

PROCESSORS & GROWERS RESEARCH ORGANISATION



*MASTER.
Final 1993-95*

Final Report: January 1996

Project Number: FV/154

Project Title: Vining peas: evaluation of new & established varieties sown at appropriate commercial timing, 1993 - 1995 results

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Date Project Commenced: February 1993

Date Project Completed: August 1995

Key Words: Vining peas
Varieties
Maturities
Quick-frozen

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PRACTICAL SECTION FOR GROWERS

Application

To evaluate a range of new and established vining pea varieties when sown at the appropriate commercial timings.

Early peas *Span* and *Misty* performed similarly. Early maincrop varieties *Novella* and *Bikini*, both semi-leafless and semi-fasciated, also gave similar yields. *Barle*, of similar plant type, was very high yielding and peas were medium - large size grade. *Ambassador* a main crop was the highest yielding variety in this group. *Bastion* a petits pois outyielded *Waverex*, but *Darfon* gave lower yields.

The trials have provided more reliable information on comparative yield and relative maturity of vining pea varieties.

Summary

The PGRO evaluates a large number of vining pea varieties each year, 25-30 at National List stage in Preliminary Trial and about 5 of the best ones are chosen for Main Trial. In addition to being replicated three times, each plot has to be harvested at different stages of maturity to allow yield and sieve size data to be presented at the practical canning stage (TR 120) and practical freezing stage (TR 100). This dictates that trials are only sown on one date (usually mid March for the Main Trial and mid April for the Preliminary Trial), despite the fact that both trials contain early, mid-season and late varieties which commercially would be sown from late February to mid May respectively.

In recent years, a number of promising varieties have been tested and more information is needed on their performance at the likely commercial sowing time. Early varieties would therefore be tested under cool establishment conditions with a long period from sowing to harvest while, in contrast, maincrops would be tested under conditions of rapid establishment and growth.

Results 1993 - 1995

The trials were conducted in 3 climatically different years. In 1993, rainfall was higher than average during the harvest period in July and temperatures were near to, or below, normal. In 1994, temperatures in June and July were higher than normal and with the very dry conditions peas suffered from drought stress, in particular, the yield standard *Scout*. Following a very wet autumn, 1995 was very dry from April - August, with high temperatures in July.

Early varieties - Table 10

Most varieties performed better in 1994 than in 1993 or 1995.

Avola (generally available for 1996) a widely grown early pea, was the earliest maturing variety. Yields were variable and overall lower than *Scout*. Peas were medium-large size grade.

Span and *Misty* were short haulmed with a very similar plant type and they matured one day later than *Avola*. Both varieties gave higher yields than *Avola* and peas were similar, medium-large size grade. Statistically there were no yield differences between these two varieties.

Winner was not in trial in 1993, but is a good new variety that gave smaller size peas than established early varieties and has a good yield potential. *Winner* matured one day later than *Avola* and had shorter haulm.

Sprite gave consistent yields, similar to Scout. Peas were medium-large size grade, similar to Scout.

Cobalt gave low yields in all 3 years, but peas were small size grade with dark colour. The variety is useful in a petits pois programme.

Early Maincrop varieties - Table 11

Relative maturities varied over the 3 years, but overall Scout and Waverex were the earliest maturing in this group.

Scout had long haulm and an indeterminate growth habit. It is a widely grown variety and yields are usually reliable, but it did not perform well in hot dry seasons and yields were particularly poor in 1994.

Many of the standard size early maincrop varieties out-yielded Scout, including Bikini, Novella, Sancho, Tristar and Barle.

Barle outyielded Scout over the 3 years, but produce can be larger than Scout. Barle was semi-leafless and semi-fasciated with short, erect haulm. Barle matured one day later than Scout.

Bikini and Novella are also semi-leafless and semi-fasciated, with short haulm and very similar plant types (Novella is re-selection of Bikini with powdery mildew resistance). Both varieties matured one day later than Scout. Commercially there have been reports of maturity and yield differences between the two varieties, but little difference could be found for yield, maturity or size of produce during the 3 years tests. Other trials have shown this plant type to be suitable for fertile conditions.

Sancho matured one day later than Scout. It is semi-leafless with long haulm, but can remain erect. Overall yields were higher than Scout and produce was much smaller, small-medium size grade, with a very dark colour.

Tristar also gave higher yields than Scout, with smaller, medium size produce. Overall maturity was 3 days later than Scout, but maturity was similar to Scout in 1995. Tristar can mature rapidly.

Petits Pois varieties - Table 12

Waverex is the most widely grown petits pois variety. Haulm was short and yields of very small peas were lower than Scout.

Darfon and Bastion are two alternatives to Waverex. Both varieties show more crop vigour than Waverex and have longer haulm. Produce from Darfon is only a little larger than Waverex, but over the 3 years, gave lower yields. Bastion gave higher yields than Waverex, but produce is larger.

Maincrop varieties

Scout was the earliest maturing in this group.

Puget a popular late maturing pea matured 2 days later than Scout and gave higher yields with smaller produce. Puget had short determinate growth and matured rapidly.

Ambassador and Polo matured one day later than Puget. Ambassador had long haulm and was the outstanding variety in this group, significantly outyielding Scout. Produce is large size grade, a little larger than Scout. Ambassador showed good resistance to powdery mildew in the 1993 trial. Polo also had long haulm and gave good yields considering the size of produce, small-medium size grade.

Semi-leafless Rampart matured 2 days later than Puget. Yields were low, but peas were small size grade (larger than Waverex), with an attractive appearance.

Markana also semi-leafless, was the latest variety to mature, 4 days later than Puget. Yields were poor in 1994, but overall were a little lower than Scout.

The trial series has been of great benefit in providing more reliable information on yield and maturity of established varieties and has given additional information on newer varieties compared to those already grown commercially. The trial series also showed that produce of the semi-leafless varieties contained very few blond peas and pea colour was more even than for the conventional leaved varieties even in seasons of high sunlight and sparse vegetative growth.

Results have been used in the preparation of an updated information leaflet on vining pea varieties which is available from PGRO.

Introduction

The PGRO evaluates a large number of vining pea varieties each year, 25-30 at National List Stage in Preliminary Trial and about 5 of the best ones are chosen for Main Trial. There are three replicates of each variety. Each plot has to be harvested at different stages of maturity to allow yield and sieve size data to be presented at the practical canning stage (TR 120) and practical freezing stage (TR 100). This dictates that trials are only sown on one date (usually mid March for the Main Trial and mid April for the Preliminary Trial), despite the fact that both trials contain early, mid-season and late varieties which commercially would be sown from late February to mid May respectively.

In recent years, a number of promising varieties have been tested and more information is needed on their performance at the likely commercial sowing time. Early varieties would therefore be tested under cool establishment conditions with a long period from sowing to harvest while, in contrast, maincrops would be tested under conditions of rapid establishment and growth.

Materials & Methods

Soil type 1993: Free draining sandy clay loam, OM 2.8%, the pH was 8.1 and the soil status (ADAS scale) phosphorous 4, potassium 3 and magnesium 2.

Soil type 1994: Free draining sandy loam, OM 3.7%, the pH was 7.8 and the soil status (ADAS scale) phosphorous 3.6, potassium 2.2 and magnesium 2.2.

Soil type 1995: Free draining sandy loam, OM 4.2%, the pH was 7.8 and the soil status (ADAS scale) phosphorous 3.5, potassium 2.9 and magnesium 2.2.

Layout: Randomised block, 3 replications. Plots 19 m₂ x 1.5 m, comprising three harvest areas of 7.5 m² and two test areas of 3 m².

