

**Project title** Vining Peas: Extension of variety evaluation trials

**Project number:** FV 340

**Project leader:** Mr. S. J Belcher

**Report:** Annual report, January 2010

**Previous report**

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**Date project commenced:** [1 March 2008]

**Date project completed (or expected completion date):** [28 February 2011]

**Key words:** Vining peas, varieties

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The results and conclusions in this report are based on an investigation conducted over a one-year period. The conditions under which the experiments were carried out and the results have been reported in detail and with accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results, especially if they are used as the basis for commercial product recommendations.

**AUTHENTICATION**

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

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# Grower Summary

## Headline

This report highlights results of vining pea variety trials for the 2009 season. Growers and processors are advised to use these results for varietal selection.

## Background and expected deliverables

Varietal selection is an important and key element of vining pea crop production to ensure a programmed harvest period and to maintain high quality produce. To this end PGRO evaluates around 15 varieties annually at National List stage. The most promising varieties are evaluated in trials for a further two years in the Main Trial. There are no other independent facilities for vining pea evaluation in the UK.

Currently varieties are evaluated at just one site at Thornhaugh with petits pois varieties being evaluated on a silt soil type in South Lincolnshire. The soil type at Thornhaugh is representative of only a proportion of the national pea growing production area and varieties can often perform differently in other soil types and areas. An extension of the PGRO trials system to include an evaluation of the candidate commercial varieties at both Thornhaugh and in South Lincolnshire sites will help refine the evaluation process. Additional information will supplement data from established trials. New varieties are chosen by either the processors or by growers in consultation with the processor.

## Summary of the project and main conclusions

Generally the months of March to June were warmer and drier than average:

*March*- Mean temperatures for March were higher than normal and after a wet first week rainfall was below average for the month;

*April* - Temperatures were above average. It was a very dry month, apart from a wet start.

*May* was warmer and drier than average, but wet towards the end of the month;

*June* had some very warm days, but also some cold nights at the start of the month. Temperatures rose throughout the month to over 30°C on the 29th and 30th. Rainfall was well below normal, with most falling in the second week;

*July* started warm but a cooler second half of the month. Rainfall was above average, frequent and often heavy.

Growth in South Lincoln was more vigorous than the Thornhaugh site. Pea colour was not as even as at the Thornhaugh site and there were blond peas in some of the frozen samples.

**Table 1:** is a summary of the variety trial's results

<b>Variety, Appearance and Maturity</b>	<b>Haulm length</b>	<b>Yield</b>	<b>Pea Size</b>	<b>Colour</b>
<b>Avola:</b>		lower yield than Bikini, significantly so at TR120	very large size grade	uneven colour with a few blond peas in the frozen sample
<b>Span:</b> matured at the same time as Avola	shorter haulm than Avola, and lodged more	a little lower than Bikini.	smaller than Avola, medium-large size grade	similar colour to Avola
<b>Salinero:</b> matured at the same time as Avola	similar haulm length and standing ability to Avola.	yields were very high at TR100, significantly higher than Bikini.	medium-large size grade	had more blonds than Avola
<b>CMG 415 Af:</b> semi-leafless and matured 2 days later than Avola	a little shorter than Avola and the variety lodged	only a little lower than Bikini at TR100	medium-large size grade peas	peas had a fairly uniform colour and there a few blond peas in the frozen sample
<b>D 85051:</b> Matured 3 days later than Avola	Haulm longer than Avola and the variety lodged similar to Avola	lower yields than Bikini	medium-small size grade	a little uneven in colour and there were several blond peas in the frozen sample.
<b>CMG 407 AF:</b> semi-leafless, matured 5 days later than Avola	similar length haulm to Avola and had similar standing ability	yields were higher, but not significantly higher than Bikini	very large size grade	uniform colour with no blonds
<b>Recital:</b> matured 5 days later than Avola	had longer haulm than Avola and had average standing ability	yields were a lower than Bikini, significantly so at TR120	medium-small size grade	a little uneven in colour
<b>Yoda:</b> was semi-leafless, matured at the same time as Bikini 7 days later than Avola.	had longer haulm than Bikini and stood a little better	yields were significantly lower than Bikini	medium-large size grade	a little uneven colour.
<b>Boogie:</b> semi-leafless, matured at the same time as Bikini 7 days later than Avola.	had longer haulm than Bikini and stood a little better	yields were better than at the Thornhaugh site, higher than Bikini, but not significantly so.	medium-large size grade	even in colour and there were no blond peas
<b>Bikini:</b> was semi-leafless and semi-fasciated	lodged at harvest	yielded well, particularly at TR120, but was about 1.0t/ha lower yielding at TR100	medium-large size grade	good even colour and there were no blond peas
<b>DS 89264:</b> matured one	had longer haulm than Bikini	Yields were good, significantly	much smaller than	a little uneven in colour and

