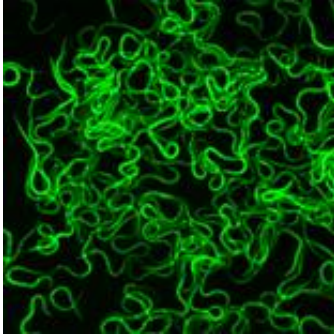


Gene silencing set to boost agricultural yields

April 30 2013



Nematodes can reduce major crop yields by 15 per cent or more.

Researchers from Murdoch University have developed an environmentally friendly 'gene silencing' method to control [Root Lesion Nematodes](#), plant pathogens known to reduce crop yields in major crops such as wheat and barley by 15 per cent or more.

Professor Mike Jones from Murdoch's Plant Biotechnology Research Group, based in the Western Australian State [Agricultural Biotechnology Centre](#), said the microscopic, worm-like pests were an economic drain on agriculture.

"Root Lesion Nematodes are major pests of agricultural, horticultural and industrial crops such as sugarcane. They invade and damage [plant roots](#), making the plants susceptible to water and nutrient stress," he said.

"Not only do they rob [host plants](#) of [essential nutrients](#) while feeding, but

they create entry wounds that leave plant roots susceptible to attack by fungi and bacteria in the soil.

"They are an often unrecognised problem for farmers, not just in Australia but internationally, and to date, nematode control strategies have often required the use of expensive and environmentally unfriendly chemicals.

"Our work on gene silencing presents a new, environmentally sound approach to control these nematode pests and lift yields."

Professor Jones said [gene silencing](#) involved blocking the formation of proteins needed for nematodes to complete their life cycles.

He said the method was highly targeted to 'switch off' specific genes and was another example of the benefits of genetic modification of [crop plants](#).

He added that few people appreciated how widespread and varied nematodes were, with the number of species estimated to be over one million globally.

"Nematodes constitute about 80 per cent of all known [multicellular organisms](#) on the planet and are present in every landscape," Professor Jones said.

"Because they live in the soil and plant roots, plant nematodes may not be high on many people's radar, but they are economically important pests that need to be controlled to contribute to future food security.

"If we are to adequately feed a global population expected to reach 9 billion by 2050, we need to find and develop environmentally sound methods that don't damage our soil or threaten water quality.

"Our research is one step in that direction."

The research has been published [here](#).

More information: Jo-Anne C.H. Tan, Michael G.K. Jones, John Fosu-Nyarko, Gene silencing in root lesion nematodes (*Pratylenchus* spp.) significantly reduces reproduction in a plant host, *Experimental Parasitology*, Volume 133, Issue 2, February 2013, Pages 166–178.
[dx.doi.org/10.1016/j.exppara.2012.11.011](https://doi.org/10.1016/j.exppara.2012.11.011)

Provided by Murdoch University

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