Sowing date:	Feb/Mar	Mar/Apr	Apr/May
Maturity:	Early/Second Early	Early Maincrop	Maincrop
Varieties:	Avola	Bikini	Scout
	Misty	Novella	Ambassador
	Span	Waverex	Puget
	Winner#	Scout	Markana
	Sprite	Darfon	Polo
	Cobalt	Bastion	Rampart
	Galaxie\$	Sancho	
	Tacoma (XPF 266)*	Barle	
	Scout	Tristar	

2 years date - 1994 and 1995

\$ 2 years data - 1993 and 1994

* 1 years data - 1995

Standard for yield and maturity comparison: Scout

Assessments: Maturity tests (Tenderometer)
Yield and size grades - freezing stage
Yield and size grades - canning stage
Samples of quick-frozen produce
Haulm length
Raw pea colour

Observations on: Standing ability
Disease where appropriate

Seed was treated to control damping-off, seedling downy mildew (*Peronospora viciae*) and *Ascochyta* diseases. Plots were drilled with an Øyjord type plot drill in ten 15 cm rows to achieve a target population of 90 plants/m². Plots were rolled with a cambridge roll. Broad-leaved weeds were controlled pre-emergence with Opogard SC (terbutryn/terbuthylazine) in 1993 and 1994. In 1995 Reflex T (fomesafen/terbutryn) was used. Post-emergence broad-leaved weed control was achieved with Fortrol + Triflex-Tra (cyanazine + MCPB/MCPA) in 1993 and with Pulsar + Fortrol (bentazone/MCPB + cyanazine) in 1994 and 1995. Grass weeds were controlled with Laser (cycloxdim) + Actipron oil in 1994. Aphids were controlled with an insecticidal spray in all years.

Haulm lengths were recorded prior to harvest. Each replicate was harvested on at least two occasions, @ TR 100 and @ TR 120. Total plot weight (haulm + pods) was recorded before threshing through a static plot viner. The peas from each plot were sieved, washed and size graded and weights in each size grade were recorded. Peas were then bulked and mixed and maturity was assessed with a Martin Pea Tenderometer. Raw pea colour was recorded and a sample as close as possible to TR 100 was quick-frozen. Yield data were statistically analysed and compared with Scout the yield standard. Quick-frozen samples were evaluated by growers and processing industry personnel on PGRO Processors Days.

Weather Data

Meteorological data - Thornhaugh 1993

	Rainfall (mm) 1993	Long-term Average	% of Long-term Average
February	9.8	35.7	116.1
March	14.2	37.7	27.5
April	84.6	38.9	37.7
May	57.6	42.8	217.5
June	55.6	51.4	134.6
July	80.8	54.1	108.2

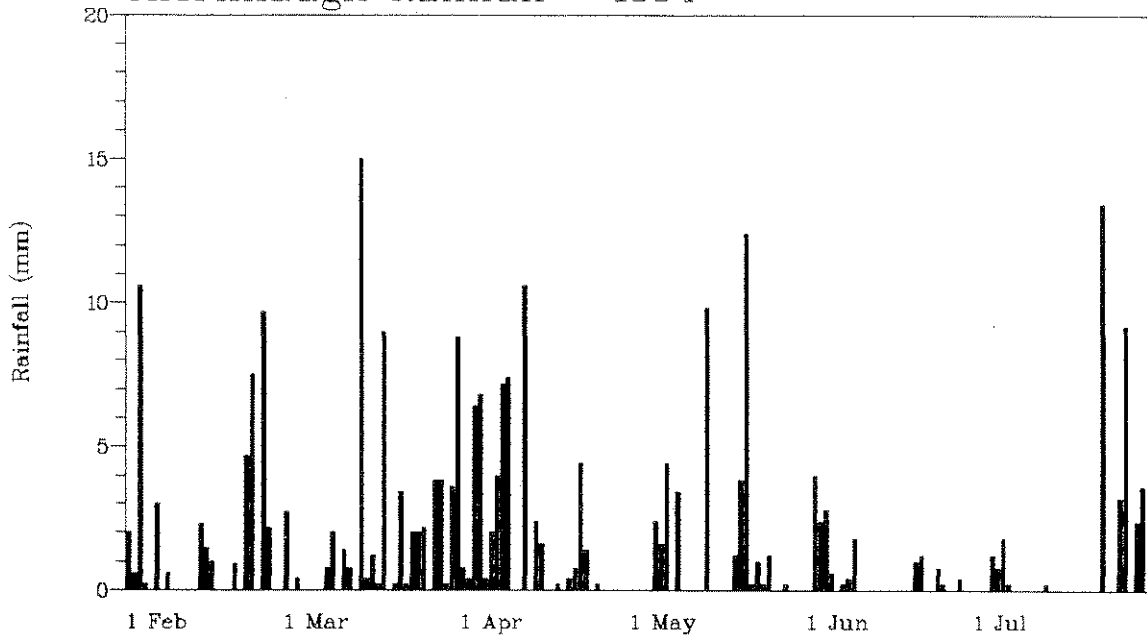
Meteorological data - Thornhaugh 1994

	Rainfall (mm) 1994	Long-term Average	% of Long-term Average
February	46.8	35.7	131.0
March	64.1	37.7	170.0
April	57.4	38.9	148.0
May	41.8	42.8	97.7
June	15.8	51.4	30.1
July	36.0	54.1	66.5

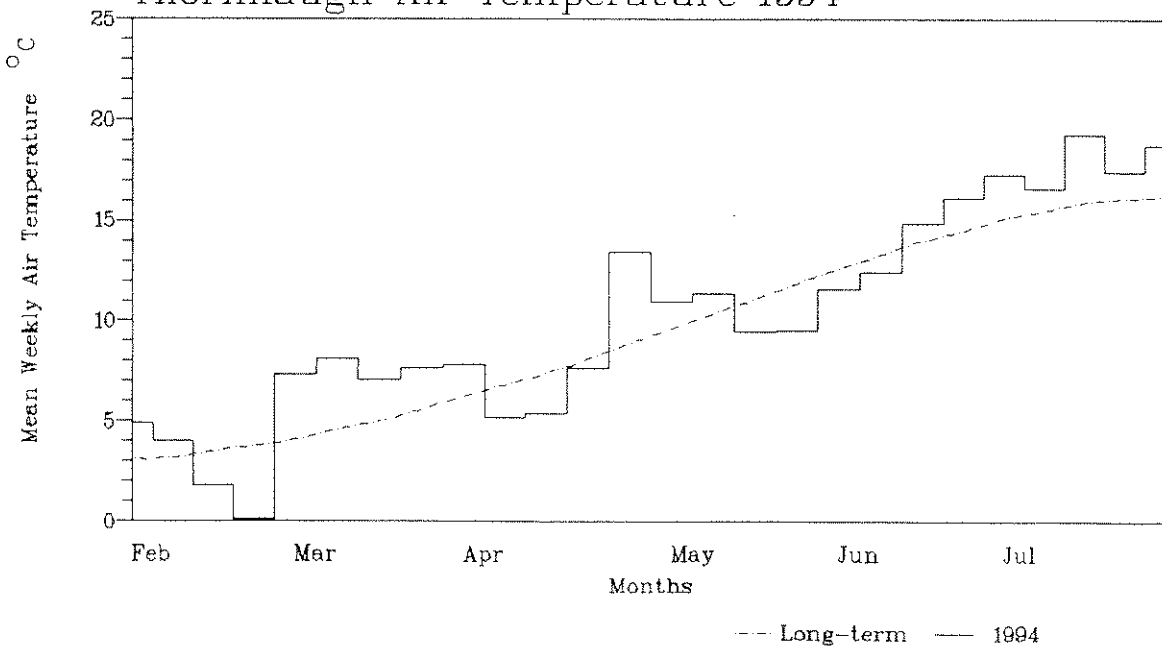
Meteorological data - Thornhaugh 1995

	Rainfall (mm) 1995	Long-term Average	% of Long-term Average
February	70.2	35.7	196.6
March	39.8	37.7	105.6
April	15.2	38.9	39.1
May	24.3	42.8	56.8
June	9.7	51.4	18.9
July	20.4	54.1	37.7

