

A REPORT TO THE HORTICULTURAL DEVELOPMENT COUNCIL
18 LAVANT STREET, PETERSFIELD, HANTS, GU32 3EW

CUCUMBER VARIETIES

FINAL REPORT

Project Number: PC21d

Project Title: Cucumber Varieties

Project Leader: Miles Harriman

Location of Project: Horticulture Research International
Stockbridge House
Cawood
Selby
North Yorkshire
YO8 0TZ

Tel: 0757 268275
Fax: 0757 268996

Project Coordinator: Alan Shirley

Report Date: October 1993

Date Project Commenced: December 1992

Date Completion Due: September 1993

Key Words: cucumbers, varieties, shelf life

Authentication

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

Signature *M. Harriman*

Miles Harriman
Project Leader

Date *5 Oct. 1993*

Report authorised by *M. R. Bradley*
(signature)

M R Bradley
Head of Station
HRI Stockbridge House
Cawood
Selby
North Yorkshire
YO8 0TZ

Date *5.10.93*

Contents

	Page
Relevance to Growers and Practical Application	5-6
Introduction	7
Materials and Methods	7-9
Results	10-23
Discussion	24
Conclusions	25
Appendix I: General Notes	26-27

Relevance to Growers and Practical Application

- * A range of 7 new cucumber varieties were compared with Jessica (standard) in terms of yield, quality, shelf life and disease tolerance from a January planting.
- * Pyralis and 5102 produced good early and total yields and were less susceptible to stem botrytis than other varieties.
- * 5102 had good shelf life qualities such as firmness and colour.

Summary

The following 7 new cucumber varieties were compared with the standard variety Jessica.

<u>Variety</u>	<u>Seed Company</u>
Jessica (control)	RZ
5102	NIZ
2505	YATES
PYRALIS	ENZ
LM818	MOS (ELS)
2422	RZ
983	PTR/DeR
9022	NUN

Yield and Quality

The growth of 5102, 2505 and Pyralis was generally faster early in the season, resulting in taller plants and good early yields compared with Jessica and other varieties.

LM818 produced significantly less, but larger fruit compared with other varieties.

Throughout the trial there was generally little difference in fruit quality except in March and April when LM818 produced less Class I and more Class II fruit than Jessica.

5102, Pyralis and 2422 were less susceptible to stem botrytis than other varieties.

5102 produced firmer and better coloured fruit than other varieties after 6 days under shelf life conditions.

	No. of Cues	% Class I	Mean Fruit Weight (g)	Monetary Value (£)
Jessica	76	81	436	18.93
5102	75	82	437	18.94
2505	75	79	431	20.55
Pyralis	78	80	433	18.96
LM818	69	79	457	18.12
2422	73	80	445	19.09
983	75	78	434	17.54
9022	75	79	437	18.49
SED (29 df)	1.4	0.8	3.1	1.30
LSD (P = 0.05)	3	2	6	-
Significance	***	*	***	NS

Introduction

Cucumber varieties planted in late December to early January are required to produce a good early yield of high quality fruit. Their ability to withstand initially very low light conditions and maintain fruit quality into the summer months, limits the number of successful varieties competing with longstanding industry standards. After initial selections have been made by seed houses, evaluation against standard varieties is required in as near commercial conditions as possible. This trial compared 7 relatively new introductions with the control variety Jessica for high yielding, good quality cucumber production.

Materials and Methods

Varieties

Jessica (control)	RZ
5102	NIZ
2505	YATES
PYRALIS	ENZ
LM818	MOS (ELS)
2422	RZ
983	PTR/DeR
9022	NUN

Cultural Details

Sown:	14 December
Planted:	7 January
First Harvest:	17 February
Final Harvest:	14 July
Plant Population:	5625 plants per acre
Plot Size:	16 plants per plot

Root Zone Warming: To maintain 24°C in the slab

Crop Nutrition: To standard blueprint for rockwool grown crops.

Environment: 23°C day, 21°C night early season, 21°C day, 19°C night during lateral initiation. Varying according to growth.

Ventilation: 24°C

Carbon Dioxide: 1000 vpm until mid April and 350 vpm thereafter.

