severe environmental degradation. Plants only absorb about [half](#) of the nitrogen in fertilisers, with the rest running off into watercourses or being broken down by soil microbes to produce nitrous oxide, a potent greenhouse gas.

Synthetic fertilisers do help to optimise crop yield, even with limited land available. But what if farmers could grow more food while using fewer synthetic fertilisers? That is the question Solena is working to answer.

The company provides farmers with a soil sampling kit and its proprietary Prometheus then measures and analyses data on soil health and components with the help of artificial intelligence (AI) and next-generation genome sequencing.

This information is then used to develop customised bio-inoculants that improve soil health and allow the use of fewer fertilisers. Farmers receive personalised recommendations and solutions for improving soil health with these microbial inoculants, which are specially tailored to each farm and crop type.

Solena recently closed a series A funding round totalling [\\$6 million](#) (around €5.6 million).

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Takeaway:

Solena is hoping to develop its platform into a cost-effective way for farmers to improve soil health while reducing their dependence on costly and damaging inorganic chemicals and pesticides. The platform also does away with the current one-size-fits-all approach that traps many farmers in an unending cycle of dependence on damaging crop additives. Reducing the use of chemical fertilisers could thus also help farmers achieve a better return on investment and greater profitability. So far, Solena's services have been used in the US, Mexico, Peru, Brazil, Kenya, Morocco, and the Netherlands.