

PROCESSORS & GROWERS RESEARCH ORGANISATION

1989

VINING PEAS

1989

COMBINING PEAS

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THE SEASON

The winter was very mild, with temperatures 3°C - 4°C above the long term average. There were few frosts, and autumn ploughed soil remained unweathered. Additional cultivations were therefore required in the Spring to produce adequate seedbeds. Rainfall at the end of February and beginning of March was average and the emergence of most crops was good.

April was wetter with double the long term average rainfall (90 mm) and temperatures were low for the time of year. The wet conditions meant drilling was done when possible and there were delays for some commercial crops.

In May temperatures were higher and rainfall was generally low. However in the third week of May in one evening approximately 37 mm of rain and hail fell during a 2 hour period, causing flash floods locally, and some trials were temporarily waterlogged.

June and July were exceptionally dry months with much lower rainfall than average. Daily temperatures throughout June, July and August were regularly between 21°C and 27°C. The vining pea harvest started towards the end of June, nearly a fortnight earlier than usual, but the harvesting period was about 4 weeks. Relative maturity of varieties should however be treated with caution.

The combining peas were harvested early, under mostly ideal conditions.

Few fungal disease problems were encountered. Aphids were a problem and transmitted pea enation mosaic virus (PEMV) and pea seed-borne mosaic virus (PSbMV). Pea moth in the combining peas was also a problem this year.

METEOROLOGICAL DATA

Month	1989 Average Temperature		Long Term Average Temperature	
	Maximum °C	Minimum °C	Maximum °C	Minimum °C
March	12.0	2.8	9.0	1.9
April	10.9	1.6	11.9	4.0
May	20.4	5.8	15.7	6.5
June	21.3	7.6	19.1	9.5
July	24.7	11.6	20.6	11.1
August	23.9	10.6	20.4	11.4

	1989 Monthly Rainfall	Long Term Average Rainfall
	(mm)	(mm)
March	43.9	44.1
April	90.1	42.3
May	28.2	46.2
June	29.4	49.7
July	33.7	52.5
August	34.9	63.5

Source - Marholm, Peterborough

S U M M A R YVINING PEASMAIN TRIAL VARIETIES TESTED 1987 - 1989

The varieties were evaluated in contrasting seasons. 1987 and 1988 were wet years, particularly during the flowering period. 1989 was very hot and dry after a relatively mild and dry winter.

Seed of all varieties was treated to control downy mildew, damping-off and *Ascochyta* diseases. 6 new varieties were compared to the standards; Sprite for quality and maturity, Scout for yield, and Waverex the petits pois standard. In 1989 Puget replaced Dark Skinned Perfection as the maincrop standard and results for these two varieties are not presented. Seed of all standard varieties was from breeders stocks.

Rexado and Cobalt were early maturing. Rexado gave peas of a good dark even colour, but yields were lower than Sprite. Cobalt which was not tested in 1988 and completed trials in 1989 matured 1 day after Sprite. Like Rexado, Cobalt gave peas of a good dark even colour and peas were mostly of small size grade and larger than Waverex. Yields were low, lower than Waverex.

Except for 1989 Minado and Darfon gave peas of slightly larger size grade than Waverex, with less than 85% as petits pois, but their produce was more even in size than that of the standard. Minado matured 5 days after Sprite and yielded better than Waverex, but the produce was slightly paler than Waverex. Darfon matured 7 days after Sprite and like Minado had fine foliage, but was longer strawed. Yields were lower than Waverex, but the produce was attractive, with a good even colour for quick-freezing.

Stirling was of maincrop maturity and gave yields a little lower than Scout at the freezing stage. Stirling was long strawed and prone to lodging, and produce can be uneven in colour as a result.

TRIALS IN 1989

The vining pea variety trials programme consisted of Main, Preliminary and Screening trials.

Seed of all varieties was treated to control damping-off, downy mildew and *Ascochyta* diseases. Four standard varieties were used in all trials; Sprite for quality and maturity; Scout for yield; Waverex the petits pois standard and Puget now replaces Dark Skinned Perfection as the maincrop standard. Seed of all standard varieties were obtained from breeders stocks.

Since there were large numbers of varieties entered, 2 plots per replicate of Scout (the yield standard) were included in the Preliminary trial, and 3 plots in the unreplicated Screening trial.

The Main trial was sown on the 6th March. Wet weather then delayed drilling of the Preliminary and Screening trials until the 19th and 29th of April respectively. With little frost mould seedbeds were cloddy and drilling conditions were far from ideal, but the peas emerged well and plant populations were generally higher than the target. From May onwards the weather was much warmer and drier than average, but local thunderstorms

prevented drought stress and growth was good. Many varieties stood erect throughout the season. There was little disease, *Botrytis* or downy mildew (*Peronospora viciae*) and pest attack was limited to a light infestation of aphid (*Acyrtosiphon pisum*). Some varieties in the Preliminary and Screening trials were affected by pea seed-borne mosaic virus (PSbMV) which is seed-borne and transmitted by cereal aphid. An infected variety can therefore result in symptoms on others. It is essential therefore that clean seed stocks are entered for trials. Harvesting began very early on the 24th June and was completed a month later on the 24th July. The season was relatively short, but varieties matured steadily and most were harvested at the optimum tenderometer readings.

MAIN TRIAL, THORNHAUGH - 1989

Promising varieties from 1987 and 1988 Preliminary trials were evaluated in the Main trial. Stirling, Cobalt, Minado, Rexado and Darfon completed their final year of testing.

Rainfall was lower than average and growth was not as vigorous as in 1988, but although conditions were dry, occasional showers relieved the drought stress.

Rexado matured at the same time as Sprite. Sprite was higher yielding, but both were significantly lower than Scout. Rexado had fine foliage and gave peas of medium/small size grade with a good colour for quick-freezing. Sprite was the first variety to lodge, yields were low and the appearance of the produce poor.

Scout the yield standard performed well, but had long straw and lodged early. Produce was large and there were several blond peas in the frozen sample.

Sublima matured 8 days after Sprite, and had lodged by harvest. Yields were similar to Scout at the freezing stage, but the medium/small size grade produce was uneven in colour.

WAV F505 yielded very well, significantly better than Scout. Straw was very long, with heavy haulm and the variety had lodged by harvest. Peas were even coloured but very large (larger than Scout).

Stirling and Puget matured 10 days after Sprite. Stirling gave good yields of medium/large size grade peas, but the frozen sample contained several blond peas. Stirling was triple podded, had heavy foliage and lodged early and lodging was severe by harvest. Puget, also triple podded significantly outyielded Scout. Produce was of a good even colour, and medium size grade. Like Stirling, Puget lodged early.

Petits Pois and Small Seeded Varieties

Waverex the petits pois standard performed well, and yields were very good at the canning stage. Produce was a little uneven in colour with 90% of the peas in the petits pois category (< 8.75 mm diameter). Waverex remained erect to the end of flowering but had lodged by harvest.

Cobalt was of first early maturity and gave peas of a dark, uniform colour. Peas were smaller size grade than in previous years, with 87% of the peas in the petits pois category. Yields were lower than those of Waverex.

Minado and Darfon had fine foliage and matured 4 and 7 days respectively after Sprite. Both varieties almost made the petits pois category, but they had fewer peas in the very small size grade (< 7.5 mm) than Waverex and consequently looked more even in size, and more attractive. Darfon gave a good even coloured sample of produce. Minado gave produce with a better colour than in previous trials, but was still slightly paler than Waverex. Both varieties yielded lower than Waverex and yields from Darfon were particularly disappointing this year.

Asunta yielded better than Waverex at the freezing stage and although the produce was small, it was not as small as Waverex and was similar to Darfon and Minado. Asunta matured 8 days after Sprite, had fine foliage and gave good quality, even coloured peas.

PRELIMINARY TRIAL, THORNHAUGH - 1989

Varieties in this trial are at National List Stage of testing and 25 varieties including the standards were evaluated. Some variation in plant type was seen, but few were very early or late maturing. Several semi-leafless petits pois varieties were entered this year, and many more were medium or small sieve size. Some varieties were affected by PSbMV and the variety identified as the source of the infection was affected most severely. Scout, the yield standard performed well, and many varieties were significantly lower yielding than the standard.