day later than Bikini	and stood a little better.	higher than Bikini at TR100	Bikini, small-medium size grade	there were few blond peas
<b>00S631813:</b> matured one day later than Bikini; semi-leafless	had longer haulm than Bikini and had very good standing ability	a little higher than Bikini	small-medium size grade.	a little uneven in colour and there were few blond peas
<b>98S76314:</b> matured one day later than Bikini; semi-leafless	had long haulm and stood a little better than Bikini	Yields were higher than Bikini, significantly so at TR100	medium-large size grade	a little uneven in colour and there were few blond peas
<b>Biktop:</b> matured one day later than Bikini; semi-leafless and semi-fasciated	like Bikini with longer haulm and had similar standing ability	Yields were higher, but not significantly higher than Bikini.	medium-large size grade	evenly coloured with few blond peas
<b>Mundia:</b> matured 3 days later than Bikini; was semi-leafless	had longer haulm than Bikini and stood a little better	Yields at TR100 were higher, but not significantly higher than Bikini.	medium-large size grade	evenly coloured with few blond peas
<b>Oasis:</b> matured 3 days later than Bikini.	had long haulm and lodged similar to Bikini at harvest	Yields were similar to Bikini at TR100	medium-large size grade	uneven colour with a few blond peas
<b>Ambassador</b>	had very long haulm, but stood better than Bikini at harvest	Yields were lower than Bikini, but not significantly so.	large size grade	uneven colour and there were many blond peas in the frozen sample

### Varietal Susceptibility of Vining Peas to Downy Mildew (*Peronospora viciae*)

Plants were scored for infection on two occasions during the season, to include both primary systemically infected seedlings and secondary infection on the foliage and pods. The data were combined to give an indication of the relative susceptibility to downy mildew on a 1-9 scale of increasing field resistance.

1	3	7	8	9
Very Susceptible	Susceptible	Slightly Susceptible	Moderate Field Resistance	Good Field Resistance
Misty	CMG 407 AF CMG 415 AF	00S64813		CMG 409 AF D 85051

### Varietal Susceptibility of Vining Peas to Powdery Mildew (*Erysiphe pisi*)

Plants were scored for natural infection at the full pod growth stage. The scores reflected resistance and susceptibility and are shown below:

Resistant	98S76314, Boogie, Mundial, Recital, Yoda
Susceptible	08530702, 00S63183, Biktop, CMG 407 AF, CMG 415 AF, D85051, DS89264, Span

### Financial benefits

These have not been quantified but growers are advised to use Table 1 to make informed decisions and select high yielding resistant varieties that are best for them.

### Action points for growers

- Choose improved varieties with better yield, size-grade and uniformity.
- Use table 1 for reliable and accurate information on maturity to enable a sequential and uninterrupted harvest schedule to be followed
- Varieties with improved colour will reduce deductions in payment which can be up to 5%.
- Choose varieties with good field resistance to downy mildew. These may not need an expensive seed treatment to control the disease.
- Choose varieties with powdery mildew resistance to avoid quality loss and harvesting difficulties in late sown peas

\* This data will provide additional information for the growers leaflet 'Vining pea varieties: a descriptive list'. The leaflet, together with yearly trials results can be obtained by contacting PGRO or downloaded from the PGRO website [www.pgro.org](http://www.pgro.org). The leaflet is the only independent source of information for variety data.

