New Project

FV 394a

Vegetable crops: Development of a screening programme for plant growth enhancement products

Project Number:	FV 394a
Project Title:	Vegetable crops: Development of a screening programme for plant growth enhancement products.
Project Leader:	Dr Pat Croft
Contractor:	Stockbridge Technology Centre (STC) Research Foundation
Industry Representative:	Martin Evans Fresh Growers Ltd
Start Date:	1st April 2012
End Date:	31st March 2013
Project Cost (total project cost):	£28,200 (£28,700)

SUBJECT TO CONTRACT

Project Summary:

There are increasing pressures on growers to produce larger yields for less cost and with fewer inputs. As a consequence growers are faced with an increasing list of yield enhancing products that have a range of claims varying from increased yield with reduced nitrogen to maintaining yield using lower traditional inputs. These products claim to be meeting growers' needs for better yields and crop quality at reduced costs and inputs. The products exploit old and recent information on non-N, P, K macro- nutrients (eg. magnesium, sulphur and calcium) and micronutrients (copper, manganese, boron, molybdenum).

There is currently no screening programme for these products to provide information on the efficacy of plant growth enhancers. This project aims to act as a first step towards understanding the role that these products can play towards helping growers achieve increased yield and better quality crops. Thus, testing the claims of the products for vegetable crops, specifically.

Aims & Objectives:

(i) Project aim(s):

- The project aims to continue to provide growers with a first step in gaining independent and quantifiable data from the use of plant growth enhancement

products in horticultural crops. It will provide a simple assessment of selected products, enabling growers to understand if there is a value to using such products as part of their crops agronomy.

- The project will be designed to continue to develop and initiate a screening programme with the aim to provide growers with independent information on the ability of the products to increase/maintain quality and quantity in yields compared to standard uses of N,P and K.

- These products will include non-N, P, K macronutrients (eg. magnesium, sulphur and calcium) and micronutrients (eg. copper, manganese, boron, molybdenum).

- This trial will repeat the screening programme of the previous year, looking at a selection of products to compare and determine effects on plant quality, yield, disease and pests in three crops: carrots, lettuce and peas/beans.

- The project will aim to provide a regular system for growers to test efficacy of new products. A key to developing this system will be communication with growers, manufacturers and project consultants through telephone conferencing and meetings etc..

- To fully understand the effects of these products would require further projects with a more scientific design and are not within the scope of this project.

(ii) Project objective(s):

1. In this second year of the project, the products and the three crops from the first year (peas, carrots and lettuce) will be screened again as suggested by the FV Panel.

2. Establishment of selected crops and application of test products. It is important that the crops will be grown to commercial standards in order to measure the efficacy of the tested products. Products will be applied to crops following product manufacturers and project advisor guidance, as in year 1.

3. Determine the efficacy of selected products in crops. It is proposed that key efficacy assessments would include yield and quality. Agronomy assessments will be compared to standard growing systems

4. In addition to yield and quality, the project will monitor disease and pest issues that occur. Observations will be made using standard methods that will enable a reliable quantitative assessment of P+D incidences. These observations provide an initial assessment of claims that are frequently advertised with such products. They will offer a chance for observations to be made in a replicated trial, but they will be observations and not pest and disease trials *per se*.

Benefits to industry

This project will highlight novel strategies for optimising vegetable crop yield and quality through better integrated plant nutrition. It is important that trials on yield are not based solely on one years data, and therefore this trial will repeat the trials conducted in 2011. An assessment of which plant growth enhancers could be of use to growers will provide

clarification on the role that these products can play within field vegetable horticulture. This project presents the horticultural sector with an opportunity that has already helped arable and potato growers distinguish between those products that can add value to their crops, and those that cannot.

The recent government report: The Future of Food and Farming: Challenges and choices for global sustainability, indicates a need for sustainable intensification of production technologies. This will result in pressures from consumers and retailers regarding crop inputs such as pesticides and fertilisers (Foresight, 2011). It is possible that micronutrients may provide sustainable methods of maintaining, or even increasing, yield and quality. It is important for the horticultural industry to begin to understand the growing body of evidence on micronutrient nutrition and that the increasing list of plant enhancement products is tested for their potential benefits on different crops.

Disclaimer

Further information

Email the HDC office (hdc@hdc.ahdb.org.uk), quoting your HDC number, alternatively contact the HDC at the address below:

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