Cash and Aurora were very early maturing, 4 and 3 days before Sprite respectively. Both varieties were lower yielding than Sprite, and Sprite was significantly lower yielding than Scout. Cash had medium length straw and dark foliage. The produce was also dark, and even coloured, but was larger than that of Scout. Produce from Aurora was a little uneven in colour and of a similar size grade to Scout. It was rather lax in habit and long strawed. Produce from Sprite was a little pale and uneven in colour this year.

There were several varieties in the second early maturity group. Maturing 1 day after Sprite, D 9611 gave an even coloured sample of peas in the medium/small size grade, with yields similar to Sprite. Marinka and Sun-up (FR 165) matured 2 days after Sprite. Sun-up had lush heavy foliage and had lodged before harvest. Yields were good, but lower than Scout and the produce was large and uneven in colour with blond peas in the frozen sample. Marinka had fine foliage and a good plant habit, remaining erect nearly to harvest. Yields were very low, but the produce was of an even bright colour and small/medium size grade. 336 ph 1.5 matured 3 days after Sprite and gave peas of medium size grade with an even colour. Yields were similar to Scout at the canning stage. Maturing 4 days after Sprite, tall, semi-leafless Micro remained erect to harvest, the produce was evenly coloured, a little larger than that of Waverex, but still with 93% of the peas in the petits pois category. Yields were better than Waverex.

Scout the yield standard performed well, but the produce was large and uneven in colour.

The following early maincrop varieties matured 6 days after Sprite:-

WAV F504 had fine foliage. Produce was large and uneven in colour, and yields were lower than Scout, significantly so at the canning stage. 1036 ph 2.1 had a severe infection of PSbMV and yields were low as a result. Produce was severely blemished and smaller than expected.

However, 1036 ph 2.1 had a good plant habit, and so did D 17-608; both were semi-leafless, stiff strawed and remained erect to harvest. Produce of D 17-608 was of a similar size to Waverex, with a good, bright even colour, but was a little blemished by PSbMV. Yields were lower than those of Waverex. Waverex the petits pois standard gave disappointing yields, significantly lower than Scout. Produce was evenly coloured and attractive. Yields from Wolf were lower than Scout, significantly so at the canning stage. Produce was of medium size grade, uneven in colour and had a brown tinge.

The following varieties matured 7 days after Sprite:-

Caty had a good plant habit, with fine foliage and gave peas of a good dark even colour for quick-freezing. Yields were better than Waverex, but the peas were of a larger size grade, small/medium. Uniperle had short, leafy straw and had lodged by harvest. Yields were low, and the medium size grade produce was uneven in colour with several blond peas in the frozen sample. Migella had fine foliage and long straw and had lodged slightly by harvest. Yields were lower than Scout and the medium size grade produce was rather pale and uneven in colour. Yields from Diva, Norda and Enorma, all petits pois types were very low yielding, significantly lower than Waverex. Semi-leafless varieties Diva and Norda had a good plant habit and were erect at harvest. Peas from Diva were of a similar size to Waverex, but rather uneven in colour with a brown tinge and blemished by PSbMV. Produce of Norda and Enorma were also uneven in colour and of mostly small size grade.

Domino, Debra and Lynx matured 8 days after Sprite. Semi-leafless Domino yielded significantly lower than Scout, and although the medium/small peas were of a good colour they were blemished by PSbMV. Debra a long strawed variety yielded better, but lower than Scout and significantly so at the canning stage. Produce was of medium size grade, dark, but uneven in colour and had a brown tinge. Lynx had fine foliage and had lodged slightly by harvest. Yields of this petits pois variety were higher than Waverex. Peas were of a similar size to Waverex and of a good even colour for freezing.

Puget and 876 ph 5.4 were the latest maturing varieties, 9 days after Sprite and both yielded slightly higher than Scout. Produce from Puget was of medium size grade, but rather pale and a little uneven in colour. 876 ph 5.4 had very long straw but remained erect to harvest. Produce was of small/medium size grade and of a good, even bright colour.

The most promising varieties were D 9611, Micro, Caty, Lynx and 876 ph 5.4 and these will be evaluated further in Main trial in 1990.

SCREENING TRIAL, THORNHAUGH - 1989

A very large number of varieties were entered for Screening trial this year. It was not possible to replicate plots and data given is based on only single plots. Yield data should therefore be treated with caution.

There were several early and late maturing varieties in trial; a few were semi-leafless and two of these were also semi-fasciated. Despite being late sown, growth was good and the yield of the standard, Scout, was high. An infection of PSbMV was evident and the yield and quality of some varieties were affected.

In the first early maturity group several varieties matured before Sprite and yielded similarly. Conf 12 matured first, 3 days before Sprite. Yields were low, and the produce medium/small size grade and although the frozen sample was of acceptable colour it had a brown tinge. Conf 1, WAV 750 and WAV 789 matured 2 days before Sprite. Conf 1 gave low yields possibly because only single pods set, but peas were of good quality, even coloured and medium size grade. WAV 750 gave the best yields in this group, but lower than Scout. WAV 750 also gave a good sample of produce with even colour and medium size grade. WAV 789 gave very large size grade peas that were uneven in colour. WAV 706, Conf 14 and VSB 4640 matured a day earlier than Sprite. All 3 gave similar and low yields. WAV 706 had fine foliage, and gave peas of good colour, but large size grade. Produce from Conf 14 was of medium size grade and good colour, but the frozen peas had a brown hue.

Yields of Sprite were average and the produce was a little uneven in colour.

In the second early maturity group Conf 3 was the highest yielding, a little below Scout. However, the produce was of a larger size grade than Scout and uneven in colour. Other varieties in this maturity group yielded less than Sprite. PF 24.87, a fine foliaged variety yielded peas of small size grade, but not as small as Waverex. Produce was rather uneven in colour and was blemished by PSbMV. Produce from Conf 12, VSB 4647, Conf 2 and 2871 was rather uneven and pale. WAV 571 and M Con 9 matured 4 and 5 days respectively after Sprite. WAV 571 gave uneven coloured, small size grade produce. M Con 9 gave even coloured peas of a slightly larger size grade than Waverex but the produce was blemished by PSbMV.

The standard early maincrop variety Scout matured 6 days after Sprite and yielded well, but the large size grade produce contained several blond peas in the frozen sample. BL 79-131 matured at the same time as Scout. BL 79-131 yielded well and the medium size grade produce was of a good, dark, even colour. It was semi-leafless and had a good plant habit, remaining erect to harvest.

The following varieties matured 7 days after Sprite:-

1037-6.1 had a good plant habit, it was semi-leafless and semi-fasciated and remained erect to harvest. The produce was severely blemished by PSbMV. Yields of Conf 15 and Conf 16 were similar and low, and peas were of an even colour and small size grade, but Conf 16 was blemished by PSbMV. Yields of Waverex were low and the produce was a little uneven in colour.

The following matured 8 days after Sprite:-

Nun 8840 was rather leafy and lodged. Yields of evenly coloured, medium size grade peas were average. Conf 8 gave very high yields, better than Scout, and peas were of a good uniform colour and medium, but uneven size grade. This variety was semi-leafless, had a good plant habit and remained erect to harvest. M Con 40 gave peas of small/medium size grade and good colour, but yields were low. Conf 17 gave low yields of good quality, medium/small size grade, even coloured peas.

Several varieties matured 9 days after Sprite.

Conf 6 yielded a little better than Scout, but haulm was long and leafy and the produce was uneven in colour. Conf 7 yielded a little below Scout at

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the freezing stage, but much better at the canning stage. Produce was of medium/small size grade, and even coloured, but blemished by PSbMV. Semi-leafless 789 ph 6.21 had long straw, but blemished by PSbMV. Conf 9 was very short strawed, semi-leafless and semi-fasciated and also remained erect to harvest. Yields were average and the medium size grade peas were even in colour. The semi-leafless varieties 791 ph 18.20 and 789 ph 10.16 were low yielding and the produce severely blemished by PSbMV.

The maincrop maturity standard Puget gave average yields in this trial, and none of the later maturing varieties yielded well. Rico, WAV 701 and Conf 10 matured at the same time as Puget, 10 days after Sprite. All three varieties were small seeded, but only WAV 701 was as small as Waverex. Conf 11 was the latest variety to mature 13 days after Sprite. Yields of medium size grade peas were poor.

Among the most promising varieties in the trial were WAV 750, BL 79-131, Conf 8, 789 ph 6.21, Conf 9, and petits pois M Con 9 and Conf 15.

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DISEASE RESISTANCE TESTS - 1989

Results for downy mildew susceptibility are the means of tests carried out at 2 sites.