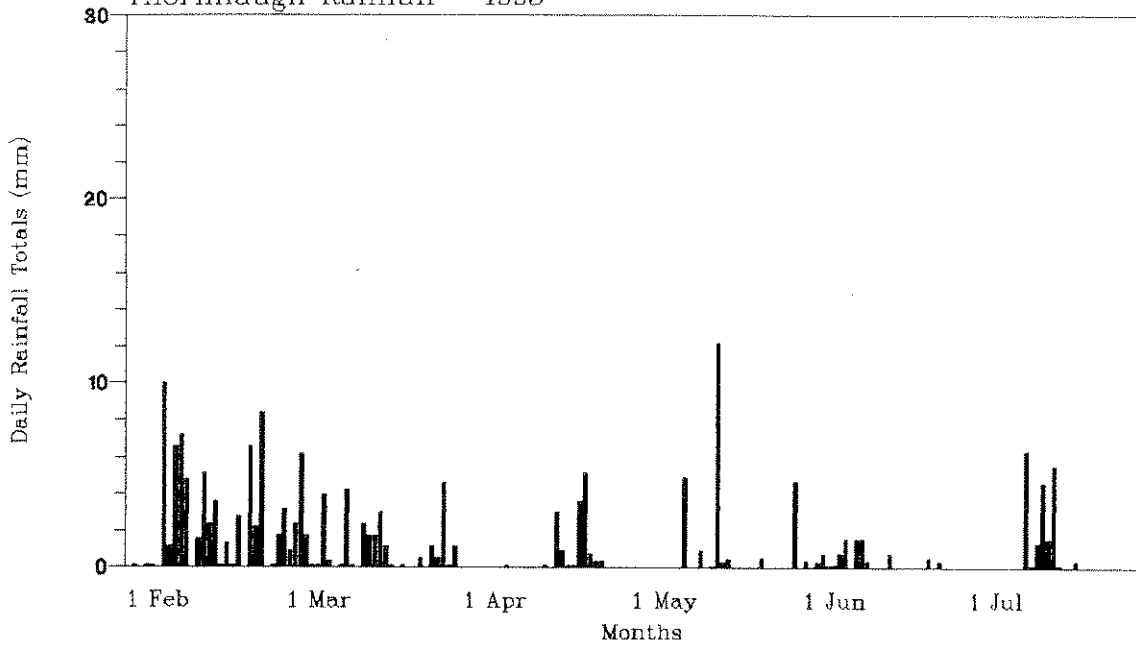
Thornhaugh Rainfall - 1994



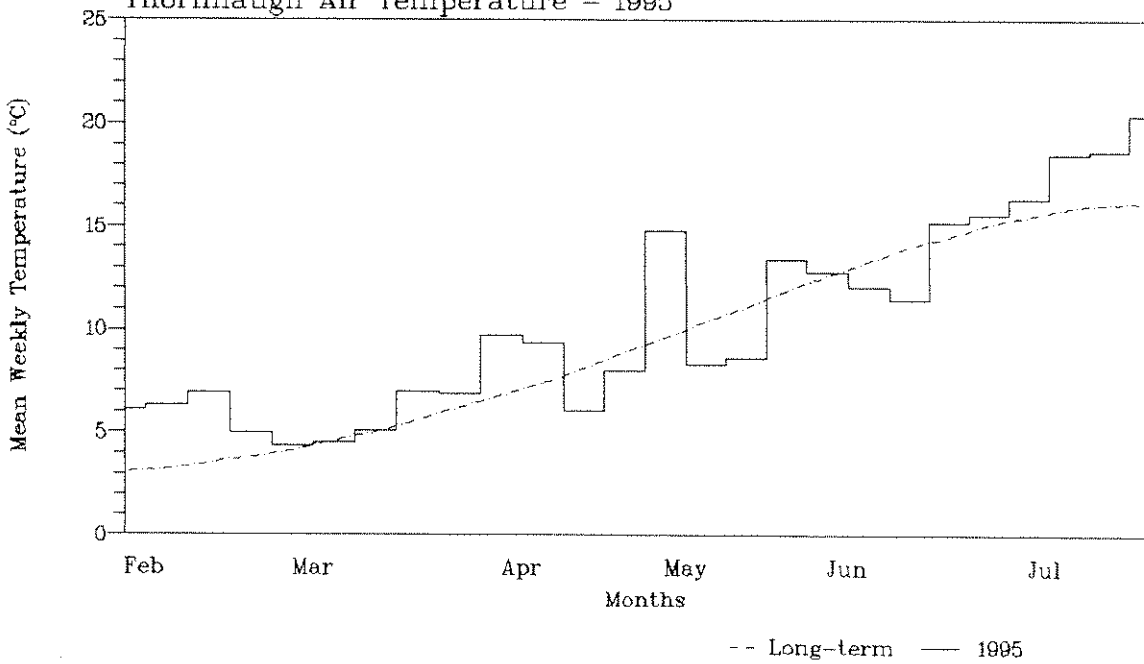
Thornhaugh Air Temperature 1994



Thornhaugh Rainfall - 1995



Thornhaugh Air Temperature - 1995



Weather

1993 Season

Following a generally wet autumn, January 1993 received more than the long-term average rainfall. February and March, however, were particularly dry months receiving about one third of the average rainfall. April and May were again wet, with April receiving more than twice the average rainfall. June had average rainfall. The first week of July was dry, but the remainder of the month was wetter than average. August was drier than normal, and apart from one very wet day the last two weeks of August were dry.

With the exception of a cold spell at the end of February, Temperatures up to July were above or close or normal. From July temperatures were below or near to normal.

1994 Season

Following a very wet autumn, the first four months of 1994 were wetter than the long-term average. May had average rainfall, but June and July were very dry months receiving only 30% and 66% respectively of the long-term average and precipitations were only on a few occasions.

Temperatures during March were generally higher than normal. The first two weeks of April were cooler, but much of May was warmer than average. The first half of June was a little cooler than average, but temperatures during the remainder of June and July were well above normal.

1995 Season

Following a very wet autumn, January and February were also wetter than average. The first half of March was also wet, but the second 2 weeks drier, giving average rainfall for March. The period from April to the end of August was very dry with only 30% of the long-term average rainfall.

Temperatures during the first half of March were near to normal, but higher through to mid-April. The third week of April saw 3 consecutive nights with air temperatures below zero, but vining peas were not damaged. The first week of May was warmer than normal, but below average for the middle 2 weeks of May. The first 3 weeks of June were cooler than average. Temperatures during late June, July and August were well above normal with weekly average temperatures being some 4°C higher than the long-term average during July/early August.

Results

1993 Season

Adequate moisture and warm conditions gave rise to vigorous growth. Foliar diseases became apparant under these conditons, particularly *Botrytis*. Later with the exception of Ambassador, maincrop varieties suffered from a slight infection of powdery mildew under drier conditions. Varieties were initially slow to mature at harvest and rate of maturity was erratic throughout the season.

Early varieties - Table 1

Early varieties were sown on the 23rd February.

Avola matured first, 7 days before Scout and was significantly lower yielding than Scout at TR 100. Produce was large - medium size grade and the peas had an uneven colour.

Span and Misty matured one day later than Avola. Misty was significantly higher yielding than Avola. There were no statistically significant yield differences between Span and Misty at quick-freezing stage or canning stage. Produce colour of Span was not as even as Misty and peas were a little smaller than Misty. Span, Misty and Sprite had short haulm and Span and Misty had a similar plant habit.

Sprite matured 2 days later than Avola and gave similar yields to Scout. Peas were very large (larger than Scout) with a few blond peas in the frozen sample.

Cobalt had fine, dark coloured foliage and matured at the same time as Sprite. Cobalt was the lowest yielding variety in this group, significantly lower than Scout. However, the produce was much smaller, with 62% of the peas < 8.75 mm diameter. Peas had a dark colour, but there were blond peas in the frozen sample.