## Science Section

### Introduction

Vining peas are a major vegetable crop grown for processing and for the fresh market and peas for freezing and canning occupy 36,000 ha per annum, with a value of £ 50M.

The PGRO Processed Legume Panel have identified Varietal selection is an important and key element of crop production to ensure a programmed harvest period and to maintain high quality produce and require as accurate a guide to the performance of varieties in areas typical of pea production areas as possible

Varietal selection is an important and key element of vining pea crop production to ensure a programmed harvest period and to maintain high quality produce. To this end PGRO evaluates around 15 varieties annually at National List stage funded by Seedsmen and PGRO Levy and the most promising are evaluated in trials for a further two years in the Main Trial. There are no other independent facilities for vining pea evaluation in the UK.

Currently varieties are evaluated at just one site at Thornhaugh with petits pois varieties being evaluated on a silt soil type in South Lincolnshire. The soil type at Thornhaugh is representative of only a proportion of the national pea growing production area and varieties can often perform differently in other soil types and areas. An extension of the PGRO trials system to include an evaluation of the candidate commercial varieties at both Thornhaugh and in South Lincolnshire sites will add to refine the evaluation process, with additional information to supplement data from established trials. The variety treatment is replicated three times and each plot has to be harvested at different stages of maturity to enable yield and size grade data to be presented for the freezing stage Tenderometer Reading (TR) 100 and TR 120.

Several promising new vining pea varieties with improved yield and with more uniform size-grade and colour have been evaluated in PGRO Main and Preliminary Trials. A further factor of vining pea variety evaluation is the use of specialised equipment needed during harvesting and processing. The independent systematic evaluation of varieties is restricted to the PGRO, Thornhaugh site and one site for petits pois varieties in a commercial crop. This forms the basis for the selection and development of varieties for the 36,000 ha of commercial crops. In practice, commercial programmes are based on the use of a minimum of 4 varieties and it is more likely that 6 or 7 will be used to give a spread of maturity and to allow production for special markets. On the latter point, these can either be premium 'petits pois' or '150 minute' peas or, so called, economy/value packs.

Varietal characteristics affect:

- yield
- quality (colour, flavour, size and texture)
- ease of harvesting
- disease susceptibility
- timeliness
- ease of integration in the harvest programme

New ones are being actively sought by growers so that they can meet processors specifications for quality with the most productive, reliable and cost effective varieties.

Several promising varieties have been tested in recent years and more information on their performance and relative maturity of varieties on a different soil type is needed. Work is needed over at least three years to gain experience in contrasting seasonal weather conditions



## Materials and methods

A duplicate standard pea Main Trial was sown on a light silt soil to supplement data from the PGRO, Thornhaugh trial.

Vining peas were grown according to best local and commercial practice.

Standard Varieties: Early and maturity Avola, Mid-season and yield Bikini (Oasis also included as a possible future yield standard) and late season Ambassador.

Varieties: 10 varieties of standard size peas (including 4 standards). Avola, 8530702, DS 89263, Recital, Biktop, Bikini, Boogie, DS 89201, Ambassador and Oasis.

Sown: 31 March 2009

Site: Light silt soil in a commercial crop of Vining Peas, near Holbeach Hurn, South Lincolnshire. OS Grid Ref: TF 407280

Trial layout: Randomised block, 2 replications.

Plot size: 1.83 m x 19 m

Sub-plots: 1.83 m x 4 m for upto three harvests taken at @TR value 100 (range 95-105), @TR 120 Range 115-130) and a third harvest if required.

Sampling areas for TR assessment: 1.83 m x 2 m

Fungicide seed treatment: Wakil XL

Sown with an Øyjord plot drill to achieve a population of 90 plants/m<sup>2</sup>

Broad-leaved weeds were controlled pre-emergence.

Aphid and pea moth (*Cydia nigricana*) were controlled (monitored by pea moth traps).

