

ASU researchers address unique solution to major agricultural problem

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In a recent Slate article, ASU professors Jim Elser and Bruce Rittman presented two vastly different scenarios of the future. One depicts a world teeming with food insecurity due to rising fertilizer prices and decreasing crop yields and farm profits. Another presents a world with abundant crop production due to a reliable fertilizer supply and enhanced food security for all.

According to the scientists, the two futures are dependent on the availability of high-quality phosphate rock, which is increasingly becoming depleted, in the coming years. Phosphate (P) is the foundation of modern agriculture and hence critical to the sustenance of life as we know it.

"The best opportunity for lowering our demand for mined P is to recover and reuse P from agricultural and human wastes. Animal manures, food-processing wastes and human sewage constitute about half of the P on the [conveyor belt](#) to the environment. These waste streams offer the most immediate route to recovery and reuse because most of the P is in slurries of organic solids that also contain high amounts of energy."

In addition to recovering and reusing phosphorus with the help of the aforementioned methods, Elser and Rittman offer other solutions to recapturing the element, such as maintaining healthy soil, reducing erosion and shifting the human diet away from [meat consumption](#).

"Only 10 percent of the phosphorus that animals eat ends up in our

meat – much of the leftover goes onto the P conveyor belt to spoil our water. But even if we eventually recycle all manure, lowering meat consumption will still help reduce pollution by reducing farm runoff because we won't need to grow so much feed for livestock."

More information: [www.slate.com/articles/technol ...
system_s_future.html](http://www.slate.com/articles/technology/system_s_future.html)

Provided by Arizona State University

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