Galaxie had long haulm and matured 2 days before Scout. Yields were similar to Scout at TR 120. Produce was a little smaller than Scout, with a few blond peas in the frozen sample.

Scout was the latest variety to mature and had long haulm. Produce was large - medium size grade, with a lot of blond peas in the frozen sample.

Early maincrop varieties - Table 2

Early maincrop varieties were sown on 31st March.

Waverex, Darfon and Bastion were small seeded.

Waverex matured 2 days before Scout and gave good yields. Produce was very small, with 87% of the peas < 8.75 mm diameter, but with blond peas in the frozen sample.

Darfon had fine foliage and matured one day later than Waverex. Many of the upper pods failed to fill and yields were significantly lower than Waverex. Produce was a little larger than Waverex, with an uneven colour. Peas were very tight in the pods and difficult to vine.

Bastion also had fine foliage and matured 3 days later than Waverex. Yields were good, significantly higher than Scout at TR 120. Produce was a little larger than Waverex, but more even in size, with an even colour and no blond peas.

Scout, Bikini and Novella matured at the same time. They were both semi-leafless, semi-fasciated, short strawed and erect at harvest. Both varieties gave similar yields and were significantly higher than Scout at TR 120. Their produce was smaller than Scout, dark and evenly coloured.

Scout had very long haulm. Produce was large and contained blond peas.

Barle was semi-leafless and semi-fasciated, with slightly longer haulm than Bikini. Standing ability was not as good as Bikini, but yields were very high, significantly higher than Scout. Produce was larger than Scout, but had a dark, even colour.

Semi-leafless Sancho had long haulm and an erect plant habit. Yields of medium - small size grade peas were significantly higher than Scout. Pea colour was very even and very dark.

Tristar was the latest variety to mature in this group, 4 days later than Scout. Yields were significantly higher than Scout at TR 120 and produce smaller, but with an uneven colour.

Maincrop varieties - Table 3

Maincrop varieties were sown on the 28th April

Scout matured first in this trial. Produce was large size grade with blond peas in the frozen sample.

Puget matured 2 days later than Scout and gave similar yields at TR 100. Produce was smaller than Scout, with a few blond peas in the frozen sample.

Ambassador, Polo and Rampart matured 4 days later than Scout.

Ambassador had long haulm and was the only variety not to suffer powdery mildew infection. Yields were higher than Scout, but differences were not statistically significant. Produce was large, and peas more evenly coloured than Scout.

Long strawed Polo had finer foliage than Scout and gave similar yields. Produce was medium - small size grade, with a few blond peas in the frozen sample.

Semi-leafless Rampart had medium length haulm and was erect at harvest. Rampart was significantly lower yielding than Scout at TR 100, but gave an attractive sample of evenly coloured, small size grade peas.

Markana was the latest variety to mature, 8 days after Scout. Markana was semi-leafless and long strawed and was fairly erect at harvest. Yields were similar to Scout at TR 100 and produce smaller, with an even pea colour.

1994 Season

Adequate moisture and warm conditions gave rise to vigorous vegetative growth, particularly for the early sown trial. In the hot and very dry conditions at harvest the vining peas matured rapidly and relative maturity differences between varieties were less than normal. Growth of Scout the yield standard was atypical in all but the early sown trial and yield was affected by drought conditions more than other varieties.

Early varieties - Table 4

Early maturing varieties were sown early on the 4th March.

Avola matured first, 6 days before Scout. Yields were higher than Scout, significantly so at TR 120. Produce was large-medium size grade with uneven colour and blond peas in the frozen sample.

Span and Misty were short strawed and matured one day later than Avola.

Misty was significantly higher yielding than Scout. Produce was similar in size to Avola, with an uneven colour.

Span was significantly higher yielding than Scout at TR 120. Produce was similar in size to Avola, with an uneven colour.

There were no statistically significant yield differences between Span and Misty.

Sprite and a new variety to the trial, Winner, matured 2 days later than Avola.

Sprite was significantly higher yielding than Scout at TR 120. Produce was similar in size to Avola, with an uneven colour.

Winner was higher yielding than Scout, but not significantly so. Produce was smaller than Avola, small-medium size grade with an uneven colour.

Cobalt had fine, dark coloured foliage and matured 3 days later than Avola. Yields were the lowest in this group, significantly lower than Scout. However, the produce was small, with 77% of the peas < 8.75 mm diameter. Peas had a dark colour, but there were a few blond peas in the frozen sample.

Galaxie had long leafy haulm and matured one day before Scout. Yields were higher than Scout but not significantly so. Produce was a little smaller than Scout and uneven in colour with a few blond peas in the frozen sample.

Scout was the latest variety to mature and had long haulm. Scout did not give a yield increase from TR 100 to TR 120. Peas were medium-large size grade, uneven in colour and with blond peas in the frozen sample.

Early Maincrop varieties - Table 5

Early maincrop varieties were sown on the 30th March.

Waverex, Darfon and Bastion were small seeded.

Scout yields were lower than for the earlier sowings and appeared to suffer more by the drought than the more determinate varieties. Maturity from TR 100 to 120 was rapid. Peas were large size grade and uneven in colour.

Semi-leafless and semi-fasciated Barle matured one day later than Scout and stood erect. Yields were good, significantly higher than Scout. Produce was uneven in size but of a similar size to Scout. Pea colour was dark and even.

Waverex matured 2 days later than Scout. Yields were good. Produce was very small, with 94% of the peas < 8.75 mm diameter and evenly coloured. Waverex had sort haulm.

Novella, Bikini and Sancho matured 3 days later than Scout.

Bikini and Novella were both semi-leafless, semi-fasciated, short strawed and erect at harvest. Both varieties gave yields higher than Scout, Novella significantly so at TR 120. Yield differences between Novella and Bikini were not statistically significant. Both varieties gave peas of medium size grade and even colour.

Semi-leafless Sancho had long haulm and remained erect. Yields of small-medium size grade peas were higher than Scout but not significantly so. Pea colour was dark and even.

Darfon and Bastion matured 4 days later than Scout.

Bastion had fine foliage and gave similar yields to Waverex. Produce was a little larger than Waverex with 85% of the peas < 8.75 mm diameter. Peas were dark and evenly coloured.

Darfon had long haulm and fine foliage. Produce was very small with 87% of the peas < 8.75mm diameter, but yields were low. Pea colour was good and even.

Tristar matured 5 days later than Scout and gave the highest yields in this trial at TR 100. Produce was medium size grade and evenly coloured.

Maincrop varieties - Table 6

Maincrop varieties were sown late on the 26th April.

Scout matured first in this group. Produce was medium-large size grade with fairly even colour.

Ambassador, Puget and Polo matured only 2 days later than Scout.

Ambassador was significantly higher yielding than Scout at TR 100. Peas were slightly larger than Scout, a little uneven in colour and with a few blond peas in the frozen produce.

Puget was significantly higher yielding than Scout. Produce was smaller than Scout, with blond peas in the frozen sample.

Long strawed Polo had finer foliage than Scout and gave similar yields. Produce was small-medium size grade, with a good even colour.

Maturing 3 days later than Scout semi-leafless Rampart had short haulm and remained erect. Yields were significantly lower than Scout, but produce was small size grade with 86% of the peas < 8.75mm diameter. Peas were dark and evenly coloured.

Markana was the latest variety to mature, 5 days later than Scout. Markana was semi-leafless and was fairly erect at harvest. Yields were disappointing at TR 100. Peas were medium size grade with a dark, even colour.

1995 Season

Initially varieties grew well, but in the dry and hot conditions during harvest the vining peas matured rapidly and relative maturity differences between varieties may be less than normal.

Early varieties - Table 7

Tacoma (XPF 266) replaced the variety Galaxie, which is no longer available.

Early maturing varieties were sown early on the 17th March.

Avola matured 8 days before Scout. Yields of evenly coloured, large-medium size grade peas were lower than Scout, significantly so at TR 100.

