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1/1987

PROCESSORS & GROWERS RESEARCH ORGANISATION

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T H E S E A S O N

Temperatures were low during March and rainfall was frequent and sometimes heavy until 10 April. A very dry period followed and apart from a 6.2 mm precipitation 1 - 2 May there was no rain for four weeks. Temperatures during the latter part of April were much higher than average. From mid-May the weather became very cool and wet and early commercial sowings of green beans suffered from poor emergence and growth checks. The weather did not improve in June which was one of the wettest for many years with a total rainfall of 81.7 mm and on most days there were precipitations which were sometimes very heavy. The first two weeks in July were very warm and dry. However, the cooler, wetter weather returned and except for a drier week at the beginning of August this weather pattern persisted throughout August and September. The green beans were severely affected by Botrytis by harvest which began on 17 August.

Meteorological Data - Thornhaugh

Month	1987 Average Temperature °C		Long-term Average Temperature °C	
	Maximum	Minimum	Maximum	Minimum
May	15.0	5.0	15.8	6.6
June	17.2	8.4	19.2	9.5
July	22.6	11.4	20.5	11.5
August	20.6	11.3	20.3	11.3
September	18.7	8.8	18.1	9.8
October	14.0	5.4	14.4	7.3

Month	1987 Monthly Rainfall mm	Long-term Average Rainfall mm
May	39.6	41.8
June	81.7	46.3
July	64.5	52.3
August	57.4	60.9
September	39.6	52.2
October	128.7	41.9

S U M M A R Y

G R E E N B E A N S

A three year summary of varieties tested 1985-87 is not given this year since the cold wet conditions affected emergence and vigour of the earliest sown Main Trial and varieties will be tested again in 1988.

T R I A L S I N I 9 8 7

Twenty-seven new varieties were evaluated in Screening & Preliminary Trials. The standards were short podded Gitana for processing whole; Nerina, a slim intermediate podded type used for quick-freezing whole where a maximum pod width but not length is specified; Groffy, intermediate length for chopping (or slicing); and Cascade, long podded used for chopping or slicing.

All seed was treated with bendiocarb/thiram/thiabendazole to control bean seed fly (Delia cilicrura) & fungal diseases.

The Main Trial at Thornhaugh was sown first, on 13 May into a very dry seedbed, but the weather which followed was cold and very wet, and the emergence and vigour of several varieties were severely affected. Although the weather improved slightly for subsequent drillings of the Screening Trial on 18 May, and the Preliminary Trial on 1 June, growth was still poor under the cool conditions and plants were shorter than normal. Prolonged wet weather during the flowering period also caused severe Botrytis and all varieties were infected to some extent.

Yields were therefore low, with pods shorter than usual and of uneven maturity. However the season did highlight the more cold tolerant varieties.

M A I N T R I A L - I 9 8 7

Cascade did not emerge at all, thus yields and maturities of other varieties are related to Groffy. No yield data were obtained for Lasso, Gitana and Nerina because emergence was poor. Although 025, Mirel and Celero had satisfactory emergence they appeared cold sensitive and gave low yields. Yield data from this trial is therefore limited and should be treated with caution. Samples of all varieties except Cascade were quick-frozen and canned for evaluation, but it should be borne in mind that most pod lengths were shorter than usual.

All the short podded whole beans were straight and the best sample was from Gitana the standard. 025, Lasso and Mirel were not uniform in size and although Laureat produce matured more evenly, seeds within the pod became prominent by canning stage.

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Celero, a very early variety, and Nerina are both suitable for freezing whole. Nerina was more even in maturity than Celero, although Celero had a slimmer pod.

Groffy appeared cold tolerant and performed well achieving reasonable yields of straight pods of intermediate length.

Burly was cold tolerant, vigorous with good yields of large rather curly, very wide pods only suitable for slicing.

P R E L I M I N A R Y T R I A L - 1 9 8 7

Varieties in this trial are either on the National List, or entered for National Listing in an EEC member country.

Some varieties appeared particularly sensitive to the cold wet conditions including Cabri and Clyde which had poor emergence and MIV 315, MIV 310, PV325, Faria and Trophy which lacked vigour. Growth of many varieties was poor and pods were shorter than expected. Varieties which grew well were Groffy, Nerina, WAV 499, HMX 8051, MOX 8044. Filetta, which had pale foliage appeared more sensitive to Basagran herbicide than other varieties. Yield data are presented as a % of Groffy, but maturity related to Cascade.

