



Agriculture & Horticulture  
DEVELOPMENT BOARD



# Grower Summary

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## **FV 380**

Identification of critical soil P in  
vining pea crops.

Annual 2013

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Before using all pesticides check the approval status and conditions of use.

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## **Further information**

If you would like a copy of the full report, please email the HDC office ([hdc@hdc.ahdb.org.uk](mailto:hdc@hdc.ahdb.org.uk)), quoting your HDC number, alternatively contact the HDC at the address below.

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HDC is a division of the Agriculture and Horticulture Development Board.

**Project Number:** FV 380

**Project Title:** Identification of critical soil P in vining pea crops.

**Project Leader:** Nathan Morris

**Contractor:** NIAB TAG

**Industry Representative:** Richard Fitzpatrick, Holbeach Marsh Cooperative

**Report:** Annual 2013

**Publication Date:** December 2013

**Previous report/(s):** Annual 2012

**Start Date:** July 2010

**End Date:** December 2014

**Project Cost:** £116,862

## Headline

- This project has identified some clear yield responses to soil Olsen P levels.

## Background

The recent increasing costs of Phosphate (P) fertiliser and concerns from the risk of diffuse pollution have re-opened the debate on the need to apply P, and whether or not a target P Index of 2 (Olsen P 16-25 mg/l) is appropriate for all soil types and crop conditions. It is intended that on completion, the project will deliver improved guidance to growers on target soil P indices suitable, in terms of plant nutrition, for both yield and quality for vining pea crops on a range of soil types, and new information on how soil type influences crop response to fresh P fertiliser.

Guidance to growers following results from this project should allow the use of P fertiliser to improve the economic efficiency in vining pea production. Specific targeted doses of P fertiliser should reduce the risk of undesirable P losses to water courses resulting in eutrophication and potentially help to meet future requirements of the Water Framework Directive.

## Summary

Many vining pea growers are questioning whether or not a target soil Phosphate (P) Index of 2 (Olsen P range of 16-25 mg/l) is appropriate for all soil types and crop conditions. This target Index, based on critical soil P levels to achieve 95% of maximum crop yield, was established to achieve economic yields for all crops grown in any rotation and was based on the results of a limited number of field experiments.

This project aims to identify the levels of Phosphate required in vining pea production to help growers maximise yield and quality.

Critical P values can vary between soils, depending upon soil physical conditions (e.g. soil structure, moisture, bulk density, stone content and soil porosity) and between crops, depending on root growth and architecture and P uptake rate needed to achieve maximum yield. To date, however, sufficient data for making a scientifically robust change to the recommendations have not been available. This project aims to identify the levels of Phosphate required in vining pea production to help growers maximise yield and quality.

Results from Year 2 are in keeping with previous year's results (HDC FV 380 annual report; 2012) and suggest some clear effects on crop yield responses to soil Olsen P levels. The

greater yield responses at Index 3 (26-45 mg/kg) or above at all sites are likely to have been influenced by factors such as soil structure, air temperature and rainfall during the season.

However, it is too early in the project to draw firm conclusions and to develop guidelines for the grower; therefore, further information will be reported at a later stage in the project.

### **Financial Benefits**

Current field experiments are on-going; possible financial benefits from the project will be detailed in the final report.

### **Action Points**

None at present.