Variety	1989 Rating	Field Resistance to downy mildew (<i>Peronospora viciae</i>)* Overall Rating Based on 3 Years Data
Sprite	MS	S
Darfon	SS	
Citadel	GFR	SS
Sublima	SS	
Stirling	GFR	
WAV F505	MS	
Cobalt	GFR	

*KEY: GFR = Good field resistance
SS = Slightly susceptible
MS = Moderately susceptible
S = Susceptible

VINING PEA VARIETY STUDIES. Summary of agronomic data - Main Trial Varieties Tested 1987 - 1989

Varieties placed in order of maturity. Standard varieties underlined. Target population 90 plants/m². Row width 15 cm

Variety	Source	Seeds /kg	At Practical Freezing Stage				At Practical Canning Stage				Raw pea colour 1=pale 5=dark
			Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 100	% in size grades L M S VS	Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 120	% in size grades L M S VS	Haulm length as % of total weight		
Rexado (D 8225)	S&G	5024	0	79	17 43 32 8	- 1	75	26 55 17 2	77	14	5.0
Sprite	<u>AS</u>	<u>4532</u>	0	<u>86</u>	<u>37 41 20 2</u>	0	<u>97</u>	<u>54 38 7 1</u>	<u>71</u>	<u>14</u>	<u>4.0</u>
Cobalt	Cl	10133	+ 1	57-	2 22 52 25	+ 1	56-	3 29 55 13	66	15	4.5
Minado (D 9315)	S&G	10240	+ 5	85	1 19 60 20	+ 5	81	1 22 63 14	65	14	3.0
Scout	<u>CM</u>	<u>4855</u>	+ 6	<u>100</u>	<u>52 36 10 2</u>	+ 6	<u>100</u>	<u>63 28 7 2</u>	<u>91</u>	<u>17</u>	<u>5.0</u>
				(7.02t/ha)			(8.12t/ha)				
Maverex	<u>vW</u>	<u>10915</u>	+ 6	<u>73</u>	<u>1 14 38 47</u>	+ 6	<u>74</u>	<u>2 20 46 32</u>	<u>63</u>	<u>12</u>	<u>4.0</u>
Darfon	RS	9536	+ 7	67-	1 18 57 24	+ 6	71-	2 20 61 17	84	11	4.0
Stirling (FR 2318)	PLS	4695	+11	96	39 44 14 9	+ 9	90	45 42 11 2	85	14	4.0
Significance @ P = 0.05		SD									
LSD @ P = 0.05		23.0									
CV %		16.4									

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

VINING PEA VARIETY STUDIES. Summary of agronomic data - Main Variety Trial, Thornhaugh - 1989

Varieties placed in order of maturity. Standard varieties underlined, All varieties sown on 6th March
Results are means of three replicates. Target population 90 plants/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 % of Scout @ TR 100	% in size grades L M S VS	Maturity relative to Scout (± days)	Yield of shelled peas as % of Scout @ TR 120	% in size grades L M S VS					
Rexado (D 8225)	S&G	5380	0	74	11 40 40 9	- 1	77	18 63 18 1	64	14	4.5		
Cobalt	Cl	10020	0	68	0 13 54 33	- 1	70	2 22 60 16	68	16	4.5		
Sprite	As	4780	0	<u>0(25/6)</u> 77	25 44 28 3	0	<u>0(28/6)</u> 83	34 56 9 1	63	13	4.0		
Minado (D 9315)	S&G	10050	+ 4	64	1 18 60 21	+ 4	60	1 21 66 12	53	12	4.0		
Scout	CM	5190	+ 5	100	40 46 12 2	+ 6	100	53 37 8 2	73	16	5.0		
				<u>(6.00t/ha)</u>			<u>(6.94t/ha)</u>						
Maverex	VW	10636	+ 6	79	0 10 42 48	+ 6	93	1 18 53 28	52	13	4.0		
Darfon	RS	8982	+ 7	52	1 17 64 18	+ 6	53	1 15 71 14	69	10	4.0		
Asunta (NUN 5540)	Nun	8840	+ 8	86	1 18 63 17	+ 7	82	1 20 69 10	64	14	4.0		
Sublima	Bk	7360	+ 8	102	12 43 35 11	+ 7	93	15 55 26 4	54	14	4.5		
WAV F505	VW	5770	+ 9	127	53 42 4 1	+ 8	124	62 33 4 1	75	17	4.0		
Stirling	PLS	5080	+10	109	30 53 14 3	+ 9	98	32 55 11 2	69	15	4.0		
Puget	Bro	3950	+10	121	26 51 19 4	+ 9	119	41 51 7 1	63	14	4.5		
Significance @ P = 0.05				SD			SD						
LSD @ P = 0.05				18.2			18.5						
CV %				12.11			12.5						

KEY: + Significantly greater than Scout @ P = 0.05; - Significantly less than Scout @ P = 0.05
Size grades: L = large > 10.3 mm; M = medium 8.75 - 10.3 mm; S = small 7.5 - 8.75 mm; VS = very small < 7.5 mm
(SL) = semi-leafless

VINING PEA VARIETY STUDIES. Summary of agronomic data - Preliminary Variety Trial, Thornhaugh - 1989

Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 19th 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				Haulm length as % of total weight	Raw pea wt. of colour 1=pale 5=dark
			Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 100	% in size grades L M S VS	Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 120	% in size grades L M S VS				
Cash	Cl	4340	- 4	56	42 34 19 5	- 3	62	48 35 12 5	52	14	5.0	
Aurora	JB	5040	- 3	54	35 36 21 8	- 3	51	39 36 18 7	61	14	5.0	
Sprite	As	<u>4780</u>	0(6/7)	<u>67</u>	<u>38 39 18 5</u>	0(8/7)	<u>71</u>	<u>54 32 12 2</u>	<u>53</u>	<u>14</u>	<u>4.0</u>	
D 9611	S&G	9250	+ 1	69	5 31 42 22	0	61	5 41 38 16	53	13	4.0	
Sun-up (FR 165)	PLS	4370	+ 2	93	38 41 15 6	+ 2	102	39 43 14 4	53	18	4.0	
Marinka	Agri	7460	+ 2	38	5 28 39 28	+ 3	39	6 33 39 22	43	9	4.5	
336 ph 1.5	Bk	6490	+ 3	87	19 40 29 12	+ 4	98	19 47 28 6	56	16	4.0	
Micro (XPF 224) (SL)	As	9420	+ 4	61	0 7 41 52	+ 4	66	0 8 47 45	65	15	4.0	
Scout	CM	<u>5190</u>	+ 5	<u>100</u>	<u>34 43 18 5</u>	+ 5	<u>100</u>	<u>37 47 13 3</u>	<u>60</u>	<u>19</u>	<u>5.0</u>	
				(6.54t/ha)			(7.71t/ha)					
WAV F504	vW	5460	+ 6	86	30 48 17 5	+ 5	78	37 49 12 2	56	16	4.5	
1036 ph 2.1 (SL)	Bk	7271	+ 6	35	1 11 37 51	+ 6	34	1 9 26 64	61	8	5.0	
D 17-608 (SL)	S&G	9750	+ 6	48	1 5 29 65	+ 6	47	1 7 28 64	62	10	4.5	
Waverex	vW	<u>10636</u>	+ 6	<u>53</u>	<u>1 4 25 70</u>	+ 6	<u>52</u>	<u>1 6 29 64</u>	<u>43</u>	<u>12</u>	<u>4.0</u>	
Wolf	MJ	5750	+ 6	88	14 31 34 21	+ 6	86	16 43 28 13	55	19	4.5	
Caty	Cl	7339	+ 7	69	3 29 51 17	+ 7	67	4 33 50 13	55	15	4.5	
Uniperle	Agri	7512	+ 7	67	9 43 36 12	+ 7	62	8 46 37 9	43	12	4.0	
Migella	Bk	6010	+ 7	89	14 55 25 6	+ 7	84	19 56 20 5	60	16	4.0	
Diva (XPF 225) (SL)	As	8387	+ 7	30	0 3 18 79	+ 8	29	0 4 23 73	62	7	4.0	
Norda (SL)	Agri	7936	+ 7	33	3 22 44 31	+ 8	35	5 37 42 16	52	8	4.0	
Enorma	Agri	8452	+ 7	25	1 11 37 51	+ 9	32	2 16 37 46	51	7	4.5	
Domino (SL)	Agri	6491	+ 8	50	4 30 47 19	+ 8	57	4 30 49 16	57	10	4.5	
Debra	JB	6950	+ 8	90	14 43 32 11	+ 8	81	19 55 21 5	66	16	4.5	

Continued/.....