Shelf Life Conditions: 16 hours light, 20°C, 65% RH, assessments taken at day 6.

Design: A 7 row x 7 column plot design with 7 replicates of the control, and 6 replicates of the test varieties.

Records: Fruit yield (number and weight, 3 times per week.

Fruit quality (Class I, II), 3 times per week.

Fruit size (mean fruit weight, Grade A, B, C, D), 3 times per week.

Plant growth at regular intervals:

- a. Plant vigour
- b. Lateral diameter
- c. Plant height
- d. Leaf number

Shelf life:

- a. Fruit firmness
- b. Fruit colour
- c. Percentage weight loss

Fruit length

Tolerance to disease

Results

Plant Growth

The variety 2505 was more vigorous than other varieties on the 2 March but less vigorous on the 15 June (Table 1). 5102 was more vigorous on the 15 June than other varieties. There was little difference in vigour between varieties on the 24 March and 19 April assessments.

Differences in lateral diameter were inconsistent between varieties over the assessment periods. The average lateral diameter of Jessica and Pyralis was slightly lower than other varieties throughout the trial (Table 2).

On 29 January the taller, faster growing varieties with the most leaves were 5102, 2505, Pyralis and LM818 (Table 3 & 4). By the 5 February all varieties had increased in height by about 50 cm, but the former varieties still remained the tallest, and had more leaves. On the 12 February most plants had reached the wire and had been stopped and therefore were all at a similar height.

Table 1: Plant Vigour.

Score 0-5, where 0 = poor, 5 = vigorous.

Variety	Assessment Date				
	2 Mar	24 Mar	19 Apr	15 Jun	Mean
Jessica	3.4	2.9	2.9	2.9	3.0
5102	3.2	2.8	3.1	3.3	3.1
2505	3.7	2.8	2.9	2.6	3.0
Pyralis	3.3	2.8	3.0	2.8	3.0
LM818	3.3	2.8	2.9	3.0	3.0
2422	3.1	2.8	3.1	2.8	3.0
983	3.0	2.7	3.0	2.8	2.9
9022	2.9	2.8	3.0	2.8	2.9

Table 2: Lateral Diameter (mm).

Variety	Measurement Date					
	2 Mar	24 Mar	19 Apr	13 May	15 Jun	Mean
Jessica	6.6	5.1	5.3	4.4	5.8	5.4
5102	7.2	5.2	5.6	5.1	5.9	5.8
2505	7.0	5.1	5.7	4.9	5.7	5.7
Pyralis	6.8	4.7	5.3	4.8	5.8	5.5
LM818	7.1	5.3	5.7	5.4	6.0	5.9
2422	7.2	4.9	6.1	4.5	6.2	5.8
983	6.9	5.1	6.2	5.2	6.0	5.9
9022	7.0	5.3	6.2	4.9	6.0	5.9

Table 3: Plant Height (cm).

Variety	Measurement Date		
	29 Jan	5 Feb	12 Feb
Jessica	90	144	203
5102	126	176	215
2505	119	169	212
Pyralis	124	178	215
LM818	119	167	209
2422	94	141	200
983	98	147	205
9022	88	136	199

Table 4: Leaf Number.

Variety	Measurement Date		
	29 Jan	5 Feb	12 Feb
Jessica	8.8	13.3	17.5
5102	11.3	15.5	18.0
2505	10.5	14.9	17.9
Pyralis	10.9	15.0	18.0
LM818	10.5	14.6	17.8
2422	9.4	13.6	17.6
983	9.4	13.6	17.7
9022	8.8	13.1	17.5

Fruit Yield and Quality

5102, 2505 and Pyralis produced good yields in February and March. In April, the yields from 5102 and 2505, together with LM818, 2422 and 983 were significantly lower than the control Jessica (Table 5). In May, the number of fruit from 2505 and Pyralis were similar to Jessica while yields from all other varieties were significantly lower. At the end of the trial the yield from LM818 was lower than all varieties and yield from 2422 was lower than the control, Jessica.