Misty matured at the same time as Avola this year and was shorter strawed. Yields were lower than Scout at TR 100, but higher at TR 120, although differences were not statistically significant. Peas were a little smaller than Avola and more even in colour.

Span and Winner matured one day later than Avola.

Span had short haulm like Misty. Yields were better than Misty at TR 100, but similar at TR 120. Peas were evenly coloured and of a similar size to Misty.

Winner gave very good yields significantly higher than Scout. Produce was smaller than Avola, medium-small size grade with an even colour.

Sprite matured 6 days before Scout and gave similar yields. Peas were medium-large size grade with even colour.

Cobalt had fine, dark coloured foliage and matured at the same time as Sprite. Yields were the lowest in this group, significantly lower than Scout. However, the produce was small-medium size grade, with 66% of the peas < 8.75 mm diameter. Pea colour was dark and even.

Tacoma matured 3 days before Scout. Tacoma was triple podded, semi-leafless and stood erect. Produce was medium size grade and yields were similar to Scout at TR 120. Peas had an even pea colour.

Scout was the latest to mature in this group and had the longest haulm. Peas were medium-large size grade with a dark colour, but there were a few blond peas in the frozen sample.

Early Maincrop varieties - Table 8

Early maincrop varieties were sown on the 4th April.

Waverex, Darfon and Bastion were small seeded.

Waverex, Sancho, Barle and Tristar matured at the same time as Scout.

Waverex had short haulm and was significantly lower yielding than Scout at TR 100. Produce was evenly coloured in this trial and small-very small size grade, with 85% of the peas < 8.75 mm diameter.

Scout had long haulm. Yields were lower than the early sown trial. Produce was medium-large size grade with dark colour, but there were several blond peas in the frozen sample.

Sancho was semi-leafless and long strawed. Yields of small-medium size grade peas were similar to Scout. Pea colour was dark and even.

Barle was semi-leafless and semi-fasciated and stood erect. Yields of evenly coloured peas were good, significantly higher than Scout at TR 120. Peas were a little smaller than Scout.

Tristar matured earlier than expected at the same time as Scout. Yields of medium size grade peas were smaller than Scout. Produce had uneven colour.

Bikini, Novella, Darfon and Bastion matured one day later than Scout.

Bikini and Novella were both semi-leafless, semi-fasciated, short strawed and erect at harvest. Both varieties gave very similar yields, significantly outyielding Scout at TR 120 and peas were a similar medium size grade and good even colour.

Darfon gave very low yields. Produce was small size grade with 82% of the peas < 8.75mm diameter. Peas were paler than Waverex but evenly coloured.

Bastion gave similar yields to Scout at TR 100. Produce had a good even colour but was larger than Waverex, small-medium size grade with 67% of the peas < 8.75 mm diameter.

Maincrop varieties - Table 9

Maincrop varieties were sown late on the 27th April.

Scout matured first in this group. Yields of medium-large size grade peas were lower than in the early maincrop trial, but colour was more even.

Puget, Polo and Ambassador matured 3 days later than Scout.

Puget gave higher yields than Scout, but not significantly higher. Produce was medium size grade with a good even colour.

Polo gave similar yields to Scout at TR 100. Produce was medium-small size grade and evenly coloured.

Ambassador had long haulm and was again the highest yielding variety in this trial, significantly outyielding Scout. Peas had even colour and were a little larger than Scout, large-medium size grade.

Semi-leafless Rampart matured 4 days later than Scout. Yields were significantly lower than Scout, but produce was evenly coloured and small size grade, with 68% of the peas < 8.75mm diameter.

Markana was semi-leafless and as in previous trials was the latest variety to mature 6 days later than Scout. Yields and pea size grades were similar to Scout. Peas had a dark, even colour.

1993 - 1995 Seasons

The trials were conducted in 3 climatically different years. In 1993, rainfall was higher than average during the harvest period in July and temperatures were near to or below normal. In 1994, temperatures in June and July were higher than normal and with the very dry conditions peas suffered from drought stress, in particular, the yield standard Scout. Following a very wet autumn 1995 was very dry from April - August, with very high temperatures in July.

Early varieties - Table 10

Most varieties performed better when compared to Scout in 1994 than in 1993 or 1995.

Avola (generally available for 1996) a widely grown early pea, was the earliest maturing variety. Yields were variable and overall lower than Scout. Peas were medium-large size grade.

Span and Misty were short haulmed with a very similar plant type and they matured one day later than Avola. Both varieties gave higher yields than Avola and peas were similar, medium-large size grade. Statistically there were no yield differences between these two varieties.

Winner was not in trial in 1993, but is a good new variety that gave smaller size peas than established early varieties and having a good yield potential. Winner matured one day later than Avola and had shorter haulm.

Sprite gave consistent yields, similar to Scout. Peas were medium-large size grade, similar to Scout.

Cobalt gave low yields in all 3 years, but peas were small size grade with dark colour. The variety is useful in a petits pois programme.

Early Maincrop varieties - Table 11

Relative maturities varied over the 3 years, but overall Scout and Waverex were the earliest maturing in this group.

Scout had long haulm and an indeterminate growth habit. It is a widely grown variety and yields are usually reliable, but 1994 was an exception.

Many of the standard size early maincrop varieties out-yielded Scout, including Bikini, Novella, Sancho, Tristar and Barle.

Barle outyielded Scout over the 3 years, but produce can be larger than Scout. Barle was semi-leafless and semi-fasciated with short, erect haulm. Barle matured one day later than Scout.

Bikini and Novella are also semi-leafless and semi-fasciated, with short haulm and very similar plant types (Novella is re-selection of Bikini with powdery mildew resistance). Both varieties matured one day later than

Scout. Commercially there have been reports of maturity and yield differences between the two varieties, but little difference could be found for yield, maturity or size of produce during the 3 years tested. Other trials have shown this plant type to be suitable for fertile conditions.

Sancho matured one day later than Scout. It is semi-leafless with long haulm, but can remain erect. Overall yields were higher than Scout and produce was much smaller, small-medium size grade, with a very dark colour.

Tristar also gave higher yields than Scout, with smaller, medium size produce. Overall maturity was 3 days later than Scout, but maturity was similar to Scout in 1995. Tristar can mature rapidly.

Petits Pois varieties

Waverex is the most widely grown petits pois variety. Haulm was short and yields of very small peas were lower than Scout.

Darfon and Bastion are two alternatives to Waverex. Both varieties show more crop vigour than Waverex and have longer haulm. Produce from Darfon is only a little larger than Waverex, but over the 3 years, gave lower yields. Bastion gave higher yields than Waverex, but produce is larger.

Maincrop varieties - Table 12

Scout was the earliest maturing in this group.

Puget a popular late maturing pea matured 2 days later than Scout and gave higher yields with smaller produce. Puget had short determinate growth and matured rapidly.

Ambassador and Polo matured one day later than Puget. Ambassador had long haulm and was the outstanding variety in this group, significantly outyielding Scout. Produce is large size grade, a little larger than Scout. Ambassador showed good resistance to powdery mildew in the 1993 trial. Polo also had long haulm and gave good yields considering the size of produce, small-medium size grade.

Semi-leafless Rampart matured 2 days later than Puget. Yields were low, but peas were small size grade (larger than Waverex), with an attractive appearance.

Markana also semi-leafless, was the latest variety to mature, 4 days later than Puget. Yields were poor in 1994, but overall were a little lower than Scout.

Conclusions

Points of note from the 1993 - 1995 trial series are:

- * Produce of the semi-leafless varieties contained very few blond peas and pea colour was more even than for the conventional leaved varieties even in seasons of high sunlight and sparse vegetative growth.
- * Scout did not perform well in the very dry and hot seasons of 1994 and 1995.
- * Early varieties Span and Misty are agronomically very similar and performed similarly.
- * Winner gave good yields of smaller peas than the standard early varieties.