VINING PEA VARIETY STUDIES (continued). Summary of agronomic data - Preliminary Variety Trial, Thornhaugh - 1989

Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 19th April
 Results are means of three replicates. Target population 90 plants per m² sown in ten 15 cm rows

Variety	At Practical Freezing Stage					At Practical Canning Stage					
	Source	Seeds /kg	Maturity relative to Sprite (\pm days)	Yield of shelled peas as % of Scout @ TR 100	% in size grades L M S VS	Maturity relative to Sprite (\pm days)	Yield of shelled peas as % of Scout @ TR 120	% in size grades L M S VS	Haulm length cm	Pea wt. as % of total weight	Raw pea colour 1=pale 5=dark
Lynx	MJ	11450	+ 8	59	1 7 30 62	+ 8	54	1 11 47 41	55	11	4.0
<u>Puget</u>	<u>Bro</u>	<u>3950</u>	+ <u>9</u>	<u>105</u>	<u>12 32 38 18</u>	+ <u>9</u>	<u>106</u>	<u>20 49 23 8</u>	<u>58</u>	<u>18</u>	<u>4.0</u>
876 ph 5.4	Bk	7271	+ 9	102	5 26 43 26	+ 9	101	9 37 38 16	68	17	4.5

Significance @ P = 0.05 SD

LSD @ P = 0.05 13.4

CV % 14.0

KEY: + Significantly greater than Scout @ P = 0.05; - Significantly less than Scout @ P = 0.05
 Size grades: L = large > 10.3 mm; M = medium 8.75 - 10.3 mm; S = small 7.5 - 8.75 mm; VS = very small < 7.5 mm
 (SL) = semi-leafless

VINING PEA VARIETY STUDIES. Summary of agronomic data - Screening Variety Trial, Thornhaugh - 1989

Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 28th April
Results are from one replicate only. 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 wt. of colour 1=pale 5=dark
			Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 100	% in size grades L M S VS	Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 120	% in size grades L M S VS	Haulm length cm			
Conf 13	Conf	6300	- 3	69	13 42 33 12	- 3	77	31 48 15 6	47	16	4.5	
Conf 1	Conf	4760	- 2	68	33 43 17 7	- 2	79	44 40 13 3	58	17	5.0	
WAV 750	vW	4910	- 2	81	27 45 22 6	- 2	99	40 41 15 4	51	18	4.0	
WAV 789	vW	4180	- 2	75	52 38 8 2	- 1	76	71 22 5 2	58	19	4.0	
WAV 706	vW	5180	- 1	61	39 44 13 4	- 1	56	45 43 10 2	58	15	4.5	
Conf 14	Conf	6170	- 1	62	23 46 24 7	- 1	72	30 51 14 5	50	14	5.0	
VSF 4640	Bk	4558	- 1	65	36 39 20 5	0	64	44 39 13 4	43	17	5.0	
Sprite	As	4780	0(8/7)	74	44 38 12 6	0(10/7)	79	58 32 8 2	51	14	4.0	
PF 24.87	Vil	7070	+ 1	63	3 22 47 28	+ 1	71	2 28 55 15	47	16	5.0	
Conf 12	Conf	6260	+ 1	62	10 34 36 20	+ 1	85	15 45 29 11	47	14	4.0	
VSF 4647	Bk	4969	+ 1	64	29 42 23 6	+ 1	74	42 41 13 4	57	16	4.0	
Conf 2	Conf	4160	+ 2	62	28 36 28 8	+ 3	72	41 42 14 3	52	14	4.0	
Conf 3	Conf	3790	+ 2	99	43 41 14 2	+ 3	98	49 36 11 4	49	19	4.5	
2871	PLS	4720	+ 2	64	46 37 14 3	+ 2	75	65 27 6 2	51	17	4.0	
WAV 571	vW	7720	+ 4	69	1 22 58 19	+ 4	70	2 20 62 16	45	16	4.0	
M Con 9	PBI	7750	+ 5	57	3 20 45 33	+ 5	55	4 28 46 22	42	12	4.5	
Scout	CM	5190	+ 6	100	33 46 18 3	+ 6	100	45 40 12 3	60	19	5.0	
				(7.01t/ha)				(7.49t/ha)				
BL 79-131	(SL) B1	5740	+ 6	87	7 32 42 18	+ 6	103	10 45 33 12	60	19	5.0	
1037-6.1	(SL/SF) Bk	7490	+ 7	61	8 27 38 27	+ 7	87	14 38 33 25	66	17	5.0	
Conf 16	Conf	11400	+ 7	43	1 14 44 41	+ 7	53	6 25 42 27	50	13	4.5	
Conf 15	Conf	11220	+ 7	50	1 10 35 54	+ 8	68	2 19 38 41	52	13	4.5	
Waverex	vW	10636	+ 7	46	1 8 30 61	+ 8	66	20 18 40 40	54	12	4.0	

Continued/.....

VINING PEA VARIETY STUDIES (continued). Summary of agronomic data - Screening Variety Trial, Thornhaugh - 1989

Varieties placed in order of maturity. Standard varieties underlined. All varieties sown on 28th April
Results are from one replicate only. 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 Sprite (± days)	Yield of shelled peas as % of Scout @ TR 100	% in size grades L M S VS	Maturity relative to Sprite (± days)	Yield of shelled peas as % of Scout @ TR 120	% in size grades L M S VS							
Nun 8840	Nun	5270	+ 8	83	19 45 30 6	+ 7	89	24 50 21 5	52	20	4.5				
Conf 8	(SL) Conf	4920	+ 8	112	27 48 20 5	+ 8	130	40 50 9 1	55	21	4.5				
M Con 40	PBI	6720	+ 8	77	8 38 43 11	+ 8	75	12 48 34 6	38	21	4.5				
Conf 17	Conf	8180	+ 8	63	7 30 45 18	+ 8	70	4 43 36 17	51	15	5.0				
789 ph 6.21	(SL) Bk	6185	+ 9	88	21 40 28 11	+ 9	107	29 50 17 2	63	20	4.0				
Conf 7	Conf	5600	+ 9	90	15 40 34 11	+ 9	117	20 56 20 4	57	20	4.0				
M Con 34	PBI	5800	+ 9	71	10 40 45 5	+ 9	91	20 57 19 4	44	17	4.0				
Conf 6	Conf	4580	+ 9	104	17 48 27 8	+ 9	106	23 57 17 3	62	20	4.5				
Conf 9	(SL) Conf	4780	+ 9	90	22 54 21 3	+ 9	86	30 59 13 1	45	16	5.0				
791 ph 18.20	(SL) Bk	6830	+ 9	72	11 43 26 20	+ 9	81	14 50 26 10	81	13	4.0				
BL 301	Bk	9410	+ 9	67	6 26 46 22	+ 9	96	8 37 43 4	56	21	4.0				
789 ph 10.16	(SL) Bk	6360	+ 9	79	11 46 32 11	+10	74	11 51 28 10	60	18	5.0				
Rico	Sch	9487	+10	55	7 29 40 24	+10	53	9 41 40 10	69	14	4.0				
WAV 701	vW	9170	+10	40	2 9 26 64	+10	37	2 12 36 51	65	10	4.0				
Conf 10	Conf	8500	+10	49	6 35 42 17	+10	50	8 39 43 10	50	13	4.5				
Puget	Bro	3950	+10	88	18 48 30 4	+11	90	22 51 20 7	57	19	4.5				
Conf 11	Conf	5730	+13	66	26 45 24 5	+13	61	23 42 31 4	54	16	4.0				

KEY: Size grades: L = large > 10.3 mm; M = medium 8.75 - 10.3 mm; S = small 7.5 - 8.75 mm; VS = very small < 7.5 mm
(SL) = semi-leafless, (SF) = semi-fasciated

NB: Results are from one replicate only, yield data should therefore be treated with caution

COMBINING PEAS

TRIALS IN 1989

In 1989 PGRO again had a large programme of variety trials. In 6 replicated trials 78 varieties were evaluated including the standards Birte, Countess and Solara. The mean yield of these 3 varieties was used as the yield control in the trials. Maturities were related to Countess. Maro, marrowfat and Conquest small blue were included as the quality standards for human consumption. Approximately 2/3 of the varieties were semi-leafless, a similar proportion to 1988.