There were some differences in marketable weight of fruit compared to number of cucumbers between varieties. In April 5102 and LM818 produced the lowest marketable weights, and in July, 9022 produced less weight than other varieties. To the end of the season there was no difference in total marketable weight between varieties (Table 6).

Table 5: Marketable Yield (cues/m²).

	Feb	Mar	Apr	May	Jun	Jul	Total
Jessica	1.5	15.4	17.1	17.5	18.1	6.8	76
5102	2.3	16.1	13.9	16.6	18.3	7.5	75
2505	1.9	16.3	15.3	17.6	17.5	6.4	75
Pyralis	2.0	16.0	15.6	17.7	19.0	7.4	78
LM818	1.8	15.0	13.3	15.5	16.5	7.2	69
2422	1.5	15.6	15.1	16.8	17.2	6.6	73
983	1.6	15.2	15.3	17.5	18.3	6.6	75
9022	1.2	15.7	17.8	17.2	17.2	5.5	75
SED 1 (29 df)	0.19	0.66	0.92	0.6	0.86	0.63	1.4
LSD (P = 0.05)	0.4	-	2	1	-	-	3
SED 2 (29 df)	0.19	0.69	0.97	0.6	0.91	0.66	1.4
LSD (P = 0.05)	0.4	-	2	1	-	-	3
Significance	***	NS	**	*	NS	NS	***

SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

Table 6: Marketable Weight (kg/m²).

	Feb	Mar	Apr	May	Jun	Jul	Total
Jessica	0.5	6.1	7.0	7.9	8.6	3.2	33
5102	0.9	6.3	5.8	7.3	8.7	3.5	33
2505	0.7	6.4	6.3	7.9	8.2	2.9	32
Pyralis	0.8	6.3	6.5	7.8	8.9	3.4	34
LM818	0.7	6.1	5.8	7.1	8.4	3.5	32
2422	0.6	6.3	6.4	7.6	8.4	3.1	32
983	0.6	6.1	6.3	7.7	8.7	3.1	32
9022	0.5	6.2	7.3	7.8	8.3	2.6	33
SED 1 (29 df)	0.07	0.28	0.35	0.3	0.41	0.29	0.64
LSD (P = 0.05)	0.1	-	0.7	0.6	-	0.6	1
SED 2 (29 df)	0.07	0.29	0.36	0.3	0.43	0.31	0.67
LSD (P = 0.05)	0.1	-	0.7	0.6	-	0.6	1
Significance	***	NS	**	NS	NS	*	NS

SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

Table 7: Percentage Class I (by number).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	99	97	85	77	69	76	81
5102	97	97	84	78	72	74	82
2505	98	96	80	76	65	71	79
Pyralis	100	95	81	77	68	74	80
LM818	95	93	76	75	72	74	79
2422	99	96	83	77	68	68	80
983	97	93	80	75	68	71	78
9022	99	94	84	73	68	74	79
SED 1 (29 df)	1.8	1.1	1.8	2.2	1.8	3.1	0.8
LSD (P = 0.05)	-	2	4	-	4	-	2
SED 2 (29 df)	1.9	1.2	1.9	2.3	1.9	3.3	0.9
LSD (P = 0.05)	-	2	4	-	4	-	2
Significance	NS	*	**	NS	*	NS	*

SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

Table 8: Percentage Class II (by number).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	1.4	3.4	15	23	31	24	19
5102	3.5	2.9	16	22	28	26	18
2505	1.8	4.1	20	24	35	29	21
Pyralis	0.3	4.8	19	23	32	26	20
LM818	5.5	6.8	24	25	28	26	21
2422	1.0	3.7	17	23	32	32	20
983	3.2	6.7	20	25	32	29	22
9022	1.4	6.3	16	27	32	26	21
SED 1 (29 df)	1.8	1.1	1.8	2.2	1.8	3.1	0.8
LSD (P = 0.05)	-	2	4	-	4	-	2
SED 2 (29 df)	1.9	1.2	1.9	2.3	1.9	3.3	0.9
LSD (P = 0.05)	-	2	4	-	4	-	2
Significance	NS	**	**	NS	*	NS	*

SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

Table 9: Mean Fruit Weight (g).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	374	394	413	451	475	463	436
5102	393	394	418	438	480	471	437
2505	364	393	416	447	467	449	431
Pyralis	391	392	416	440	470	460	433
LM818	386	406	438	461	508	488	457
2422	376	403	425	453	487	474	445
983	388	397	411	440	472	468	434
9022	364	392	411	454	486	471	437
SED 1 (29 df)	9.1	4.0	5.4	6.9	9.8	9.5	3.1
LSD (P = 0.05)	19	8	11	14	20	19	6
SED 2 (29 df)	9.6	4.2	5.7	7.2	10.3	10.0	3.3
LSD (P = 0.05)	20	9	12	15	21	20	7
Significance	*	**	***	*	**	*	***

SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

Fruit Quality

The percentage of Class I fruit was high for most varieties throughout the season. In April LM818 had lower fruit quality than all other varieties. Although significant differences in the average fruit quality for the whole season were recorded, the maximum difference in percentage Class I between varieties did not exceed 3% (Table 7). LM818 produced more Class II fruit than other varieties in March and April but less in June.

Fruit Size

Throughout the season the mean fruit size of LM818 was larger than most varieties. 2422 also tended to produce large fruit (Table 9).

LM818 produced significantly less small Grade A fruit (250-400 g) and more Grade C fruit (500-650 g) than other varieties in March, April, June and averaged over the season. There was little difference in percentage B (400-500) sized fruit between varieties throughout the season. Generally LM818 produced more large Grade D (650-800 g) sized fruit than other varieties in April, July and as an average for the whole season.

Table 10: Percentage Grade A of Class I (250-400 g).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	70	53	45	31	24	30	39
5102	61	57	41	35	23	28	39
2505	74	56	45	32	26	33	42
Pyralis	59	57	45	33	25	32	41
LM818	61	47	33	28	16	26	32
2422	62	49	41	30	21	29	36
983	59	53	46	34	26	27	40
9022	74	60	48	28	21	27	41
SED 1 (29 df)	5.4	2.3	3.0	3.0	2.2	3.9	1.6
LSD (P = 0.05)	11	5	6	-	4	-	3
SED 2 (29 df)	5.7	2.4	3.1	3.2	2.3	4.1	1.7
LSD (P = 0.05)	12	5	6	-	5	-	3
Significance	*	***	***	NS	***	NS	***

SED 1 To compare any variety with the standard Jessica
 SED 2 To make comparisons between varieties except Jessica

Table 11: Percentage Grade B of Class I (400-500 g).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	29	38	37	40	35	36	37
5102	36	35	40	37	37	34	37
2505	23	35	37	39	35	33	36
Pyralis	37	36	38	40	40	37	38
LM818	34	40	39	37	33	33	37
2422	32	38	37	38	32	33	36
983	29	38	40	38	35	34	37
9022	27	33	37	41	34	29	35
SED 1 (29 df)	4.5	1.9	2.4	2.3	2.5	3.2	1.0
LSD (P = 0.05)	-	4	-	-	-	-	-
SED 2 (29 df)	4.7	2.0	2.5	2.4	2.7	3.4	1.1
LSD (P = 0.05)	-	4	-	-	-	-	-
Significance	NS	*	NS	NS	NS	NS	NS

SED 1 To compare any variety with the standard Jessica
 SED 2 To make comparisons between varieties except Jessica

Table 12: Percentage Grade C of Class I (500-650 g).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	1	8	16	25	31	24	19
5102	3	8	17	24	31	31	20
2505	2	8	16	25	30	28	19
Pyralis	4	7	17	24	27	23	18
LM818	5	13	24	28	39	29	25
2422	6	12	20	26	37	28	23
983	12	9	12	24	32	31	20
9022	1	7	14	27	34	32	20
SED 1 (29 df)	2.9	1.3	1.5	2.4	2.4	2.7	1.1
LSD (P = 0.05)	-	3	3	-	5	-	2
SED 2 (29 df)	3.1	1.3	1.6	2.5	2.5	2.9	1.2
LSD (P = 0.05)	-	3	3	-	5	-	2
Significance	NS	***	***	NS	***	NS	***

SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

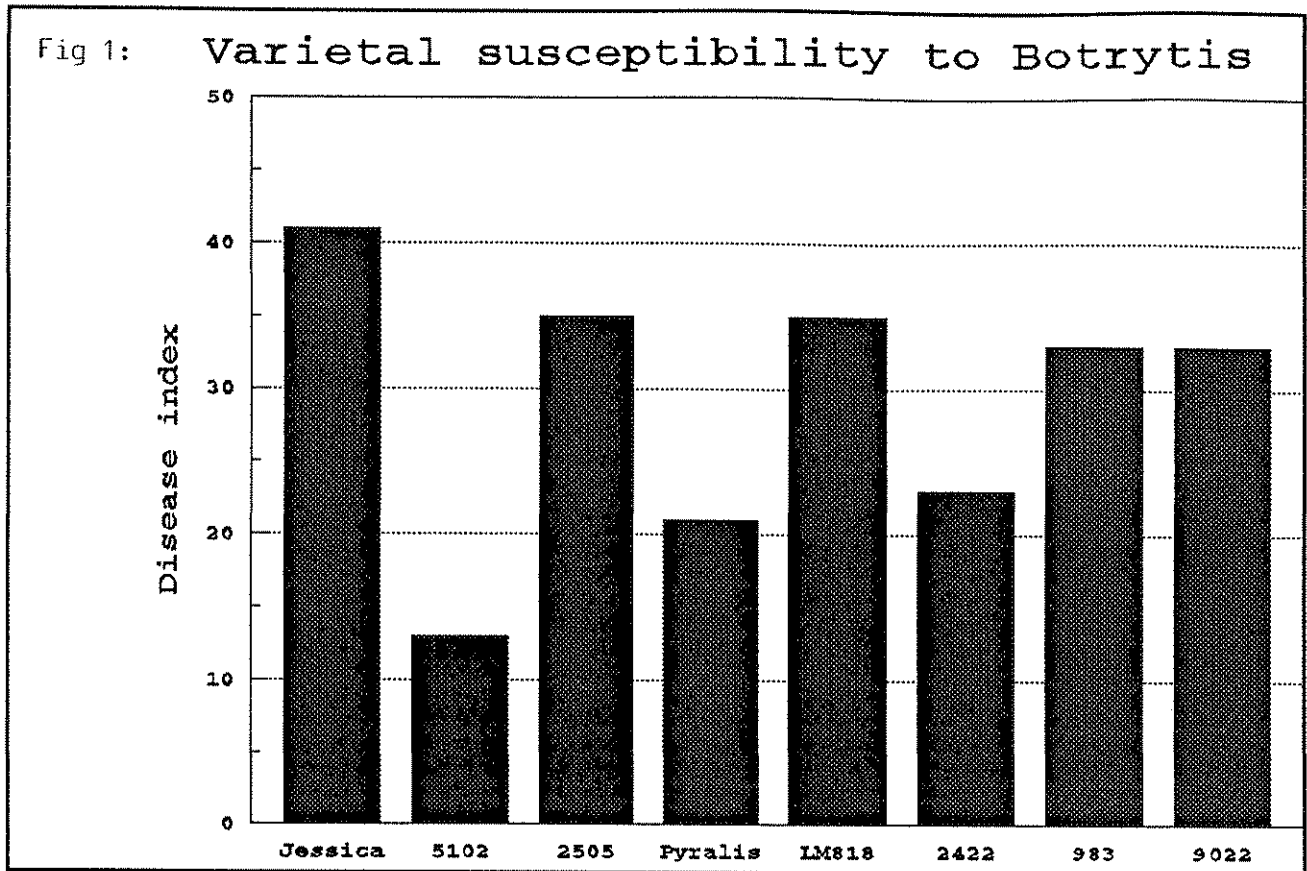
Table 13: Percentage Grade D of Class I (650-800 g).