Fungicide sprays were applied to control *Botrytis* and *Mycosphaerella*.

No irrigation was applied.

Haulm lengths and standing ability were measured just before harvest.

Maturity was assessed from the sampling areas to achieve correct harvest dates for quick-freezing and canning for vined peas using a Martin Pea Tenderometer.

Sub-plots were harvested when appropriate by hand, vined in a static plot pea viner, sieved and washed. Peas were size-graded with a Mather & Platt size-grader, and weighed and total yield measured.

Samples were quick-frozen at @TR100 for quality appraisal and inspection by processors and growers.

Samples were quick-frozen at @TR120, and subsequently canned in a commercial cannery for quality appraisal and inspection by processors and growers.

Yields were statistically analysed using ANOVA.

Quality aspects of the defrosted frozen samples were assessed for colour, evenness of colour, brightness of colour, numbers of blond peas, sweetness and strength of flavour.

### Disease observation trials

#### i). Downy mildew

Varieties that came with untreated seed were planted in a double row plot with two replications at three sites in commercial crops of vining peas with a long history of pea growing where natural infection from soil borne oospores was likely to occur. Infection scores were made on two occasions during the season and these scores converted to a scale of relative field resistance.

#### ii) Powdery mildew

Varieties were planted in a double row plot with two replications at Thornhaugh in late early June. Natural infection of powdery mildew was assessed after flowering and varieties were scored as susceptible or resistant.

## **Results – see tables 1 & 2**

Generally the months of March to June were warmer and drier than average. Mean temperatures for March were higher than normal and after a wet first week rainfall was below average for the month. Temperatures in April were above average. April was a very dry month, apart from a wet start. May was warmer and drier than average, but wet towards the end of the month. June had some very warm days, but also some cold nights at the start of the month. Temperatures rose throughout the month to over 30°C on the 29th and 30th. Rainfall was well below normal, with most falling in the second week. July started warm but a cooler second half of the month. Rainfall was above was average, frequent and often heavy.

Growth was more vigorous than the Thornhaugh site. Pea colour was not as even as at the Thornhaugh site and there were blond peas in some of the frozen samples. The yield standard, Bikini yielded well, particularly at TR120, but was about 1.0t/ha lower yielding at TR100 than in 2008

Span and Salinero matured at the same time as Avola.

Avola gave lower yields than Bikini, significantly so at TR120. Produce was very large size grade and peas had uneven colour with a few blond peas in the frozen sample.

**Span** had shorter haulm than Avola, and lodged more. Yields were a little lower than Bikini. Produce was smaller than Avola, medium-large size grade, but had similar colour.

**Salinero** had similar haulm length and standing ability to Avola. Yields were very high at TR100, significantly higher than Bikini. Produce was medium-large size grade and had more blonds than Avola.

**CMG 415 Af** was semi-leafless and matured 2 days later than Avola. Haulm was a little shorter than Avola and the variety lodged. Yields of medium-large size grade peas were only a little lower than Bikini at TR100. Peas had a fairly uniform colour and there a few blond peas in the frozen sample.

**D 85051** Matured 3 days later than Avola and gave lower yields than Bikini, significantly so at TR120. Haulm was longer than Avola and the variety lodged similar to Avola. Produce was medium-small size grade, a little uneven in colour and there were several blond peas in the frozen sample.

CMG 407 AF and Recital matured 5 days later than Avola.

**CMG 407 AF** was semi-leafless had similar length haulm to Avola and had similar standing ability. Yields were higher, but not significantly higher than Bikini. Produce was very large size grade with a uniform colour and no blonds.

Recital had longer haulm than Avola and had average standing ability. Yields were a lower than Bikini, significantly so at TR120. Produce was medium-small size grade and a little uneven in colour.

Yoda and Boogie matured at the same time as Bikini 7 days later than Avola.

**Bikini** was semi-leafless and semi-fasciated and was lodged at harvest. Yields were good. Produce was medium-large size grade with a good even colour and there were no blond peas.