The Screening, Preliminary, a Confidential trial and 1 of the Main trials were carried out at Thornhaugh on a sandy loam soil type. Two other Main trials were at Chatteris, Cambridgeshire on an organic clay and Melbourn near Royston, Hertfordshire on a clay loam. The Main trials form part of the NIAB/ADAS/PGRO co-ordinated system, from which the Recommended List is produced. Varieties tested are either fully or provisionally recommended or are candidates for the Recommended List jointly selected from the most promising registered varieties. 6 varieties, Anno, Renata, Rex, Baroness, Leo and Guido are in the RLO category, where extra data is sought before putting them forward for full Recommended List evaluation.

All trials seed was treated to control damping-off, downy mildew and *Ascochyta* diseases. Trials were drilled during the period 28th February to 30th April, the later trials were delayed because of wet weather. At Thornhaugh, drilling conditions were far from ideal and seedbeds Cloddy, but there were few seedbed losses in the mild spring and emergence and early growth was good. Disease levels were negligible, but aphid (*Acyrtosiphon pisum*) and pea moth (*Cydia nigricana*) were a problem later in the season. Isolated areas of peas affected by pea seed-borne mosaic virus (PSbMV) were seen in some trials, and it is essential that clean stocks of seed are entered for evaluation. At Chatteris seedbed conditions were very poor and cloddy. Emergence was patchy as a result and a few plots were abandoned after grazing by pheasants. Subsequent growth was vigorous and the varieties withstood the drought better on this moisture retentive soil than at the other sites. Drilling conditions at Royston were good and emergence was even. There was little pest activity throughout the season at these outside sites.

Pea straw was shorter at all sites (particularly Royston) and there was less lodging than in 1988.

The hot, dry weather advanced maturity and varieties were combined under mostly ideal conditions. Maturity was uneven for some varieties however, with a few green pods remaining at the top of some plants.

Produce quality was excellent this season; levels of staining and *Botrytis* were very low and were not recorded. All small blue and marrowfat varieties with possible human consumption quality from the Thornhaugh trials were canned and these samples were evaluated by a British Edible Pulse Association Panel. Dry produce and canned samples were evaluated by the canning industry.

MAIN TRIAL, THORNHAUGH - 1989 (NIAB/ADAS/PGRO)

Yields were lower in this trial than 1988, but the trial was sown on a very light and gravelly part of the field. In the hot dry conditions varieties

matured early and maturity differences between varieties were less this season.

Orb yielded slightly higher than the mean of the control varieties. The remaining small blue varieties were lower yielding, Helka and Conquest significantly so. Conquest was the lowest yielding and had lodged severely by harvest. Orb and Echo stood very well and were easy to harvest. Conquest and Orb were the earliest maturing, but only 6 days before Countess this season. Helka and Echo matured one day later. All small blue varieties with the exception of Conquest were semi-leafless. In PGRO tests Conquest was thought to be suitable for canning, Helka borderline and Echo and Orb unsuitable.

The 2 large blue varieties Solara and Ascona were of similar plant habit; short strawed and semi-leafless. Both varieties stood well and were easy to harvest. Ascona and Solara matured 3 and 5 days respectively before Countess. Yields of Solara were good, better than the control, but yields from Ascona were disappointing and a little lower than the control. Produce of Ascona was severely affected by PSbMV.

The white seeded peas constituted the largest group of varieties in the trial. All were semi-leafless with the exception of Birte (standard), Bohatyr and Rex. Anno, Renata and Birte matured at the same time, 5 days before Countess. Anno was longer strawed than Renata, but both stood well and were easy to harvest. Birte had short straw and lodged, but not severely. Yields of Birte were significantly lower than the control at this site. Yields of Anno and Renata were similar to the control. Symptoms of PSbMV were found in the produce of Anno. Maturing 4 days before Countess, Kasino yielded slightly below the control and was easy to harvest. Leo gave disappointing yields at this site, significantly lower than the control. Leo matured 3 days before Countess and standing ability was not as good as some of the other semi-leafless varieties, but it was still easily harvested. Rex and Consort matured 2 days before the standard. Rex (Bohatyr plant type) had even longer straw than Bohatyr, but lodging was not severe and like Bohatyr the variety was easily harvested. Yields of Rex were the highest in the trial and significantly higher than the control. Bohatyr was late maturing at this site, similar to Countess and gave yields similar to the control. Bohatyr did not show its typical "elbow" growth characteristic at this site. Consort, also long strawed showed good standing ability and was easy to harvest. Yields were better than in previous years. Baroness matured 1 day before Countess, had long straw, gave good yields and was easy to combine. The yield of Countess was similar to the control and it was the largest seeded variety in this group.

Maturing at the same time as Countess, semi-leafless Princess stood very well and was easily harvested and gave yields equal to the control. Conventional-leaved Maro and Guido matured 1 day later and were of similar plant habit and both varieties had lodged by harvest. Guido yielded slightly better than Maro. Guido also had a larger thousand grain weight than Maro, a desirable characteristic for a human consumption marrowfat for canning. Tare-leaved Progreta was the latest variety to mature, 2 days after Countess. The variety was easy to harvest and yields were slightly better than the control and much better than in the previous 2 seasons. With the exception of Princess, which showed an unacceptable degree of breakdown and splitting of the peas, all the marrowfats gave good samples of canned produce.

MAIN TRIAL, ROYSTON - 1989 (NIAB/ADAS/PGRO)

Yields of the standard varieties were the lowest of the 3 Main trial sites. Growth was good and none of the varieties lodged excessively so that all varieties were relatively easy to harvest. As at the Thornhaugh site, maturity differences were reduced to less than a week between the earliest and latest maturing varieties.

All 3 semi-leafless small blue varieties were easy to harvest. Echo had the longest straw. Helka matured first, 6 days before Countess, followed 1 day later by Orb and Echo. Yields showed a similar trend to the Thornhaugh site; Helka was significantly lower yielding than the mean of the control varieties, Orb and Echo yielded slightly higher than the control.

The large blue semi-leafless varieties Solara and Ascona matured together at this site, 4 days before Countess. Both varieties were short strawed and easily harvested. Yields of Solara were slightly lower than the controls and as at Thornhaugh, Ascona was lower yielding than Solara.

With the exception of Bohatyr, Rex and Birte all the white seeded peas were semi-leafless. Anno, Kasino and Renata matured 5 days before Countess. Yields from Anno were good, higher than the control, Kasino yielded slightly lower than the control and yields from Renata were significantly lower. Bohatyr, Rex and Leo yielded extremely well, significantly better than the control. Leo stood well and was easy to harvest. Rex (Bohatyr plant type) like Bohatyr was very long strawed and was later to mature than Bohatyr at this site. Both varieties were easy to harvest. Birte yielded well, but it had lodged by harvest. However, it was still relatively easy to combine. Semi-leafless Baroness was long strawed, but stood well and was easy to combine. It was late maturing, 1 day earlier than Countess, and gave good yields, higher than the control. Countess did not perform quite as well at this site.

All the marrowfats were of similar maturity to Countess. Guido as at Thornhaugh, yielded slightly better than Maro, and at this site slightly better than the control. Progreta also yielded slightly better than the control and better than in previous seasons. Princess stood well and was easily harvested, but yields were slightly lower than the control.

MAIN TRIAL, CHATTERIS - 1989 (NIAB/ADAS/PGRO)

Mean yield of the control varieties was very good (6.60 t/ha) and some varieties outyielded this figure. Maro was omitted from the results because of poor emergence and pheasant grazing. Maturities at this site were more typical of previous years; there being 11 days difference between the earliest and latest maturing varieties. Quality of produce was very good from this site.

Helka and Conquest were the earliest varieties to mature, 10 days before Countess, followed by Orb and Echo, 9 and 7 days respectively before the standard. Semi-leafless varieties Helka, Orb and Echo showed good standing ability and were easy to harvest. Conventional-leaved Conquest (as at Thornhaugh) lodged and was more difficult to harvest. Helka and Conquest were significantly lower yielding than the control, and Orb and Echo were a little lower yielding than the control.

Solara and Ascona matured at the same time, 3 days before Countess. Ascona yielded better at this site but slightly lower than the control, while

Solara was equal to the control. Both varieties were semi-leafless, short strawed and easy to harvest.