	Feb	Mar	Apr	May	Jun	Jul	Mean
Jessica	0	0.6	2.2	4.9	10.9	10.2	4.8
5102	0	0.5	1.7	4.2	9.6	7.1	4.1
2505	0	0.7	1.7	4.0	9.1	5.9	3.6
Pyralis	0	0.2	1.2	3.5	8.0	8.6	3.5
LM818	0	0.8	4.1	7.1	11.9	13.0	6.3
2422	0	0.8	2.2	5.3	10.3	10.0	4.7
983	0	0.7	1.4	4.1	7.1	7.5	3.5
9022	0	0.3	1.2	4.8	10.6	12.1	4.3
SED 1 (29 df)	0	0.31	0.66	1.04	1.54	1.7	0.48
LSD (P = 0.05)	-	-	1.3	-	-	3.5	1.0
SED 2 (29 df)	0	0.32	0.69	1.09	1.62	1.8	0.51
LSD (P = 0.05)	-	-	1.4	-	-	3.6	1.0
Significance	NS	NS	**	NS	NS	***	***

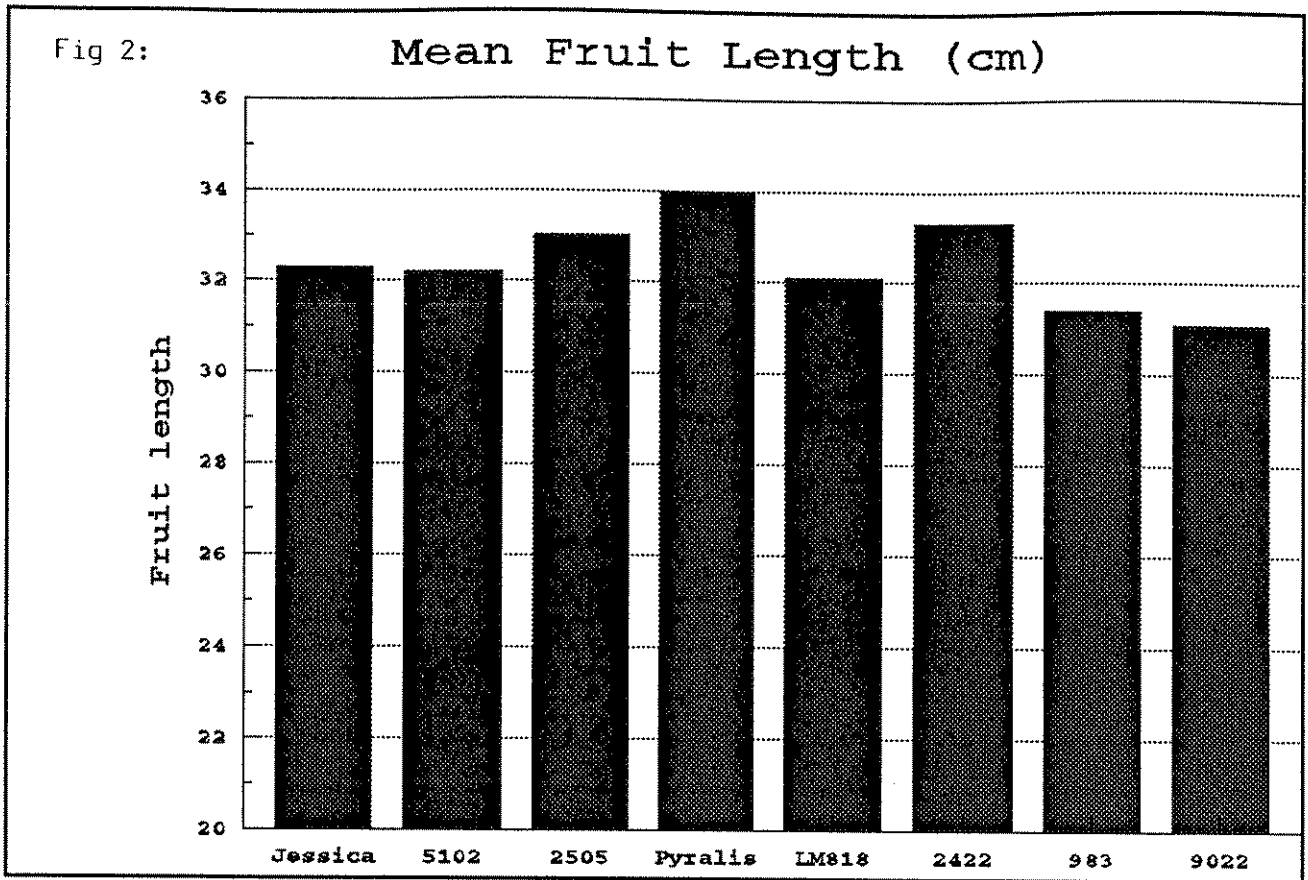
SED 1 To compare any variety with the standard Jessica