**Yoda** was semi-leafless, had longer haulm than Bikini and stood a little better. Yields were significantly lower than Bikini. Produce was medium-large size grade and a little uneven colour.

Semi-leafless **Boogie** had longer haulm than Bikini and stood a little better. Yields were better than at the Thornhaugh site, higher than Bikini, but not significantly so. Produce was medium-large size grade, even in colour and there were no blond peas.

DS 89264, 00S64813, 98S76314 and Biktop matured one day later than Bikini.

**DS 89264** had longer haulm than Bikini and stood a little better. Yields were good, significantly higher than Bikini at TR100. Produce was much smaller than Bikini, small-medium size grade. Produce was a little uneven in colour and there were few blond peas.

**00S631813** was semi-leafless, had longer haulm than Bikini and had very good standing ability. Yields of medium-large size grade peas were a little higher than Bikini. Produce was much smaller, small-medium size grade. Produce was a little uneven in colour and there were few blond peas.

**98S76314** was semi-leafless, had long haulm and stood a little better than Bikini. Yields were higher than Bikini, significantly so at TR100. Produce was medium-large size grade, a little uneven in colour and there were few blond peas.

**Biktop** was semi-leafless and semi-fasciated, like Bikini with longer haulm and had similar standing ability. Yields were higher, but not significantly higher than Bikini. Produce was medium-large size grade, evenly coloured and with few blond peas.

Mundial and Oasis matured 3 days later than Bikini.

**Mundial** was semi-leafless, had longer haulm than Bikini and stood a little better. Yields at TR100 were higher, but not significantly higher than Bikini. Produce was medium-large size grade, evenly coloured and with few blond peas.

**Oasis** had long haulm and lodged similar to Bikini at harvest. Yields were similar to Bikini at TR100. Produce was medium-large size grade, with uneven colour and with a few blond peas.

**Ambassador** had very long haulm, but stood better than Bikini at harvest. Yields were lower than Bikini, but not significantly so. Produce was large size grade with uneven colour and there were many blond peas in the frozen sample.

### Varietal Susceptibility of Vining Peas to Downy Mildew (*Peronospora viciae*)

Plants were scored for infection on two occasions during the season, to include both primary systemically infected seedlings and secondary infection on the foliage and pods. The data were combined to give an indication of the relative susceptibility to downy mildew on a 1-9 scale of increasing field resistance.

1	3	7	8	9
Very Susceptible	Susceptible	Slightly Susceptible	Moderate Field Resistance	Good Field Resistance
Misty	CMG 407 AF CMG 415 AF	00S64813		CMG 409 AF D 85051

### Varietal Susceptibility of Vining Peas to Powdery Mildew (*Erysiphe pisi*)

Plants were scored for natural infection at the full pod growth stage. The scores reflected resistance and susceptibility and are shown below

Resistant	98S76314, Boogie, Mundial, Recital, Yoda
Susceptible	08530702, 00S63183, Biktop, CMG 407 AF, CMG 415 AF, D85051, DS89264, Span

**TABLE 1 - VINING PEA VARIETY STUDIES.** Summary of agronomic data Standard Vining Pea Main Variety Trial, Holbeach - 2009  
 Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 31 March  
 Results are means of two replicates. Target population 90 plants per m<sup>2</sup> sown in ten 15 cm rows.

