

# Purging the plantain pests in Africa

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Professor Howard Atkinson with the University's collection of banana plants.  
Credit: Simon & Simon photography

A tiny pest threatening the staple diet of millions in Africa could soon be eradicated in a project announced today, bringing together plant experts from Leeds and Uganda.

Professor Howard Atkinson and Dr Peter Urwin from the University of Leeds' Faculty of Biological Sciences have been awarded £500,000 through the £7 million Sustainable Agriculture Research for International Development (SARID) scheme launched today by the Department for International Development (DFID) and the Biotechnology and Biological Sciences Research Council (BBSRC). The Leeds project is one of 12 funded under the scheme, all of which involve unique partnerships between UK scientists and researchers from institutions in Africa, Asia and elsewhere.

Plantain and other varieties of cooking banana provide 30 per cent of the daily calorific intake of Ugandans and many of Africa's other poorest populations. But up to half of the plantain harvest is lost through nematode worms feeding on and damaging their roots. The Leeds researchers will work with colleagues from the International Institute of Tropical Agriculture in Uganda to find a solution to the problem.

The partnership will use the latest biotechnology techniques to develop pest resistance in plantains, which can then be made available to growers throughout Africa. A major part of the 3-year project is ensuring that the new resistant plantains can be produced across Africa – where growing conditions can vary enormously.

Professor Atkinson says: “The impact of this parasite can be overwhelming for families and communities that rely on plantain for their staple diet. Already nearly one third of the sub-Saharan African population is severely undernourished, so poor crop yields or worse - crop failure - can be catastrophic for subsistence farmers.”

“If we can make these crops more reliable through resistance to the nematode, not only will it secure dietary intake, but some land will also be freed up for nutritious crops like beans - and surplus plantains could be sold at market to give some income to the poorest of communities,” he says.

However, like the sweet dessert bananas we are more familiar with, plantains are sterile plants that produce no seeds, limiting the use of conventional plant breeding to build resistance to the pest over successive generations.

Professor Atkinson says: “It makes the job tougher. Plantains are re-planted using offshoots. This means that every plant is a genetically identical clone of the original - and a pest that affects plantains is

capable of affecting every single plant.”

“There are four or five types of problematic worm that live in the soil and we’re looking to find a way to control them in a ‘one size fits all’ approach. Our Ugandan partners have developed a technology to add genes into plantains and this, combined with our leading knowledge of nematodes, makes us hopeful that we can target this technique to inhibit the unique digestive process of the worms and stop their destruction, without affecting surrounding plants or other animals in the soil.”

Source: University of Leeds

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