- * Bikini and Novella (which is a reselection of Bikini with powdery moldew resistace)matured at the same time and gave similar yields. Both varieies are semi-leafless and semi-fasciated.
- * Semi-leafless Sancho gave good yields considering the size of produce.
- * Early maincrop variety Barle, also semi-leafless and semi-fasciated gave high yields.
- * Bastion, a petits pois gave higher yields than Waverex, but yields of Darfon were low.
- * Ambassador consitently gave the highest yields of the maincrop varieties.

The trial series has been of great benefit. It has provided more reliable information on yield and maturity of established varieties and has given additional information on newer varieties compared to those already grown commercially.

Results were used in the preparation of an updated PGRO information leaflet on Vining Pea Varieties.



TABLE 1 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New and Established Variety Trial -

Early Varieties, Thornhaugh - 1993
 Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 23rd February
 Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Haulm length cm	Pea wt. as % of total weight	Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS					
Avola	As	4624	-9	71	43 41 14 2	-7	89	68 26 5 1	77	16	4.0		
Misty	PLS	4358	-8	87	43 39 15 3	-7	100	64 30 5 1	58	16	4.0		
Span	CM	5270	-8	82	33 38 23 6	-6	98	55 33 10 2	56	16	4.0		
Sprite	As	5659	-7	101	53 37 9 1	-6	111	59 33 7 1	63	17	4.0		
Cobalt	Cl	7897	-7	60	6 32 41 21	-5	65	6 35 42 17	74	12	4.5		
Galaxie	S&G	5280	-3	88	35 42 20 3	-2	97	42 45 11 2	80	15	4.5		
<u>Scout</u>	<u>CM</u>	<u>4786</u>	<u>0(2/7)</u>	<u>100</u>	<u>42 42 13 3</u>	<u>0(4/7)</u>	<u>100</u>	<u>44 43 11 2</u>	<u>82</u>	<u>18</u>	<u>4.5</u>		
				(8.08t/ha)			(8.30t/ha)						

Significance @ P = 0.05
 LSD @ P = 0.05
 CV %

SD
 17.8
 10.6

KEY: YIELD: - Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 Source of varieties see Appendix 1

TABLE 2 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New and Established Variety Trial - Early Maincrop Varieties, Thornhaugh - 1993
 Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 31st March Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS	Haulm length as % total weight	Pea wt. of colour	
Waverex	vW	8713	-2	90	1 12 45 42	-2	97	1 18 56 25	70	12	4.0
Darfon	RS	10833	-1	66 ⁻	1 10 63 26	-1	70 ⁻	1 15 60 24	81	10	4.0
Bikini	(SL/SF) S&G	4698	0	116	36 54 9 1	0	127 ⁺	41 51 7 1	57	16	4.5
Novella	(SL/SF) S&G	5315	0	119 ⁺	31 56 12 1	0	118 ⁺	42 49 8 1	50	15	4.5
Scout	CM	4786	0(12/7)	100	45 37 15 3	0(14/7)	100	50 37 11 2	117	13	4.5
				(5.54t/ha)			(6.05t/ha)				
Barle	(SL/SF) CM	4646	+1	155 ⁺	40 50 9 1	0	147 ⁺	60 36 3 1	63	16	5.0
Bastion	Nun	8934	+1	98	1 17 58 24	+1	121 ⁺	3 26 59 12	75	12	4.0
Sancho	(SL) Sh	6671	+1	130 ⁺	6 40 45 9	+1	135 ⁺	9 51 35 5	91	14	5.0
Tristar	As	4666	+4	105	32 43 18 7	+2	120 ⁺	40 41 13 6	77	13	4.5
Significance @ P = 0.05				SD							
LSD @ P = 0.05				17.7							
CV %				9.4							

KEY: YIELD: ⁺ Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless; (SF) = Semi-fasciated
 Source of varieties see Appendix 1

TABLE 3 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New and Established Variety Trial - Maincrop Varieties, Thornhaugh - 1993 Varieties placed in order of maturity. Results are means of three replicates.



Standard varieties underlined. All varieties sown on 28th April Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Haulm length cm	Pea wt. total weight	Raw pea colour 1=pale 5=dark				
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS									
<u>Scout</u>	<u>CM</u>	<u>4786</u>	0(23/7)	100	42	41	15	2	0(27/7)	100	45	42	11	2	73	17	4.5
			(6.24t/ha)						(7.15t/ha)								
Puget	Bro	4863	+2	104	28	48	20	4	+2	93	31	51	15	3	60	17	4.0
Ambassador	vW	4984	+4	119	44	41	12	3	+3	116	50	37	11	2	88	17	4.0
Polo	Sh	6488	+4	106	9	40	40	11	+4	105	11	48	33	8	84	18	4.5
Rampart	(SL) As	7582	+4	76	4	28	45	23	+4	83	5	33	46	16	66	11	4.5
Markana	(SL) Sp	4340	+8	102	31	47	18	4	+8	94	34	50	14	2	77	16	4.5
Significance @ P = 0.05				SD						NSD							
LSD @ P = 0.05				22.1						17.4							
CV %				12.0						9.7							

KEY: YIELD: Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless
 Source of varieties see Appendix 1

TABLE 4 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New & Established Variety Trial - Early Varieties, Thornhaugh - 1994

Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 7th March. Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows



Variety	Source	Seeds /kg	At Practical Freezing Stage					At Practical Canning Stage				
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS	Haulm length as % of total weight	Pea wt. of colour 1=pale 5=dark		
Avola	As	4212	-6	109	26 54 18 2	-6	124 ⁺	32 58 9 1	78	21	4.5	
Misty	PLS	4358	-5	116 ⁺	32 54 13 1	-5	124 ⁺	35 57 8 0	56	22	4.5	
Span	CM	5060	-5	111	26 55 17 2	-5	117 ⁺	29 58 12 1	53	21	4.5	
Sprite	As	4816	-4	101	30 52 16 2	-5	119 ⁺	38 51 10 1	61	19	4.0	
Winner	vW	5660	-4	102	11 38 45 6	-5	113	13 47 37 3	66	23	4.5	
Cobalt	Cl	7897	-3	65 ⁻	2 21 54 23	-3	76 ⁻	2 28 58 12	66	17	4.5	
Galaxie	S&G	5079	-1	102	22 54 22 2	-2	109	28 56 15 1	78	19	4.5	
Scout	CM	5523	0(3/7)	100	27 57 15 1	0(5/7)	100	38 54 7 1	76	19	4.5	
				(6.0lt/ha)			(6.0lt/ha)					

Significance @ P = 0.05
 LSD @ P = 0.05
 CV %

SD
 15.1
 8.6

SD
 14.7
 7.6

KEY: YIELD: + Significantly greater than Scout @ P = 0.05; - Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 Source of varieties see Appendix 1

TABLE 5 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New & Established Variety Trial - Early Maincrop Varieties, Thornhaugh - 1994
 Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 30th March Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage						At Practical Canning Stage						Raw pea colour 1=pale 5=dark		
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS	Haulm length cm	Pea wt. total weight							
<u>Scout</u>	<u>CM</u>	<u>5523</u>	0(6/7)	100	36	48	14	2	0(7/7)	100	45	44	10	1	57	15	4.5
			(3.44t/ha)								(3.85t/ha)						
Barle	(SF/SL) CM	4270	+1	131 ⁺	31	51	17	1	+1	142 ⁺	38	49	12	1	51	19	5.0
Waverex	vW	8713	+2	96	0	9	53	38	+3	88	1	14	58	27	40	18	4.0
Novella	(SF/SL) S&G	5315	+3	115	27	51	19	3	+3	119 ⁺	33	53	13	1	45	19	4.5
Sancho	(SL) Sh	6671	+3	113	3	35	47	15	+3	111	4	41	44	11	63	18	4.5
Bikini	(SF/SL) S&G	4698	+3	111	22	51	24	3	+4	109	28	52	18	2	42	18	4.5
Bastion	Nun	9836	+4	92	1	14	50	35	+4	90	1	18	55	26	49	18	4.0
Darfon	RS	10833	+4	72 ⁻	1	12	51	36	+5	66 ⁻	1	13	56	30	59	13	4.0
Tristar	As	5643	+5	135 ⁺	21	57	20	2	+5	123 ⁺	26	58	15	1	53	21	4.5

