New Project

PE 010

Improvement of soil health by manipulation of microbial community characteristics

Project Number:	PE 010
Project Title:	Improvement of soil health by manipulation of microbial community characteristics
Project Leader:	Dr Mark Pawlett
Contractor:	Cranfield University
Industry Representative:	Neal Ward, Cantelo Nurseries Ltd
Start Date:	1st April 2012
End Date:	30th September 2012
Project Cost:	£3,500

SUBJECT TO CONTRACT

Project Summary:

The student will have two supervisors, the primary being Dr Mark Pawlett and co-supervisor Professor Karl Ritz. The industrial collaborator is Cantelo Nurseries Ltd.

The intention is to scientifically evaluate the ability of various products that are currently used to manipulate soil microbial communities. The aim is to provide the grower with useful information that will assist their management practices such that they can optimise yield in a sustainable manor. This will be done by a literature review of scientific journals, conducting an experimental trial, and formulating conclusions as to the suitability of the tested products for optimisation of soil health. Finally the student will produce a brief summary in non-technical terms.

Dissemination:

1. A thesis completed by the MSc student will be available in the British Library for public viewing
2. There will be a poster presentation day whereby project sponsors will be invited to view MSc student's posters.
3. If appropriate the work will be submitted to a relevant peer reviewed journal.
4. A short HDC News magazine article or HDC technical note will be published for growers
5. A presentation of results to the Pepper Technology Group

Aims & Objectives:

(i) Project aim(s):

To evaluate the ability of various products to alter soil microbial characteristics with a view to optimising soil health for sustainable soil management practices.

(ii) Project objective(s):

- Perform a search of the scientific literature, focusing on the manipulation of microbial communities to improve both soil and hydroponic crops including salads.
- Establish an experimental trial to investigate the abilities of the selected products (stated below) to alter i) microbial biomass ii) phenotypic and iii) functional characteristics of the soil microbial community
- Investigate the effects of the products on soil chemical characteristics such as pH, organic matter, and nutrients
- Compare results obtained by the Cranfield student to those of the Soil Foodweb laboratories
- Evaluate and compare the results to determine the effectiveness of the individual products for manipulation soil microbial communities
- Produce a poster that will be displayed by the student at Cranfield on a poster day
- Produce an MSc thesis using the information gained
- The MSc thesis will include a short article intended to communicate results to growers as a magazine or technical note article.

Benefits to industry

The primary benefit will be that the research will provide the grower with information regarding the usefulness of various products that are used to influence soil microbial populations to increase crop productivity. It is envisaged that the information will assist the grower in deciding which products are likely to be the most beneficial such that they can improve yields.

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HDC
AHDB
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL

Tel – 0247 669 2051

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