Varieties are grouped in the Table according to pod length and suitability for processing whole, cut or sliced although this was difficult to judge.

Of the short podded types Maestro yielded similarly to Gitana, but growth habit was poor with beans held low on the plant in a cluster and they appeared prone to Botrytis infection. Pods were rather pale, uneven in size, and not as straight as Gitana. Samba did not yield well, and pods were rather wide and coarse of mixed maturity. Plants of PV 325 were short, and pods uneven in size and yields similar to Gitana.

The short/intermediate podded varieties which could be considered for freezing whole included the fine filet types becoming popular in France, such as Faria, Clyde and Cabri, which give a different type of product. Unfortunately Clyde and Cabri which gave very attractive samples of produce seemed the most cold sensitive and were not yielded. Cabri was short and pods touched the soil, and Clyde was taller. Faria was less attractive and low yielding. These very slim beans also become less straight as maturity advances. Other 'Nerina' types had wider pods and included Sentry and MIV 315. Plant habit of MIV 315 was not as good as Nerina, and pods were not uniform in size and were misshapen where seed abortion occurred. Sentry was lower yielding than Nerina with slightly paler pods were considerably shorter than in last season. Nerina the standard yielded well. Pods of HMX 8051 were rather wide for freezing whole and very uneven in size, but the variety was cold tolerant with erect plant habit and yields were good.

6/1987

Varieties classed as intermediate are those with wide pods, not suitable for processing whole. Groffy produced the best sample of cut beans and Tilla and Filetty were rather short for this category this season. Pods of Tilla were uneven in size and Filetty had a better appearance but yields were low. MIV 310 was low yielding and pods were uneven in maturity and suffered from effects of seed abortion. Histyle yielded very well, but plant habit was not as good as Groffy. Several pods touched the soil and produce was of uneven maturity and there were some flat pods in the sample. Yields of Trophy were low. MOX 8044 was very cold tolerant and yielded well. It was the latest variety to mature and pods were uneven in size and maturity.

Long podded WAV 499 was the most outstanding variety in this trial. Plants were vigorous and yield of straight, even pods was good.

Varieties selected for further evaluation were Faria, Clyde and Cabri, and WAV 499.

SCREENING TRIAL - 1987

Several varieties were sensitive to the cold wet conditions and a few were not yielded. Yields are presented as a % of Groffy, but maturity is quoted relative to Cascade.

One short podded variety 84 RS1211, was entered which gave an attractive sample of fine neat pods, but emergence was too poor to evaluate yield. Gitana on the other hand had satisfactory emergence although yields were not good.

Three varieties of 'Nerina' type were entered. 84 RS1102 had the best plant habit and pods were very slim, but several were infected with Botrytis however. WAV 581 also had a good plant habit and processed samples were attractive.

TS 847523 and PV 413 had wider pods, and were more suitable for cutting. TS 847523 was an erect variety but pods were touching the soil, and although pods were straight the cross section was not round. PV 413 had a lax plant habit and pods were rather uneven in size, emergence was very poor.

Of the longer podded types, Conf. 200 did not yield well and pods were uneven in size. The variety was slightly sensitive to monolinuron herbicide. Irina had a poor plant habit, flowering was indeterminate and it was cold sensitive. 84 RS1350 and 85 RS1360 were both long podded and the latter was particularly slim. Flowering of RS1360 was rather indeterminate, and hence produce was of mixed maturity. There were also some flatter podded pods in the sample. Both these varieties appeared to have pods with large prominent seeds which detracted from the appearance.

One flat podded bean NR 904 was entered in trial, but establishment was poor. Plants were short and pods trailed on the ground.

GREEN BEAN VARIETY STUDIES

Summary of Agronomic Data - Green Bean Main Variety Trial - 1987

Varieties placed in order of maturity within each group. Standard varieties underlined. All varieties sown on 13th May. Results are means of three replicates. Target population 40 plants/m². Row width 30 cm.

