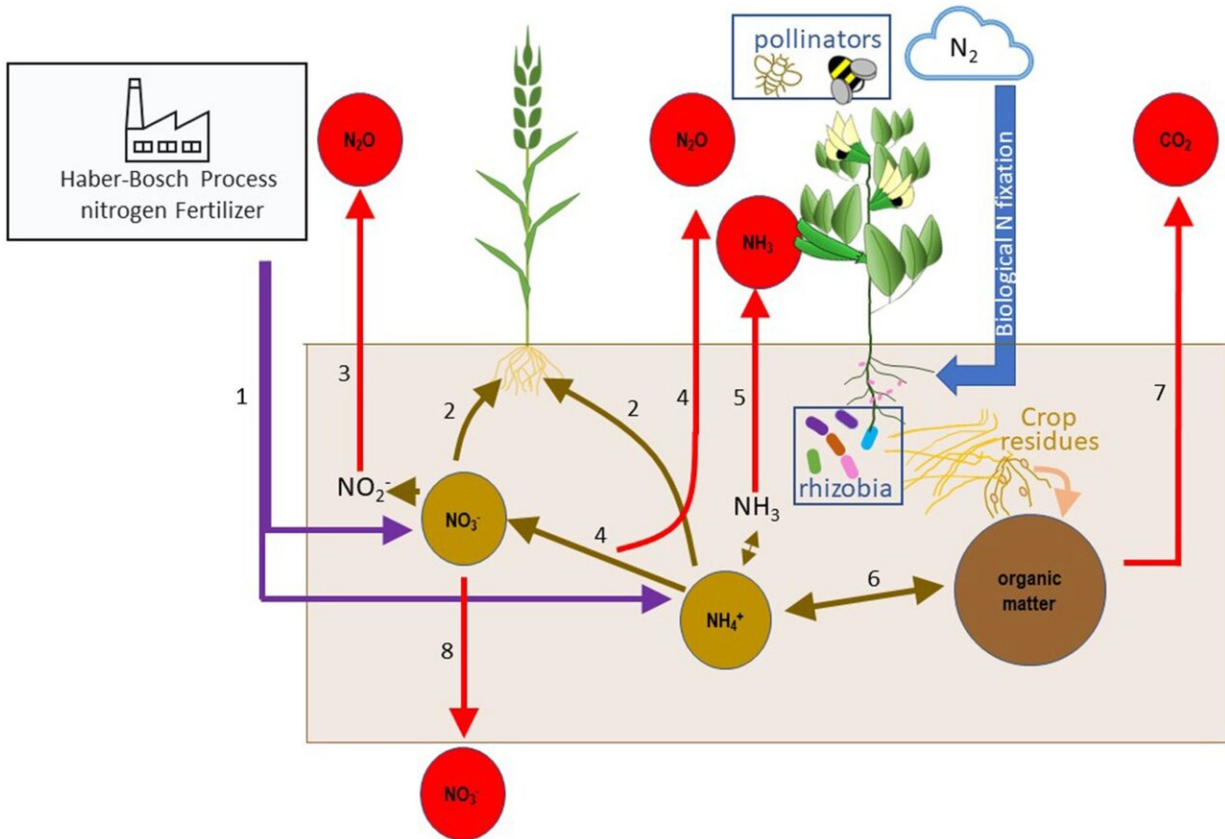


# Beans in toast could revolutionize British diet

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Nitrogen and soil organic matter dynamics in faba bean (in rotation with wheat) showing the properties to be determined in the ‘Raising the Pulse’ field trials: Nitrogen input through biological nitrogen fixation in faba bean (blue arrow); soil available nitrogen and organic matter pools (brown circles); gaseous (CO<sub>2</sub>, N<sub>2</sub>O, NH<sub>3</sub>) and leaching (NO<sub>3</sub><sup>-</sup>) losses (red circles); Rhizobial and pollinator abundance and diversity (boxes). Contributing industrial and biogeochemical processes are indicated by numbered arrows: 1. Fertilizer N input (in wheat) feeding soil nitrate and ammonium pools; 2. Root uptake; 3. Denitrification and 4. Nitrification resulting in the production of N<sub>2</sub>O; 5. Ammonia volatilization; 6.

N mineralization/immobilization supplying plant- available N pools; 7. Soil (microbial) respiration; 8. Nitrate leaching. Credit: *Nutrition Bulletin* (2023). DOI: 10.1111/nbu.12601

Scientists are aiming to revolutionize British diets by slipping more UK-grown beans into citizens' daily bread.

Researchers and chefs at the University of Reading aim to encourage British consumers and [food producers](#) to switch to [bread](#) containing [fava beans](#) (commonly known as broad beans), making it healthier and less damaging to the environment.

The three-year 'Raising the Pulse' project has officially begun and was announced on January 18, 2023 in the *Nutrition Bulletin* journal.

Five teams of researchers within the University of Reading, along with members of the public, farmers, industry, and [policy makers](#), are now working together to bring about one of the biggest changes to UK food in generations.

This is by increasing pulses in the UK diet, particularly fava beans, due to their favorable growing conditions in the UK and the sustainable nutritional enhancement they provide.

Despite being an excellent alternative to the ubiquitous imported soya bean, used currently in bread as an improver, the great majority of fava beans grown in the UK go to animal feed at present.

Researchers are optimizing the sustainability and nutritional quality of beans grown here, with a view to encouraging farmers to switch some wheat producing land to fava bean for human consumption.

Fava beans are particularly high in easily digested protein, fiber, and iron, nutrients that can be low in UK diets. But the majority of people are not used to cooking and eating fava beans, which poses a major challenge.

Professor Julie Lovegrove is leading the 'Raising the Pulse' research program. She said, "We had to think laterally: What do most people eat and how can we improve their nutrition without them having to change their diets? The obvious answer is bread."

"96% of people in the UK eat bread, and 90% of that is [white bread](#), which in most cases contains soya. We've already performed some experiments and found that fava bean flour can directly replace imported soya flour and some of the wheat flour, which is low in nutrients. We can not only grow the fava beans here, but also produce and test the fava bean-rich bread, with improved nutritional quality."

"Raising the Pulse" is a multidisciplinary program of research by the UKRI Biotechnology and Biological Sciences Research Council, as part of their 'Transforming UK Food Systems' initiative.

As well as consulting and working with members of disadvantaged communities, there will be studies using our novel foods at the University of Reading's students halls of residence and catering outlets.

This links "Raising the Pulse" with Matt Tebbit, who runs the University's catering service and leads the University's "Menus for Change" research program. He said, "Students will be asked to rate products made or enriched with fava bean, such as bread, flat bread, and hummus. They will be asked questions about how full they felt, for how long and their liking of the foods. It is hoped that fava bean will improve satiety, as well as providing enhanced nutritional benefits in products that are enjoyable to eat."

Before there are products to be tested, the beans must be grown, harvested and milled. "Raising the Pulse" seeks to improve these stages as well. Researchers will be choosing or breeding varieties that are healthful as well as high yielding, working with the soil to improve yield via nitrogen fixing bacteria, mitigating environmental impacts of farming fava beans, planning for the changing climate, and more.

**More information:** Julie A. Lovegrove et al, 'Raising the Pulse': The environmental, nutritional and health benefits of pulse-enhanced foods, *Nutrition Bulletin* (2023). [DOI: 10.1111/nbu.12601](https://doi.org/10.1111/nbu.12601)

Provided by University of Reading

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