The highest yielding white seeded pea variety was semi-leafless Baroness closely followed by Rex (Bohatyr plant type) and both varieties yielded significantly higher than the control. Kasino, Leo, Consort and Countess yielded slightly higher than the control; Birte, Anno and Renata slightly below. In contrast to the Thornhaugh and Royston sites Bohatyr was significantly lower yielding than the control. Kasino showed very good standing ability and was easy to harvest. Of the semi-leafless varieties Countess and Leo showed poor standing ability, but were not too difficult to combine. Birte had short straw and lodged. Countess, Baroness, Rex and Bohatyr all had long straw.

All the marrowfat peas performed well and gave similar yields. Tare-leaved Progreta and semi-leafless Princess yielded slightly higher than the control and Guido equal to the control. Princess and Progreta showed good standing ability and were easy to combine but Guido lodged and was difficult to combine. Progreta matured at the same time as Countess, while Guido and Princess were one day later in maturity. Guido was very large seeded.

PRELIMINARY TRIAL, THORNHAUGH - 1989

This trial provides additional data to the National List series, which are used to select candidate varieties for the Recommended List. 25 varieties, including the standards were evaluated; 12 were semi-leafless and 5 tare-leaved types. Small blue and marrowfat varieties were canned to evaluate their potential for human consumption.

PSbMV symptoms were noted on the produce of the following varieties - Arena, Ceb 1121, Ceb 1118, Ceb 417, Ceb 1418 (Monaco), Celeste and Archer (NSA 718).

Tare-leaved Mascot was early maturing, 8 days before Countess. The variety lodged severely and was difficult to combine. Semi-leafless Arena matured 4 days before Countess. The variety had long straw, but remained fairly erect and was easy to combine. Mascot gave a good canned sample of peas with only slight breakdown. The canning potential of Arena was poor. The seed size of Arena was slightly larger than the typical size for a small blue and should be placed in the large blue category.

Montego (Ceb 120) a conventional-leaved variety, was the highest yielding large blue, significantly higher than the control and was closely followed by Ceb 1122, Chantal, Archer (NSA 718) and Solara also performed well. Masterman also yielded better than the control. Ceb 1121 and Ceb 1118 yielded similarly and slightly lower than the control. The semi-leafless varieties Ceb 1121, Ceb 1118, Solara and Ceb 1122 were all short strawed and of similar habit and they demonstrated good standing ability and were easy to harvest. Chantal and Masterman were tare-leaved and had medium length straw. Standing ability was inferior to other varieties in this group, but they were not difficult to combine. Archer had long straw and lodged. Conventional-leaved Montego (Ceb 120) had short straw and was easy to harvest. Masterman was the earliest maturing large blue, 7 days before Countess and Montego was 6 days earlier.

Birte and Countess were the lowest yielding of the white seeded peas, but not significantly so. 4-9009 yielded a little better, but still lower than

the control. The other varieties in this group yielded well, higher than the control. The following 4 varieties were significantly higher yielding. 4-9549 was the highest yielding followed by 4-9002, Celeste and Ceb 1418. Birte, Katrin, Celeste, 4-9549 and Ceb 417 had normal foliage. Birte, 4-9549 and Ceb 417 had short straw and lodged. The former 2 varieties were difficult to harvest, whilst Ceb 417 was a little easier to combine. Katrin and Celeste were long strawed. Katrin lodged, while Celeste was of the Bohatyr plant type and although the variety lodged it was easily harvested. 4-9002 was tare-leaved and standing ability was not good. The remainder of the white seeded peas were semi-leafless. Ceb 1418, Terese and Mary were short strawed, but a little longer than Solara. Ceb 1418 showed the best standing ability of the 3, but none were difficult to harvest. 4-9009 had straw length similar to Countess, but remained fairly erect and was easy to harvest. Birte was the earliest pea to mature, 7 days before Countess. Ceb 1418, Katrin, Celeste and Ceb 417 were 6 days earlier. Countess and 4-9009 were the latest maturing. Seed size of 4-9549 was larger than, and Mary similar to, Countess. 49009 was very small seeded.

Bunting and tare-leaved Promar (4-9001) matured at the same time as Countess and Guido and Maro matured 1 day later. Guido gave lower yields than Maro in this trial. Maro, Promar and Bunting yielded slightly lower than the control. Bunting, Maro and Promar were long strawed, but Guido was slightly shorter strawed in this trial. All four of the marrowfats showed good canning potential in PGRO tests, with little breakdown of the peas. Guido gave the largest seeded produce, while Promar was smaller than Maro or Bunting.

SCREENING TRIAL, THORNHAUGH - 1989

16 varieties at an early stage of evaluation were tested and compared with control varieties. 2 varieties were tare-leaved, 2 were conventional-leaved and the remainder were semi-leafless. In contrast to 1988 several new marrowfat varieties were entered this year. Produce from several varieties in this trial showed symptoms of PSbMV.

4-9047 was the only conventional-leaved small blue variety, the rest were semi-leafless. CQ 1/1/2 and late-maturing 800 were the highest yielding in this group, yielding slightly higher than the mean of the control varieties. Both varieties were long strawed (not as long as Countess) and had lodged by harvest. HU 2/1/3, 572-13-21, 4-9034, 802 and 4-9047 yielded a little lower than the mean of the control varieties. 802 showed the best standing ability and was easy to harvest. In PGRO tests none of the small blue varieties showed canning potential.

Solara the standard large blue variety and 801 yielded similar to the control, while 803 was the only variety in the trial to significantly outyield the control. All three varieties were semi-leafless. 801 was long strawed but had good standing ability and was easy to harvest. 803 was short strawed like Solara, but lodged by harvest and was more difficult to combine. 801 matured 1 day before Solara and 803 3 days later.

Birte was the earliest white seeded pea and gave yields similar to the control, but showed poor standing ability. Chico and AMA matured 3 days before Countess. Semi-leafless Chico gave yields a little higher than the control, but had very long straw and had lodged by harvest. Conventional-leaved AMA had weak straw, lodged severely and gave poor yields. AMA was

very small seeded. Countess had long straw and gave yields equal to the control.

5 new marrowfat varieties were entered this year. 3 of these, 871-8, 931-29-5 and 871-3 were semi-leafless. 4-9049 and 4-9048 were tare-leaved and gave the highest yields in this group. 4-9049 was early maturing, 5 days before Maro, the standard in this group and while standing ability was not good, it was the best of the varieties in this group. Semi-leafless varieties 871-8 and 931-29-5 matured 1 day earlier and 871-3 1 day later than Maro, and all gave yields significantly lower than the control. These varieties had very large stipules and 871-3 also had very long straw and all lodged by harvest, 931-29-5 severely. Tare-leaved 4-9048 matured at the same time as Maro. Maro was lower yielding than the control, but not significantly so. In PGRO canning tests all marrowfat varieties with the exception of 931-29-5 had possible canning potential. Produce of 931-29-5 showed excessive breakdown and was very large seeded. 4-9048 gave a good quality canned sample but the peas may be too small in size. 4-9049 gave peas of similar size to Maro and seemed promising.

COMBINING PEA VARIETY STUDIES. Summary of agronomic data - Main Variety Trial, Thornhaugh - 1989

Standard varieties underlined. Control varieties for yield; Birte, Countess and Solara
All varieties sown on 28th February. Results are means of three replicates