Variety	Source	1000 Seed Weight g	@ TR 100						@ TR 120						Standing Ability 9=erect 1=lodged	Pea wt. as % of total weight	Raw pea colour 1=pale 6=dark	
			Maturity (± days) Avola	Yield % of Bikini	% in size grades L M S VS				Maturity (± days) Avola	Yield % of Bikini	% in size grades L M S VS							Haulm length cm
<u>Avola</u>	<u>SVS</u>	<u>224</u>	<u>0(28/6)</u>	<u>93</u>	<u>48</u>	<u>42</u>	<u>9</u>	<u>1</u>	<u>0(30/6)</u>	<u>75<sup>-</sup></u>	<u>60</u>	<u>34</u>	<u>5</u>	<u>1</u>	<u>82</u>	<u>4</u>	<u>20</u>	<u>5.5</u>
Span	CS	183	0	96	38	43	17	2	0	94	48	39	11	2	60	2	22	5.8
Salinero (08520702)	SVS	202	0	134 <sup>+</sup>	32	47	19	2	0	109	35	51	12	2	80	4	22	5.4
CMG 415 AF	SL CS	222	+ 2	96	41	38	18	3	+ 2	84	52	37	9	2	76	2	18	5.5
D 85051	S&G	159	+ 3	77	16	38	37	9	+ 3	66 <sup>-</sup>	21	51	26	2	90	4	15	5.3
CMG 407 AF	SL CS	225	+ 5	121	55	36	8	1	+ 5	102	65	30	5	0	81	4	21	5.5
Recital (D 84171)	S&G	154	+ 5	79	11	42	40	7	+ 5	70 <sup>-</sup>	14	55	27	4	86	6	15	5.3
<u>Bikini</u>	<u>SLSF S&amp;G</u>	<u>217</u>	<u>+ 7</u>	<u>100</u>	<u>31</u>	<u>53</u>	<u>14</u>	<u>2</u>	<u>+ 6</u>	<u>100</u>	<u>46</u>	<u>47</u>	<u>6</u>	<u>1</u>	<u>64</u>	<u>2</u>	<u>16</u>	<u>5.8</u>
				(8.16t/ha)						(10.24t/ha)								
Yoda (DS 89201)	SL Dan	175	+ 7	72 <sup>-</sup>	30	51	15	4	+ 7	72 <sup>-</sup>	46	44	8	2	86	4	12	5.3
Boogie	SL vW	202	+ 7	119	43	50	6	1	+ 7	108	59	37	3	1	72	4	20	5.5
DS 89264	Dan	132	+ 8	126 <sup>+</sup>	4	31	53	12	+ 7	105	5	39	50	6	84	3	18	5.3
00S64813	SL Sh	203	+ 8	105	23	59	16	2	+ 8	107	36	55	8	1	86	8	20	5.4
98S76314	SL Sh	222	+ 8	135 <sup>+</sup>	34	57	8	1	+ 8	110	36	57	6	1	94	4	18	6.0
Biktop	SLSF S&G	209	+ 8	111	32	50	15	3	+ 8	103	42	50	7	1	68	2	17	5.6
Mundial (08530727)	SL SVS	193	+10	121	28	48	19	5	+10	99	42	46	10	2	77	4	17	5.6
Oasis	Sh	175	+10	101	29	51	16	4	+10	91	42	51	6	1	89	2	16	5.6
<u>Ambassador</u>	<u>vW</u>	<u>234</u>	<u>+11</u>	<u>85</u>	<u>36</u>	<u>42</u>	<u>18</u>	<u>4</u>	<u>+11</u>	<u>77</u>	<u>52</u>	<u>38</u>	<u>8</u>	<u>2</u>	<u>106</u>	<u>4</u>	<u>12</u>	<u>5.5</u>
Significance @ P=0.05				SD						SD								
LSD @ P=0.05				25.5						23.9								
CV %				11.5						12.2								

KEY: Yield: <sup>+</sup> Significantly greater than Bikini @ P = 0.05; <sup>-</sup> Significantly less than Bikini @ P = 0.05  
 Size grades: L = large > 10.2mm; M = medium 8.75 - 10.2mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm  
 SL = Semi-leafless; SF = Semi-fasciated  
 Source of varieties see Appendix 1

