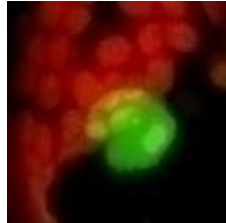




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How Genomics Can Help Farmers

COST scientists turn to genomics – digging for solutions to beat plant parasites, helping farmers protect their valuable crops.



Keeping crops healthy is a costly business for farmers worldwide. Plant parasitic nematodes or roundworms are responsible for global agricultural losses estimated at over \$ 100 000 million annually. To add to the challenge, recent EU restrictions on certain chemicals mean farmers are calling for effective and more environmentally acceptable ways to protect their crops.

These issues brought together researchers involved in COST Action 872 Exploiting Genomics to Understand Plant-Nematode Interactions. The project has not only helped bring about advances in research but it has also trained early stage researchers on new techniques in the field.

“Understanding how these nematodes operate, infect plants and how some plants resist nematode attack is essential to develop novel strategies to combat them and reduce damages to agriculture,” explains COST Action 872 Chair Prof. John Jones.

Getting to the Root of the Problem

Nematodes can be free living but many can be parasites of animals or plants. Plant parasitic nematodes exclusively depend on plant material for survival. The most damaging species have complex interactions with their hosts, setting up a long-lasting feeding site within the roots of the plant. The consequences for the plant are disastrous and may include yield losses or increased susceptibility to other pathogens. Since many plant nematodes have soil borne survival stages it is usually impossible to remove nematodes entirely simply by removing the crop.

COST researchers contributed significantly to the genome sequencing project for the root knot nematode or *Meloidogyne incognita*, one of the most damaging species. Managed by INRA, Génoscope, and the CNRS in France, the genome project was completed in 2008. The outcome was published in the July 2008 edition of Nature Biotechnology.

“COST has allowed us to bring scientists together for large meetings and has also allowed us to organise small workshops on specific issues. Thanks to short-term scientific missions and a workshop on genome annotation, we have not only contributed to research but trained researchers and spread the expertise,” adds Prof. Jones.

COST Action 872 Chair Prof. John Jones



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