SED 2 To make comparisons between varieties except Jessica

Stem Disease



Plants were assessed for their susceptibility to botrytis stem lesions at crop termination. It was found that 5102 was less susceptible to botrytis than all other varieties. Pyralis and 2422 were also slightly more tolerant than other varieties (Fig 1).



Pyralis tended to produce slightly longer fruit than other varieties.

Shelf Life

In assessments in March and May, the variety 5102 tended to produce firmer fruit and have a darker fruit colour after 6 days under shelf life conditions (Table 14 and 15).

Generally, Jessica, LM818 and 2422 lost more weight over the 6 day shelf life period than other varieties.

Table 14: Shelf Life: Fruit firmness (day 6) (a higher figure represents firmer fruit).

	March	May
Jessica	12.0	17.4
5102	12.6	23.1
2505	12.0	20.4
Pyralis	9.9	20.0
LM818	12.0	18.8
2422	10.9	17.8
983	12.4	21.3
9022	12.2	22.2

Table 15: Shelf Life: Fruit colour (day 6) (score 0-9, 0 = pale, 9 = dark).

	March	May
Jessica	5.6	5.9
5102	6.2	6.2
2505	5.9	6.0
Pyralis	6.1	6.1
LM818	5.8	6.0
2422	5.6	6.0
983	6.2	6.1
9022	5.6	5.9

Table 16: Shelf Life: Percentage weight loss (day 6) (weight loss over a 6 day period).

	March	May
Jessica	19.0	14.3
5102	15.5	13.0
2505	16.9	11.9
Pyralis	16.5	12.4
LM818	18.2	15.4
2422	18.8	13.8
983	17.0	13.8
9022	18.0	13.1

**Table 17: Monetary Value (£)
- To end of trial.**

Jessica	18.93
5102	18.94
2505	20.55
Pyralis	18.96
LM818	18.12
2422	19.09
983	17.54
9022	18.49
SED1 (29 df)	1.30
LSD (P = 0.05)	-
SED2 (29 df)	1.36
LSD (P = 0.05)	-
Significance	NS

SED 1 To compare any variety with the standard Jessica
 SED 2 To make comparisons between varieties except Jessica

There was no significant difference in monetary value at the end of the trial. LM818, 983 and 9022 produced slightly less monetary returns for fruit compared to other varieties.

Discussion

The growth of 5102, 2505 and Pyralis was generally faster early season resulting in taller plant heights and good early yields compared to Jessica and other varieties. The growth of 2505 was also more vigorous than other varieties in March.

Lateral growth of Jessica and Pyralis was thinner than other varieties as they tended to produce more reproductive than vegetative growth. At the end of the trial both Jessica and Pyralis had produced good yields of fruit. The yield of LM818 (cues/m²) was significantly lower than all varieties to the end of the trial. There was no difference in total marketable weight to the end of the trial between varieties. LM818 produced fewer but larger fruit than other varieties, significantly less Grade A (250-400 g) and more Grade C (500-650 g) and Grade D (650-800 g) fruit.

Throughout the trial there was generally little difference in fruit quality in terms of percentage Class I or Class II except in March and April when LM818 produced less Class I and more Class II fruit than Jessica.

Plants were assessed for susceptibility to botrytis stem lesions prior to crop termination. It was found that 5102, Pyralis and 2422 were less susceptible than other varieties.

