



RESEARCH: University of Queensland scientist Nikolai Kinaev is trialling a fertiliser that repairs the soil while stopping nitrogen run-off.

SOS call to farmers for less toil on soil

IN a small greenhouse on the grounds of the University of Queensland's startup incubator ilab, Russian-born scientist Nikolai Kinaev is working on disrupting the \$300 billion global fertiliser industry.

Dr Kinaev, who is chief executive of agribusiness startup Sustainable Organic Solutions (SOSBio), is busy testing an organic fertiliser made from chicken manure on a row of tomato plants.

"These are the tomatoes using our fertiliser," said Dr Kinaev, pointing to plants laden with fruit. "And these are the control plants using inorganic fertiliser. They do not have as many fruit on them."

He said that centuries of farming in Australia using inorganic fertiliser made from nitrogen and phosphorus were taking a toll on the soil.

A scientist's startup firm is hoping to raise \$10million to produce soil-repairing fertiliser, writes **Glen Norris**

"These fertilisers are not good for the soil," said Dr Kinaev, a former scientist with the CSIRO. "The more fertiliser farmers use, the more the soil is damaged."

He said his soil-repairing fertiliser, which was being trialled in Bundaberg, Townsville and the Darling Downs, worked by putting good bacteria back into the soil.

"It's like a car needs petrol to run but the petrol needs additives to make it more efficient," he said. "The bacteria is like adding additives to the fuel for the plants."

He said the company had already sold tonnes of the fertiliser to a small crops farmer in Bundaberg who was growing sugarcane, sweet potatoes and macadamia nuts.

"He said he could notice the difference in a couple of weeks," Dr Kinaev said. "Farmers have to change their habits, but they need the tools to do it. Inorganic fertiliser is destroying the soil and the micro flora in the soil."

SOSBio is about to embark on further scientific testing of its products thanks to a \$1.8 million grant from the Federal Government. It also has been awarded \$1.5 million through the Queensland Government's Business Development Fund.

He said farmers have been encouraged by the major fertiliser companies to overuse fertiliser, resulting in damaging run off into waterways.

The International Fertilizer Association estimates glo-

bal fertiliser consumption at 100 million tonnes of nitrogen, 17 million tonnes of phosphorus and 31 million tonnes of potassium. Australian consumption of total nutrient is just over 1 per cent of global consumption.

"Plants don't need 100kg of nitrogen per hectare," said Dr Kinaev. "They may only need 30kg which means the rest is leaching into the environment. In Bundaberg, they have been growing sugarcane for more than a century and the soil is wrecked."

He said farmers and environmental groups were under pressure to find new ways to strike the right balance between the agriculture sector and the health of waterways.

"Existing fertilisers bolster

nutrients in soil and boost crop yield in the short-term, but have significant impacts on long-term soil health, our waterways and the Great Barrier Reef," Dr Kinaev said. "Farmers rely on the quality of their soil to deliver a good crop yield."

He said the company had already yielded outstanding results from fertilizer, reducing nitrogen runoff by between 30-50 per cent without impacting on crop yield.

SOSBio is now seeking investors to raise between \$5 million and \$10 million for a factory in Queensland to produce the fertiliser in larger quantities. At the moment, the company is using a contract manufacturer to produce smaller batches. He said there was lot of confidence in the sector to try new ideas, with MFS Sugar, one of the nation's largest sugar producers, a trial participant.