Variety	Source	Seed 1000 grain weight(g)	Maturity days (\pm)	Countess (\pm)	Yield % of Control @ 16% MC	Straw length (cm)	Standing ability 9=erect 1=lodged	Ease of harvest 9=easy 1=difficult	1000 grain weight (g)	Water uptake %
SMALL BLUES: Target population 95 plants/m ²										
Conquest	Bk	207	- 6		70	58	1	3	210	100
Orb	(SL) Bk	204	- 6		102	55	8	8	228	90
Helka	(SL) Ni	184	- 5		84	57	5	6	229	100
Echo	(SL) Ni	177	- 5		97	61	7	8	245	99
LARGE BLUES: Target population 70 plants/m ²										
Ascona	(SL) Ni	250	- 5		96	49	7	7	270	
<u>Solara</u>	(SL) D	<u>301</u>	- 3		<u>102</u>	<u>51</u>	<u>7</u>	<u>8</u>	<u>300</u>	
WHITES: Target population 70 plants/m ²										
Anno (LD 8909)	(SL) ICI	275	- 5		101	65	7	8	247	
Renata (Ceb 1416)	(SL) Ceb	264	- 5		102	57	7	7	306	
<u>Birte</u>	Ni	<u>215</u>	- 5		<u>88</u>	<u>53</u>	<u>4</u>	<u>6</u>	<u>270</u>	
Kasino	(SL) Ni	203	- 4		95	66	8	9	276	
Leo (SVU 50122)	(SL) D	211	- 3		87	60	5	7	252	
Rex (NRPB 412)	Ni	244	- 2		110 ⁺	70	4	7	263	
Consort	(SL) Bk	263	- 2		101	69	7	8	293	
Baroness (FS 4)	(SL) Bk	261	- 1		108	66	8	8	306	
<u>Countess</u>	(SL) Bk	<u>308</u>	0	(25/7)	<u>103</u>	<u>66</u>	<u>7</u>	<u>8</u>	<u>355</u>	
Bohatyr	Ni	234	0		99	65	5	7	277	
MARROWFATS: Target population 65 plants/m ²										
Princess	(SL) Bk	246	0		100	67	8	8	346	107
<u>Maro</u>	GA	<u>362</u>	+ 1		<u>95</u>	<u>53</u>	<u>2</u>	<u>3</u>	<u>372</u>	<u>110</u>
Guido (Ceb 210)	Ceb	354	+ 1		99	51	3	4	419	124
Progreta	(TL) Prog	339	+ 2		104	65	5	7	321	103
Mean yield of control varieties t/ha										
Significance @ P = 0.05										
LSD @ P = 0.05										
CV %										

4.33
SD
9.8
6.6

KEY: + Significantly greater than control @ P = 0.05; - Significantly less than control @ P = 0.05
(SL) = semi-leafless; (TL) = tare-leaved

COMBINING PEA VARIETY STUDIES. Summary of agronomic data - Main Variety Trial, Royston - 1989

Standard varieties underlined. Control varieties for yield; Birte, Countess and Solara
All varieties sown on 8th March. Results are means of three replicates

Variety	Source	Seed 1000 grain weight(g)	Maturity days (±)Countess	Yield % of Control @ 16% MC	Straw length (cm)	Standing ability 9=erect 1=lodged	Ease of harvest 9=easy 1=difficult	1000 grain weight (g)
SMALL BLUES: Target population 95 plants/m²								
Helka	(SL) Ni	184	- 6	90 ⁻	47	6	7	197
Orb	(SL) Bk	204	- 5	106	46	8	8	211
Echo	(SL) Ni	177	- 5	101	53	8	8	211
LARGE BLUES: Target population 70 plants/m²								
<u>Solara</u>	(SL) D	301	- 4	96	44	7	7	267
Ascona	(SL) Ni	250	- 4	93	41	7	7	243
WHITES: Target population 70 plants/m²								
Anno (LD 8909)	(SL) ICI	275	- 5	107	53	8	8	214
Kasino	(SL) Ni	203	- 5	97	52	7	8	239
Renata (Ceb 1416)	(SL) Ceb	264	- 5	92 ⁻	46	4	7	268
Bohatyr	Ni	234	- 4	119 ⁺	69	4	7	249
Leo (SVU 50122)	(SL) D	211	- 4	115 ⁺	59	7	8	222
<u>Birte</u>	(SL) Ni	215	- 4	105	47	3	5	228
Consort	(SL) Bk	263	- 4	101	55	6	7	260
Rex (NRPB 412)	Ni	244	- 3	118 ⁺	63	4	6	254
Baroness (FS 4)	(SL) Bk	262	- 1	107	60	8	8	264
<u>Countess</u>	(SL) Bk	308	0 (21/7)	98	62	7	8	324
MARROWFATS: Target population 65 plants/m²								
Progreta	(TL) Prog	339	0	102	57	6	7	297
<u>Maro</u>	GA	362	0	97	49	4	5	341
Princess	(SL) Bk	246	0	96	59	8	8	319
Guido (Ceb 210)	Ceb	354	0	104	53	4	5	382
Mean yield of control varieties t/ha 3.98								
Significance @ P = 0.05 SD								
LSD @ P = 0.05 7.5								
CV % 5.0								

KEY: + Significantly greater than control @ P = 0.05; - Significantly less than control @ P = 0.05
(SL) = semi-leafless; (TL) = tare-leaved

COMBINING PEA VARIETY STUDIES. Summary of agronomic data - Main Variety Trial, Chatteris - 1989

Standard varieties underlined. Control varieties for yield; Birte, Countess and Solara
All varieties sown on 28th March. Results are means of three replicates

Variety	Source	Seed 1000 grain weight(g)	Maturity days (±)Countess	Yield % of Control (@ 16% MC	Straw length (cm)	Standing ability 9=erect 1=lodged	Ease of harvest 9=easy 1=difficult	1000 grain weight (g)
SMALL BLUES: Target population 95 plants/m²								
Helka	(SL) Ni	184	-10	94 ⁻	65	6	7	242
Conquest	Bk	207	-10	83 ⁻	65	1	3	208
Orb	(SL) Bk	204	-9	98	63	7	8	253
Echo	(SL) Ni	177	-7	99	70	6	7	263
LARGE BLUES: Target population 70 plants/m²								
Ascona	(SL) Ceb	250	-3	98	58	4	6	291
<u>Solara</u>	(SL) D	<u>301</u>	-3	<u>100</u>	<u>59</u>	<u>5</u>	<u>6</u>	<u>317</u>
WHITES: Target population 70 plants/m²								
<u>Birte</u>	Ni	<u>215</u>	-8	97	<u>55</u>	<u>2</u>	<u>4</u>	<u>287</u>
Anno (LD 8909)	(SL) ICI	275	-8	97	64	6	7	264
Kasino	(SL) Ni	203	-7	101	68	7	8	294
Consort	(SL) Bk	263	-6	104	71	5	7	324
Bohatyr	Ni	234	-4	94 ⁻	70	3	5	292
Rex (NRPB 412)	Ni	244	-4	113 ⁺	74	3	5	288
Renata (Ceb 1416)	(SL) Ceb	264	-3	95	61	4	6	299
Leo (SVU 50122)	(SL) D	211	-3	104	67	3	4	238
Baroness (FS 4)	(SL) Bk	262	-1	116 ⁺	73	5	6	301
<u>Countess</u>	(SL) Bk	<u>308</u>	0 (1/8)	<u>103</u>	<u>71</u>	<u>3</u>	<u>5</u>	<u>355</u>
MARROWFATS: Target population 65 plants/m²								
Progreta	(TL) Prog	339	0	105	62	5	7	336
Princess	(SL) Bk	246	+1	104	74	6	7	348
Guido (Ceb 210)	Ceb	354	+1	100	60	2	3	425
Mean yield of control varieties t/ha								
Significance @ P = 0.05								
LSD @ P = 0.05								
CV %								

KEY: + Significantly greater than control @ P = 0.05; - Significantly less than control @ P = 0.05
(SL) = semi-leafless; (TL) = tare-leaved

COMBINING PEA VARIETY STUDIES. Summary of agronomic data - Preliminary Variety Trial, Thornhaugh - 1989

Standard varieties underlined. Control varieties for yield; Birte, Countess and Solara
All varieties sown on 30th March. Results are means of three replicates

Variety	Source	Seed 1000 grain weight(g)	Maturity days (±)Countess	Yield % of Control @ 16% MC	Straw length (cm)	Standing ability 9=erect 1=lodged	Ease of harvest 9=easy 1=difficult	1000 grain weight (g)	Water uptake %
SMALL BLUES: Target population 95 plants/m²									
Mascot	(TL) PBI	172	- 8	97	66	1	2	195	94
Arena (NRPB 621)	(SL) Ni	269	- 4	114 ⁺	71	4	6	230	96
LARGE BLUES: Target population 70 plants/m²									
Masterman	(TL) PBI	260	- 7	106	67	3	5	267	
Montego (Ceb 120)	Ceb	265	- 6	115 ⁺	65	5	7	261	
Ceb 1121 (Camaro)	(SL) Ceb	338	- 5	97	59	6	7	287	
Ceb 1118 (Nevada)	(SL) Ceb	308	- 5	97	59	6	7	<u>276</u>	
Solara	(SL) D	<u>301</u>	- 4	<u>110</u>	<u>59</u>	<u>5</u>	<u>7</u>	<u>293</u>	
Ceb 1122 (Astura)	(SL) Ceb	341	- 4	113	64	5	7	300	
Archer (NSA 718)	(SL) Ni	230	- 4	109	75	2	4	231	
Chantal	(TL) Ceb	351	- 3	112	63	3	5	317	
WHITES: Target population 70 plants/m²									
<u>Birte</u>	<u>Ni</u>	<u>215</u>	- 7	<u>96</u>	<u>62</u>	<u>2</u>	<u>4</u>	<u>244</u>	
Ceb 1418 (Monaco)	(SL) Ceb	310	- 6	115 ⁺	63	4	6	275	
Katrin	Twy	305	- 6	109	70	2	4	285	
Celeste (NRPB 640)	Ni	278	- 6	115 ⁺	78	3	5	252	
Ceb 417	Ceb	329	- 6	109	51	2	4	296	
Terese (PAJ 4-0208)	(SL) Ni	282	- 5	105	64	3	4	255	
4-9002	(TL) Mar	292	- 4	117 ⁺	70	2	4	257	
Mary (PAJ 4-0241)	(SL) Ni	358	- 3	111	63	2	4	319	
4-9549	Mar	438	- 3	124 ⁺	58	1	2	350	
4-9009	(SL) Mar	145	0	98	78	5	7	225	
Countess	(SL) Bk	<u>308</u>	0 (1/8)	<u>94</u>	<u>76</u>	<u>3</u>	<u>5</u>	<u>320</u>	

Continued/.....