Significance @ P = 0.05 SD
 LSD @ P = 0.05 24.6
 CV % 13.3

KEY: YIELD: ⁺ Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless; (SF) = Semi-fasciated
 Source of varieties see Appendix 1

TABLE 6 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New & Established Variety Trial - Maincrop Varieties, Thornhaugh - 1994 Varieties placed in order of maturity. Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows



Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Haulm length as % of total weight	Pea wt. as % of total weight	Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS					
Scout	GM	5523	0(15/7) +2	100 (4.59t/ha)	32 51 15 2	0(16/7) +2	100 (4.81t/ha)	38 51 10 1	58	23	4.5		
Ambassador	vW	4984	+2	123 ⁺	33 60 7 0	+2	117	39 56 5 0	62	25	4.5		
Puget	Bro	4863	+2	121 ⁺	18 64 17 1	+2	125 ⁺	21 64 14 1	53	28	4.0		
Polo	Sh	6488	+2	96	3 31 55 11	+2	101	4 41 49 6	61	25	4.5		
Rampart	(SL) As	7582	+3	73 ⁻	1 13 51 35	+3	71 ⁻	1 20 57 22	46	19	4.0		
Markana	(SL) Sp	5785	+5	83 ⁻	23 57 18 2	+5	92	30 60 9 1	53	21	4.5		
Significance @ P = 0.05				SD									
LSD @ P = 0.05				13.4									
CV %				7.4									

KEY: YIELD: ⁺ Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless
 Source of varieties see Appendix 1



TABLE 7 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New & Established Variety Trial - Early Varieties, Thornhaugh - 1995
 Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 17th March Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage					At Practical Canning Stage					Haulm length as % of total weight	Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS	Haulm length as % of total weight					
Avola	As	4339	-8	74	37 47 13 3	-8	79	49 37 11 3	56	17	4.5			
Misty	PLS	4621	-8	88	33 53 12 2	-8	111	35 55 9 1	41	21	4.5			
Span	CM	5060	-7	103	28 54 16 2	-7	110	34 52 12 2	39	19	4.5			
Winner	vW	5616	-7	122 ⁺	16 50 31 3	-7	128 ⁺	21 55 22 2	51	21	4.5			
Sprite	As	4728	-6	101	38 49 12 1	-5	100	49 44 7 0	47	17	4.0			
Cobalt	Cl	9615	-6	74 ⁻	3 31 48 18	-5	84	4 35 50 11	50	16	5.0			
Tacoma (XPF 266) (SL)	As	5434	-3	88	20 43 30 7	-3	101	23 55 20 2	54	16	4.5			
Scout	CM	5576	0(6/7)	100	42 46 10 2	0(8/7)	100	47 43 8 2	59	18	5.0			
				(4.93t/ha)			(5.31t/ha)							
Significance @ P = 0.05				SD			SD							
LSD @ P = 0.05				18.0			22.8							
CV %				10.9			12.8							

KEY: Yield: ⁺ Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless
 Source of varieties see Appendix 1

TABLE 8 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New & Established Variety Trial - Early Maincrop Varieties, Thornhaugh - 1995
 Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 4th April Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage					At Practical Canning Stage					Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS	Haulm length cm	Pea wt. total weight			
Waverex	vW	8772	0	65 ⁻	1 14 54 31	0	78	1 17 60 22	41	18	4.0		
Scout	CM	5576	0(10/7)	100	44 47 8 1	0(11/7)	100	47 46 6 1	63	18	5.0		
				(4.46t/ha)			(4.82t/ha)						
Sancho (SL)	Sh	5486	0	105	5 43 44 8	0	104 ⁺	7 49 38 6	61	20	5.0		
Barle (SF/SL)	CM	4645	0	123	37 49 12 2	0	130 ⁺	43 47 9 1	51	24	4.0		
Tristar	As	4869	0	118	27 64 8 1	0	114	29 62 8 1	56	21	4.5		
Bikini (SF/SL)	S&G	4470	+1	130	28 54 16 2	+1	128 ⁺	32 54 12 2	49	21	4.5		
Novella (SF/SL)	S&G	4463	+1	130	32 52 14 2	+1	130 ⁺	37 52 10 1	46	22	4.5		
Darfon	RS	10833	+1	46 ⁻	1 18 60 21	+1	46 ⁻	2 22 61 15	51	12	4.0		
Bastion	Nun	9836	+1	97	3 30 50 17	+1	89	3 33 54 10	56	18	4.0		

Significance @ P = 0.05 SD
 LSD @ P = 0.05 32.8
 CV % 18.5

KEY: Yield: ⁺ Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless; (SF) = Semi-fasciated
 Source of varieties see Appendix 1

TABLE 9 - VINING PEA VARIETY STUDIES. Summary of agronomic data - New & Established Variety Trial - Maincrop Varieties, Thornhaugh - 1995 Varieties placed in order of maturity. Results are means of three replicates. Standard varieties underlined. All varieties sown on 27th April Target population 90 plants per m² sown in ten 15 cm rows



Variety	Source	Seeds /kg	At Practical Freezing Stage					At Practical Canning Stage					Haulm length cm	Pea wt. as % of total weight	Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS							
<u>Scout</u>	<u>CM</u>	<u>5576</u>	0(16/77)	<u>100</u> (3.02t/ha)	<u>41</u> <u>50</u> <u>8</u> <u>1</u>	0(18/77)	<u>100</u> (3.09t/ha)	<u>46</u> <u>47</u> <u>6</u> <u>1</u>	<u>62</u>	<u>18</u>	<u>5.0</u>				
Puget	Bro	5208	+3	108	24 58 16 2	+2	106	29 58 12 1	47	17	4.5				
Polo	Sh	6488	+3	102	7 49 38 6	+2	114	7 53 35 5	57	20	4.5				
Ambassador	vW	4493	+3	132 [†]	50 43 6 1	+4	149 [†]	57 39 4 0	59	22	4.5				
Rampart	(SL) As	7582	+4	61 ⁻	2 30 48 20	+3	59 ⁻	2 26 57 15	48	12	4.5				
Markana	(SL) Sp	5785	+6	97	41 48 10 1	+6	100	51 43 5 1	42	17	5.0				

Significance @ P = 0.05 SD
 LSD @ P = 0.05 18.3
 CV % 10.1

KEY: Yield: [†] Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless
 Source of varieties see Appendix 1

TABLE 10 - VINING PEA VARIETY STUDIES. Three year summary of agronomic data - New & Established Variety Trial - Early Varieties, Thornhaugh - 1993 - 1995
 Varieties placed in order of maturity. Standard varieties underlined.
 Target population 90 plants per m² sown in ten 15 cm rows



Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Haulm length as % of total weight	Pea wt. of colour 1=pale 5=dark
			Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS				
Avola	As	4392	-8	84	35 47 15 2	-8	97	50 40 8 2	70	18	4.5	
Misty	PLS	4446	-7	97	36 49 13 2	-7	111	45 47 7 1	52	20	4.5	
Span	CM	5130	-7	96	29 49 19 3	-6	107	39 48 11 2	49	19	4.5	
*Winner	vW	5638	-6	104	14 44 38 5	-6	114	17 51 30 3	59	22	4.5	
Sprite	As	5068	-6	101	40 46 12 1	-5	110	49 43 8 1	57	18	4.0	
Cobalt	Cl	8470	-5	65	4 28 48 21	-4	73	3 33 50 13	63	15	4.5	
#Tacoma (XPF 266) (SL)	As	5434	-3	88	20 43 30 7	-3	101	23 55 20 2	54	16	4.5	
\$Galaxie	S&G	5180	-2	95	29 48 21 3	-2	102	35 51 13 2	88	17	4.5	
Scout	CM	5295	0	100	37 48 13 2	0	100	43 47 9 2	72	18	4.5	
				(6.34t/ha)			(6.54t/ha)					