When fruit was placed under shelf life conditions of 16 hours light, 20°C and 65% relative humidity for 6 days, the variety 5102 had the best 'shelf life' qualities. 5102 produced firmer fruit with a darker colour after 6 days in shelf life conditions, than all other varieties. The varieties Jessica, LM818 and 2422 generally lost the most weight over the 6 day period compared to other varieties.

Conclusions

1. 5102 and Pyralis with good early and total yields and low susceptibility to botrytis stem lesions should be considered on a small scale initially as an alternative to Jessica.
2. Where long shelf life of fruit is important 5102 has an advantage over other varieties.
3. LM818 is not a suitable alternative to Jessica due to fewer, but larger fruit being produced.

APPENDIX I:

GENERAL NOTES ON CUCUMBER VARIETIES (10.3.93)

- Jessica Lateral vigour good, well balanced with fruit development. First node on the laterals has 4 fruit but then subsequent nodes have developed only single fruit. Continuity between mainstem and lateral fruit could leave a 3 day gap in cutting. Overall Score = 4.
- 5102 Tends to produce one rather strong lateral and two weaker ones. Two fruit being produced per node on laterals. Productivity steady, could require lower night temperatures to induce more vigour. Score = 2.
- 2505 Multiple fruiting has prevented the development of occasional laterals. Two fruits at some lateral nodes. Flowering at node 1 and 4 but often missing on nodes 2 and 3. Balance of fruiting to laterals now OK. Score = 3.
- Pyralis Good balance between fruiting and lateral growth. Flowering on second node of lateral. Lateral vigour good. Some multiple fruits on laterals, but overall productivity and continuity of fruiting looks good. Overall Score = 3.
- LM818 Lateral growth vigorous with sub-laterals extending from first and second nodes with laterals are only 5 nodes long. Single fruit per node is flowering and developing, but occasionally 2 fruits. Very vigorous in producing laterals along the top of the mainstem. Score = 3. Would require higher temperatures.
- 2422 Fairly vigorous lateral growth but mainly single fruits developing on lateral nodes. Flowering on second node of laterals. Good continuity. Score = 4.
- 983 Balanced lateral vigour to fruiting. One dominant fruit per lateral node but occasionally 2 developing. Three good laterals quite even developed per plant. Fruit on the laterals may produce a 3 day cutting gap with mainstem fruit. Overall Score = 4. Some sub-lateral development.
- 9022 Lateral development fairly vigorous. Flowering on second node of lateral but several mainstem fruit left to cut. Continuity of fruit size is poor as laterals start to develop against large mainstem fruit. Some multiple fruits on the first lateral node. Score = 3.

Score of overall opinion of variety; score where 0 = poor, 5 = good.

GENERAL NOTES ON CUCUMBER VARIETIES (22.6.93)

- Jessica Open habit. Short re-growth of laterals, often weak. Roughly 2 good sized fruit per plant. Few medium sized fruit. 8-10 flowers. Score = 2.
- 5102 Dense canopy, strong vigorous lateral growth, good continuity of fruiting, fruit generally short within canopy. Fruit difficult to see. Score = 3.
- 2505 Stems crowded close together and some stem botrytis. Reasonably continuity of fruiting. Fewer laterals than Jessica but much longer. Score = 3.
- Pyralis Stems not so crowded at 2505. Fewer flowers but good continuity of fruiting. Lateral growth very long and thin, requires more stopping. Fruit quite visible within the plant. Score = 4.
- LM818 Stems fairly crowded, some botrytis developing. Moderate habit. Some plants with 2 good sized cucumbers and little else. Continuity very variable between plants. Score = 2.
- 2422 Lots of stems and petioles visible, open canopy, lack of flowers, some continuity but generally poor, requires more re-growth of sub-laterals. Score = 2.
- 983 Moderately closed leaf canopy. Good continuity of fruit. Vigorous lateral growth. Fruit a little short and often pointed on the flowering end. Score = 3.
- 9022 Lack of framework. Good lateral growth but aborting most flowers. Upto 6 flowers per plant, some continuity but quantity of fruit is low. Score = 2.

Score of overall opinion of variety; score where 0 = poor, 5 = good.