COMBINING PEA VARIETY STUDIES (continued). Summary of agronomic data - Preliminary Variety Trial, Thornhaugh - 1989

Standard varieties underlined. Control varieties for yield; Birte, Countess and Solara
 All varieties sown on 30th March. Results are means of three replicates

Variety	Source	Seed 1000 grain weight(g)	Maturity days (\pm)	Countess	Yield % of Control @ 16% MC	Straw length (cm)	Standing ability 9=erect 1=lodged	Ease of harvest 9=easy 1=difficult	1000 grain weight (g)	Water uptake %
MARROWFATS: Target population 65 plants/m ²										
Bunting	Bat	351	0		97	73	2	3	333	107
Promar (4-9001)	(TL) Mar	341	0		99	67	2	4	309	105
<u>Maro</u>	<u>GA</u>	<u>362</u>	+ 1		<u>96</u>	<u>69</u>	<u>2</u>	<u>4</u>	<u>332</u>	<u>114</u>
Guido (Ceb 210)	Ceb	380	+ 1		92	63	2	4	367	113
Mean yield of control varieties t/ha										
Significance @ P = 0.05										
LSD @ P = 0.05										
CV %										

KEY: + Significantly greater than control @ P = 0.05; - Significantly less than control @ P = 0.05
 (SL) = semi-leafless; (TL) = tare-leaved

COMBINING PEA VARIETY STUDIES. Summary of agronomic data - Screening Variety Trial, Thornhaugh - 1989

Standard varieties underlined. Control varieties for yield; Birte, Countess and Solara
All varieties sown on 29th March. Results are means of two replicates

Variety	Source	Seed 1000 grain weight(g)	Maturity days (±)Countess	Yield % of Control @ 16% MC	Straw length (cm)	Standing ability 9=erect 1=lodged	Ease of harvest 9=easy 1=difficult	1000 grain weight (g)	Water uptake %
SMALL BLUES: Target population 95 plants/m²									
CQ 1/1/2	(SL) Bk	174	- 8	104	77	3	5	188	79
HU 2/1/3	(SL) Bk	170	- 8	97	65	2	4	157	89
4-9034	(SL) Mar	205	- 8	95	68	4	6	187	90
802	(SL) Conf	193	- 7	94	74	6	7	190	95
4-9047	(SL) Mar	214	- 6	93	73	2	4	175	99
572-13-21	(SL) Bk	140	- 6	97	67	3	4	147	89
800	(SL) Conf	166	- 2	102	79	3	4	215	96
LARGE BLUES: Target population 70 plants/m²									
801	(SL) Conf	240	- 6	101	74	7	8	256	
<u>Solara</u>	(SL) D	301	- 5	102	60	6	7	268	
803	(SL) Conf	252	- 2	113 ⁺	62	2	3	236	
WHITES: Target population 70 plants/m²									
<u>Birte</u>	(SL) Ni	215	- 7	98	69	2	4	231	
Chico	(SL) Bar	256	- 3	102	87	2	3	247	
AMA	(SL) Conf	127	- 3	89 ⁻	72	1	2	182	
<u>Countess</u>	(SL) Bk	308	0(1/8)	100	81	3	3	302	
MARROWFATS: Target population 65 plants/m²									
4-9049	(TL) Mar	364	- 4	102	71	3	4	325	105
871-8	(SL) Bk	321	0	89 ⁻	71	2	3	309	110
931-29-5	(SL) Bk	417	0	85 ⁻	75	1	2	348	105
4-9048	(TL) Mar	330	+ 1	101	71	2	3	292	114
<u>Maro</u>	(SL) GA	362	+ 1	93	74	2	3	315	117
871-3	(SL) Bk	360	+ 2	85 ⁻	81	2	2	306	108
Mean yield of control varieties t/ha									
Significance @ P = 0.05									
LSD @ P = 0.05									
CV %									
5.68									
SD									
10.2									
5.0									

KEY: Yield: + Significantly greater than control @ P = 0.05; - Significantly less than control @ P = 0.05
(SL) = semi-leafless; (TL) = tare-leaved

APPENDIX I

KEY TO SOURCE OF VARIETIES

CODE	NAME & ADDRESS	COUNTRY
Agri	Agri Saaten GmbH Siemensstrabe 43 D-2084 Rellingen Postfach 1151	W. Germany
As	Asgrow Seed Company 9634-190-31 7000 Portage Road Kalamazoo MI 49001	USA
Bar	Barenbrug UK Limited P.O. Box 2 Bury St. Edmunds Suffolk	UK
Bat	Brooke Bond Foods Limited Wadsley Bridge Sheffield S6 1NG	UK
Bk	Booker Seeds Limited Boston Road Sleaford Lincolnshire NG34 7HA	UK
Bl	Andre Blondeau Rue Nestor Longue Epee B.P. No. 1 59235 Bersee	France
Bro	W. Brotherton Seed Co. Inc. P.O. Box 1136 Moses Lake Washington 98837	USA
Geb	Cebeco Zaden BV 31 Blaak P.O. Box 182 3000 AD Rotterdam	Holland
Cl	Société Clause Comptabilité 1 Avenue Lucien Clause 91220 Bretigny Cedex	France
CM	Crites-Moscow Growers Inc. Box 8912 Moscow Idaho 83843	USA
Conf	Confidential	

D	Dalgety Agriculture Limited Dalgety House, Works Lane Setchey, Kings Lynn Norfolk	UK
GA	General Availability	
ICI	ICI Seeds UK Limited Marsh Lane Boston Lincolnshire PE21 7RR	UK
JB	Mr. J. D. Burrows (Pro Seeds) 91 Hatfield Road Witham Essex CM8 1EF	UK
Mar	The Breeding Station "Maribo" P.O. Box 32 DK-4960 Holeby	Denmark
MJ	CO.VA.L.P.A - Mon Jardin Soc. Coop a.r.l. Viale Gramsci 39 I-41037 Mirandola (Modena)	Italy
Ni	Nickerson Seeds Limited Rothwell Lincoln LN7 6DT	UK
Nun	Nunhems Zaden BV Postbus 4005 6080 AA Haelen	Holland
PBI	Plant Breeding International Cambridge Maris Lane Trumpington Cambridge CB2 2LQ	UK
PLS	Pure Line Seeds Inc. P.O. Box 8866 Moscow Iadho 83843	UK
Prog	Progreta Limited The Stone House Back Lane Leadenham Lincoln LN5 0PW	UK
Rog	Rogers Brothers Seed Co. International Group P.O. Box 4727 Boise ID 83711-0727	USA

RS	Royal Sluis Postbus 22 1600 AA Enkhuizen	Holland
Sch	Schafer Seed Co. P.O. Box 3437 D-3400 Gottingen	W. Germany
S&G	Sluis & Groot BV P.O. Box 13 Enkhuizen	Holland
Twy	Twyford Seeds Limited Scotts Farm Kings Sutton Banbury Oxfordshire OX17 3QW	UK
Vil	Vilmorin SA La Menitre 49250 Beaufort-en-Vallee	France
vW	van Waveren Pflanzenzucht GmbH D-3405 Rosdorf Uber Gottingen	W. Germany
Wh	Wherry & Sons Limited South Street Bourne Lincolnshire PE10 9LU	UK