**TABLE 2 - VINING PEA VARIETY STUDIES.** Summary of quality data - Main Variety Trial, Holbeach - 2009

Variety	Tenderometer Reading	Appearance			No. of blonds (1-5)	Flavour (1-5)	Taste	Brix %
		Colour (3-8)	Brightness (1-2)	Uniformity (1-5)			Texture (1-5)	
Avola	101.0	6.00	1.25	3.50	1.8	3.00	3.50	9.2
Span	115.0	6.00	1.75	3.75	1.8	2.00	4.00	8.5
Salinero (8530702)	100.5	5.25	1.00	2.75	3.0	3.75	2.75	9.4
CMG 415 AF	99.5	5.75	1.50	3.25	1.5	4.00	2.75	9.2
D 85051	97.0	5.13	1.50	2.75	3.5	3.50	2.25	9.6
CMG 407 AF	101.0	5.88	1.25	4.50	1.0	1.75	4.25	8.9
Recital (D 84171)	110.0	5.50	1.25	3.00	2.3	2.50	3.25	7.9
Bikini	99.5	6.25	1.50	4.75	1.0	2.75	3.50	9.4
Yoda (DS 89201)	104.5	5.25	1.50	3.75	1.5	3.25	3.75	10.2
Boogie	106.5	5.75	1.50	4.50	1.0	1.50	3.50	9.2
DS 89264	95.0	4.63	1.50	3.50	1.3	3.25	2.25	9.0
00S64813	101.5	5.63	2.00	3.25	1.5	2.75	3.75	9.2
98S76314	103.5	6.50	1.50	3.75	1.8	2.25	3.50	8.8
Biktop	100.0	5.25	1.25	4.00	1.3	3.25	3.50	8.9
Mundial (08530727)	97.5	5.88	1.75	4.00	1.3	2.75	3.00	9.7
Oasis	101.5	6.00	1.00	3.75	1.3	3.50	2.75	9.9
Ambassador	103.0	5.50	1.50	3.00	4.0	2.50	3.00	9.8

KEY: Uniformity; No. of blonds; Flavour; Texture: (1-5) - a high figure indicates that the variety shows the character to a high degree  
 Colour: a high figure indicates a darker green; Brightness: 1 = bright, 2 = dull; Brix - measured using Atago pocket refractometer PAL-1 and gives an indication of sugar content

## Conclusions

New varieties are chosen either by the processor or by growers in consultation with their processor. They can provide additional yield and additional reliability. It is particularly important that maturity data will allow new peas to be correctly integrated into drilling and harvesting programmes.

When future trials are complete data from the trials will be incorporated into the PGRO advisory leaflet on vining pea varieties updated each year. This leaflet is used extensively by growers, processors and merchants. This leaflet is the only independent source of information for variety data and allows growers to make an informed variety choice.

## Technology transfer

No formal trials demonstration was held in 2009 because of the earliness and intensity of the commercial harvest. However, an open invitation was sent out to view the trial at people's convenience.

Samples of harvested produce and a summary of results were presented at the PGRO Varieties Day on 3 November 2009.

## References

PGRO Variety Trial Results: November 2007 & 2008

PGRO Vining Pea Varieties: advisory leaflet November 2007 & 2008

PGRO Information Sheet 142: The choice of herbicides for spring peas revised January 2009

## Appendices

### KEY TO SOURCE OF VARIETIES

CODE	NAME & ADDRESS	COUNTRY
CS	Crites Seed Inc Moscow Idaho	USA
Dan	Danisco Seed A/S Højbygårdvej 31 DK-4960 Holeby	Denmark
Syn	Syngenta Seeds SAS. Route de Pouillé B.P. 39 49135 Les Ponts de Cé Cedex	France
Sh	Sharpes Vining Peas, Limagrain UK Ltd. Rothwell Market Rasen Lincolnshire PE31 8LS	UK
SVS	Seminis Vegetable Seeds UK Ltd 4 St Andrews Court Kings Lynn, Norfolk PE30 4GE	UK
vW	van Wavern Saaten GmbH Rodweg 20 D-37081, Göttingen	Germany

## APPENDIX 2

### PROCESSING DETAILS FOR FROZEN SAMPLES

All samples were sorted to remove damaged or diseased produce and extraneous matter, washed and then blanched in water of 6° hardness. After cooling in tap water and further sorting the samples were packed for freezing.

The processing details for vining peas are given below:-

Blanch:	1.5 min. @ 93°C
Blast frozen	@ -30°C
Stored	@ -18°C