Significance @ P = 0.05
 LSD @ P = 0.05
 CV %

SD
 19.0
 10.5

KEY: YIELD: Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless
 # 1 years data (1995); \$ two years data (1993 & 1994); * two years data (1994 and 1995)
 Source of varieties see Appendix 1



TABLE 11 - VINING PEA VARIETY STUDIES. Three year summary of agronomic data - New & Established Variety Trial - Early Manicrop Varieties, Thornhaugh - 1993 - 1995
 Varieties placed in order of maturity. Standard varieties underlined. Target population 90 plants per m² sown in ten 15 cm rows

Variety	Source	Seeds /kg	At Practical Freezing Stage					At Practical Canning Stage					Raw pea colour 1=pale 5=dark
			Maturity relative to Scout (\pm days)	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (\pm days)	Yield of shelled peas as % Scout @ TR 120	% in size grades L M S VS	Haulm length as % of total weight				
<u>Scout</u>	<u>CM</u>	<u>5295</u>	0	<u>100</u> (4.48t/ha)	<u>42</u> <u>44</u> <u>12</u> <u>2</u>	0	<u>100</u> (4.91t/ha)	<u>47</u> <u>42</u> <u>9</u> <u>1</u>	<u>79</u>	<u>15</u>	<u>5.0</u>		
Waverex	vW	8733	0	83 ⁻	1 12 51 37	+1	89	1 16 58 25	50	16	4.0		
Sancho	(SL)	6276	+1	117	5 39 45 11	+1	118	7 47 39 7	72	17	5.0		
Barle	(SF/SL)	4520	+1	138 ⁺	36 50 13 1	0	140 ⁺	47 44 8 1	55	20	5.0		
Novella	(SF/SL)	5031	+1	121	30 53 15 2	+1	122 ⁺	37 51 10 1	47	19	4.5		
Bikini	(SF/SL)	4622	+1	119	29 53 16 2	+2	123 ⁺	34 52 12 2	49	18	4.5		
Darfon	RS	10833	+1	61 ⁻	1 13 58 28	+2	61 ⁻	1 17 59 23	64	12	4.0		
Bastion	Nun	9535	+2	96	2 20 53 25	+2	103	2 26 56 16	60	16	4.0		
Tristar	As	5059	+3	117	27 55 15 3	+2	119	32 54 12 3	51	13	4.5		

Significance @ P = 0.05 SD
 LSD @ P = 0.05 24.5
 CV % 13.4

KEY: YIELD: ⁺ Significantly greater than Scout @ P = 0.05; ⁻ Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless; SF = Semi-fasciated
 Source of varieties see Appendix 1

TABLE 12 - VINING PEA VARIETY STUDIES. Three year summary of agronomic data - New & Established Variety Trial -
 Manincrop Varieties, Thornhaugh - 1993 - 1995
 Varieties placed in order of maturity. Standard varieties underlined.
 Target population 90 plants per m² sown in ten 15 cm rows



Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Haulm length as % of total weight	Pea wt. as % of colour 1=pale 5=dark
			Maturity relative to Scout (± days)	% in size grades L M S VS	Yield of shelled peas as % Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	% in size grades L M S VS	Yield of shelled peas as % Scout @ TR 120	Haulm length as % of total weight		
<u>Scout</u>	<u>CM</u>	<u>5295</u>	0	38 47 13 2	0	100	43 47 9 1	100	64	19	5.0	
						(4.62t/ha)		(5.02t/ha)				
Puget	Bro	4978	+2	23 57 18 2	+2	106	27 58 14 2	106	53	21	4.0	
Polo	Sh	6488	+3	6 40 44 9	+3	106	7 47 39 6	106	67	21	4.5	
Ambassador	vW	4820	+3	42 48 8 1	+3	123+	49 44 7 1	123+	70	21	4.5	
Rampart	(SL) As	7582	+4	2 24 48 26	+3	72-	3 26 53 18	74-	53	14	4.5	
Markana	(SL) Sp	5303	+6	32 51 15 2	+6	94	38 51 9 1	95	57	18	5.0	
Significance @ P = 0.05						SD						
LSD @ P = 0.05						12.4						
CV %						6.8						

KEY: YIELD: + Significantly greater than Scout @ P = 0.05; - Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3mm; M = medium 8.75 - 10.3mm; S = small 7.5 - 8.75mm; VS = very small < 7.5mm
 (SL) = Semi-leafless
 Source of varieties see Appendix 1

Appendix 1

Source of Varieties	UK Agent
As - Asgrow Seed Company, USA	
Bro - W. Brotherton Seed Company, USA	David Trethewey, UK
Cl - Clause S.A., France	
CM - Crites Moscow Growers Inc., USA	Royal Sluis, UK
Nun - Nunhem Zaden BV, Holland	
PLS - Pure Line Seeds, USA	David Trethewey, UK
RS - Royal Sluis, Holland	Royal Sluis, UK
S&G - S & G Semences, France	S & G Semences, UK
Sh - Sharpes International Seeds Ltd., UK	
Sp - Karl Sperling & Co. Ltd., Germany	David Trethewey, UK
vW - van Waveren, Germany	David Trethewey, UK

Contract between PGRO (hereinafter called the "Contractor") and the Horticultural Development Council (hereinafter called the "Council") for research/development project.

PROPOSAL

1. TITLE OF PROJECT

Contract No: FV/154
Contract date: 2.4.93

VINING PEAS: EVALUATION OF NEW AND ESTABLISHED VARIETIES SOWN AT APPROPRIATE COMMERCIAL TIMINGS

2. BACKGROUND & COMMERCIAL OBJECTIVE

The PGRO evaluates a large number of varieties per annum, 25-30 at National List stage in Preliminary Trial and about 5 of the best ones are chosen for Main Trial. In addition to being replicated three times, each plot has to be harvested at different stages of maturity to allow yield and sieve size data to be presented at the practical canning stage (TR 120) and practical freezing stage (TR 100). This dictates that trials are only sown on one date (usually mid March for the Main Trial and mid April for the Preliminary Trial); despite the fact that both trials contain early, mid-season and late varieties which commercially would be sown from late February to mid May respectively.

In recent years, a number of promising varieties have been tested and more information is needed on their performance at the likely commercial sowing time. Early varieties would therefore be tested under cool establishment conditions with a long period from sowing to harvest while, in contrast, maincrops would be tested under conditions of rapid establishment and growth.

3. POTENTIAL & FINANCIAL BENEFITS TO THE INDUSTRY

To provide more accurate information for the grower on varieties and yield of promising new varieties relative to established varieties when sown at commercial timing.

4. SCIENTIFIC TARGET OF THE WORK

To evaluate maturity and yield of promising new vining pea varieties relative to established varieties when sown at commercial timing.

5. CLOSELY RELATED WORK - COMPLETED

Trials on a similar subject were funded by MAFF in the past:- Evaluation of new early maturing vining pea varieties sown early (1980-1984); Evaluation of late maturing vining peas sown late (1978-1980). No work on this topic has been carried out in recent years.

6. DESCRIPTION OF WORK

Sowing date:	Feb/Mar	Mar/April	April/May
Maturity:	early/2nd early	early maincrop	maincrop
Varieties:	6 + Scout	7 + Scout	6 + Scout

Standard for yield comparison: Scout

Assessments: Maturity tests
Yield and size grades freezing stage
Yield and size grades canning stage
Samples of quick-frozen produce
Haulm length

7. COMMENCEMENT DATE & DURATION

Start date: 01.02.93, duration 3 years.

8. STAFF RESPONSIBILITIES

Project Leader: C.M. Knott

9. LOCATION

PGRO, Thornhaugh