New Project Summary Report for FV 419: Snap Peas sown at the appropriate commercial timing

Project Number	31304190
Title	Snap peas: Evaluation of varieties sown at the appropriate commercial timing.
Short Title	FV 419
Lead Contractor	Processor and Growers Research Organisation (PGRO)
Other Contractors	
Start & End Dates	31 March 2013 - 30 March 2014
Industry Representative	Peter Waldock, Mack Multiples
Project Budget	£15,025
AHDB Contribution	£15,025

The Problem

There has been no independent evaluation of snap pea varieties. New varieties have been made available by breeders but they have not been evaluated and compared with existing standard varieties. The fresh market requires consistently high quality peas with defined characteristics for supermarkets and other outlets. Pod finish, ease of pod removal from the plant, maturity, plant height, vigour and stringiness has not been evaluated, and these characteristics need to be quantified independently. The availability of information on new varieties, coupled with improved yield data will be of great value to the industry and the data from this trial has been specifically requested by the fresh market industry. Additional information on disease resistance will be of help to producers.

Aims and Objectives

Project aim:
To provide data for new varieties of hand-picked snap peas compared to the standard variety Cascadia and standard vining pea varieties Avola and Ambassador.

Project objectives:
o To compare approximately ten varieties of hand-picked sugar snap peas including the standard variety Cascadia. To compare maturity of these varieties to standard vining pea varieties Avola and Ambassador.
o To evaluate disease resistance of snap peas to downy mildew, powdery mildew and leaf and pod spot.
o To provide data for herbicide tolerance of varieties
o To evaluate characteristics of snap pea varieties as follows:
• pod finish
• ease of removal of pods from plants
• determinacy

• plant height
• vigour
• pod length
• relative maturity
• stringiness

To provide information to growers in the form of:
• A technical fact sheet to include data for the characteristics evaluated.
• A field demonstration of the trials at the appropriate timing.
• One HDC News article summarising the project.

Approach

(ii) Workplan and approaches to be taken
The work detailed below will be undertaken

Snap peas to be grown according to commercial practice.

Variety Source

Cascadia Tozer Seeds
Norbu Tozer Seeds
Quartz Tozer Seeds
Sugar Sprint Pro Veg Seeds
Suar Lady Pro Veg Seeds
Delikett Elsoms Seeds
Sugar Heart Pro Veg Seeds
Sugar Lace Pro Veg Seeds
Sugarbro Pro Veg Seeds
Sapphire Crites Seed (Elsoms)
Vining peas
Avola
Ambassador

Site: PGRO trial ground, Thorney, OS Ref: TF309015
Trial layout: Randomised trial, 2 replications (with 3rd sown as backup).
Plot size: 1.83 m x 7.0 m, cut back to 5m.
Sub-plots: 1.5 m x 1.0 m (1.5m²) for up to three harvests taken to achieve the optimum harvest time.
Sampling areas for assessment: 1.5 m x 1.0 m
Fungicide seed treatment: Wakil XL
One sowing date approximately late March / early April
Varieties sown in 6, 25cm rows with an Øyjord plot drill to achieve a final population of 50 plants/m²
Broad-leaved weeds will be controlled pre-emergence and post-emergence if necessary. If required grass weeds will be controlled post-emergence. Pea and bean weevil and field thrips will be controlled. Aphid will be controlled if threshold reached. Pea moth (Cydia nigricana) will be controlled if necessary (monitored by pea moth traps).
Fungicide sprays will be applied to control Botrytis and Mycosphaerella depending on weather conditions.
No irrigation applied.
Maturity assessed from the sampling areas to achieve correct harvest timing.
Sub-plots picked when appropriate by hand and total yield measured.

The following assessments will be made:

• vigour (early vigour at emergence, 1-5 scale), 5 = most vigorous
• relative maturity (judged when pods are 2/3 full, @25% shell out)
• determinacy (1-5 scale) 5 = determinate
• plant height (measured in cm)

• standing ability (1-9 scale), 9 = erect
• ease of removal of pods from plants (1-5 scale, 5=easy), ± calyx attached
• pod length (measured in cm)
• pod finish (1-5 scale) 5 = good
• stringiness (1-5 scale), 5 = stingy

Additional assessments may be required to assess for example levels of disease.

Digital pictures will be taken of pods after picking, whole, in transverse and cross-section cuts.

Statistical analysis of yield using ANOVA.

Disease observation trials
i). Downy mildew
Thiram treated seed will be planted in a double row plot with two replications at two sites in commercial crops of vining peas with a long history of pea growing where natural infection from soil borne oospores is likely to occur. The choice of site will also increase the likelihood of infection and could include a wider rang of pathotypes. Infection scores will be made on two occasions during the season and these scores converted to a scale of relative field resistance.

ii) Powdery mildew
Resistance to powdery mildew is controlled by a single gene and varieties are either fully resistant or fully susceptible to the disease. Varieties will be planted at Thornhaugh in late May or Early June. Natural infection of powdery mildew occurs after flowering in late sown peas and varieties will be scored as susceptible or resistant.

Herbicide tolerance trials

The work will monitor and record the varietal tolerance to the more popular approved pre- and post emergence herbicide applications used in vining peas, such as Nirvana, Lingo, pendemethalin, Centium, bentazone and MCPB.

Double rows of each variety, together with two vining pea varieties (that have known sensitivity to herbicide applications) will be planted. The vining pea varieties will serve as a point of reference when assessing damage and compared to untreated areas.

Spray applications will be made at right angles the direction of drilling.

Sprays will be applied at N (approved) and 2N (twice approved) rates and replicated twice.

At suitable intervals varieties will be assessed using a 1-5 scale where
1-highly tolerant
2-tolerant
3-slightly sensitive
4-moderately sensitive
5-highly sensitive.

The scores will indicate varietal tolerance and rate of recovery (if any) over a period of time.

The nature of any phytotoxicity will be recorded.