

Soil fertility risk to Australia's food supply

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A call for a national plan to capture, recycle and make better use of scarce nutrients was made by a group of leading farmers and scientists today.

Australia's [food](#) security may depend critically on finite sources of [nutrients](#) which are expected to run short in the mid-century as world demand for food explodes, the Australian Soil Consortium (ASC) said.

"Phosphorus is essential to all life: no phosphorus, no food," says Professor Nanthi Bolan of ASC and the University of South Australia.

"Without fertilisers like nitrogen, phosphorus (P) and potash, our food supply would fail. Yet they are being extensively wasted, escaping into groundwater or surface water, where they become a pollutant. Also, our cities and the food industry throw away huge quantities of precious nutrients every single day."

"We have to recognise that sometime in the next 40-100 years the world's phosphate mines, which keep humanity fed via modern fertilisers, will begin to run out," he says.

"We have already used up much of the high grade material – and now the world depends mainly on just one country, Morocco, for 85 per cent of its high grade P. Any instability there would have a profound impact on global [food security](#), and food prices."

Australia, Professor Bolan says, can avoid the threat of food insecurity

by developing smart ways to manage soil fertility and crop nutrition, reduce fertiliser losses and recycle nutrients in agricultural and food wastes back into the food production system.

"These precious nutrients keep us all alive – but at present we are throwing them into landfills, flushing them down the sewer, or allowing them to escape from our farming soils. That has to change if this country is to be food secure," he says.

The ASC is advocating a major national research program designed to ensure Australia never faces a nutrient crisis, even if the world suffers one. It involves developing:

- new fertilizer and soil moisture retention products
- best nutrient and water management practices
- sustainable technologies for capturing and recycling nutrients back into the food system
- innovative ways to improve the way plants take up and use nutrients.

"Fertilisers can account for 12 or 15 per cent of a farmer's costs of production," says leading agribusiness consultant Jim Kelly of ARRIS Pty Ltd.

"Those costs of production, of course, directly affect the price of food to the consumer. If there is a worldwide price spike in fertilisers in coming decades, as global food demand begins to outrun mineral fertiliser supplies, Australian consumers will be paying for it at the checkout.

"So this is an issue that affects everyone. It's not just a farmer's issue. We need a national plan to manage our nutrients better, including developing all these new ways to conserve and re-use them."

Prof. Bolan says there is plenty of time for Australia to secure its sources of nutrients if it acts promptly and undertakes the right R&D. "What we do not want to do is wait until there is a global fertiliser crisis, like the many oil crises we have witnessed. Although oil can be replaced with other forms of energy, there is no substitute for nutrients in food production.

"However, while oil is unavailable once it is used, nutrients can be captured and recycled for use within economic, technical and environmental limits. We need to secure our nutrient supply now, while there is time.

"We need to realistically understand that the world's current supplies of [critical nutrients](#) are finite, and will begin to run low sooner or later. This is a move that will give Australia huge competitive advantage as a food exporting nation, as well as the security of knowing we can feed our population."

The Australian Soil Consortium is calling for a new national soils research effort that will:

1. Engage farmers, consumers and policy makers
2. Measure and monitor soil health and fertility
3. Develop innovative farm practices and technologies.
4. Develop novel crops and methods that increase nutrient and water use efficiency.

Provided by Australian Soil Consortium

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