Variety	Source	Seeds /kg	Maturity (± days) relative to Groffy	At Practical Freezing Stage		At Practical Canning Stage		Pod Characteristics (Freezing stage)					
				Yield* as % of Groffy relative to Groffy	Maturity (± days) as % of Groffy relative to Groffy	Plant habit	Yield* as % of Groffy relative to Groffy	Maturity (± days) as % of Groffy relative to Groffy	Plant habit	External touching soil	Shape	Average length	Section
				1=most Groffy	1=lax	1=most Groffy	1=most Groffy	1=very curved (raw)	1=flat	5=round	5=straight		
<u>Short podded</u>													
025	HS	5194	-4	35	-5	64	5	4	4.7	8.6	5.0	7.3	
Lasso	PV	6779	0	-	-1	-	5	2	Med/Dark	8.6	5.0	8.0	
Mirel	PV	5796	+2	40	+1	64	5	3	Med/Dark	8.9	4.8	8.5	
<u>Gitana</u>	RS	4189	+4	-	+3	-	5	4	Med	8.7	5.0	8.2	
Laureat	As	6217	(+10)	<u>56</u>	(+9)	<u>77</u>	<u>5</u>	<u>3</u>	Med/Dark	<u>8.1</u>	<u>5.0</u>	<u>8.8</u>	
<u>Intermediate podded</u>													
Celero	Ni/Zw	8634	-7	59	-8	62	5	2	Medium	5.0	8.7	5.0	8.3
<u>Groffy</u>	Nun	3248	0(24/8)	<u>100</u>	<u>0(29/8)</u>	<u>100</u>	<u>5</u>	<u>4</u>	Pale/Med	<u>4.9</u>	<u>11.0</u>	<u>5.0</u>	<u>10.9</u>
<u>Nerina</u>	RS	4868	+1	-	-2	-	-	-	Dark/Med	<u>4.7</u>	<u>10.9</u>	<u>5.0</u>	<u>8.8</u>
<u>Long podded</u>													
Burly	Rog	2440	+4	109	+4	111	3.5	3	Medium	4.0	13.3	5.0	12.5
<u>Cascade</u>	Bk	2735	-	-	-	-	-	-					

* Emergence was poor for some varieties and these plots were not yielded. Yield data for other varieties was not analysed and should be treated with caution.

Short pods (10 cm length or less) suitable freezing or canning whole; freezing stage seed length SL 80; canning SL 100. Intermediate (whole) pods width less than 9.5 mm, length 10-13 cm) suitable for freezing whole, or cut, freezing stage SL 90; canning SL 110.

Intermediate pods (length 10-13 cm) suitable cut freezing stage SL 90; canning SL 110
Long pods (length >13 cm) suitable cut/sliced freezing stage SL 100; canning SL 120

+ significantly greater than; - significantly less than Groffy. † Width at freezing stage.

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GREEN BEAN VARIETY STUDIES

Summary of Agronomic Data - Green Bean Preliminary Variety Trial - 1987
 Varieties placed in order of maturity within each group. Standard varieties underlined. All varieties sown on 1st June.
 Results are means of three replicates. Target population 40 plants/m². Row width 30 cm.

Variety	Source	Seeds /kg	At Practical Freezing Stage			At Practical Canning Stage			No. of pods	Pod Characteristics					
			Maturity (+ days)	Yield as % of relative Groffy to	Maturity (+ days) as % of relative Groffy to	Yield as % of relative Groffy to	Plant habit 1=lax 5=erect 5=none	Soil touching 1=most to 5=none		External colour 1=very curved 5=straight	Average length cm.	Section 1=flat 5=round	Pod width mm.	F	C
<u>Short podded</u>															
Maestro	PV	5547	-4	96	-3	109	5	2	Pale/Med.	4.7	9.2	9.3	4.6	8.4	8.6
Jamba	Ni/Zw	5000	0	61-	-1	60-	5	4	Medium	4.8	9.0	9.1	4.7	8.6	9.5
Jitana	RS	4189	+1	103	+3	105	5	4	Med/Dark	5.0	8.5	8.9	5.0	8.4	8.6
PV 325	PV	<u>6174</u>	+8	<u>92</u>	<u>+7</u>	<u>99</u>	<u>5</u>	<u>4</u>	<u>Medium</u>	<u>4.9</u>	<u>9.3</u>	<u>9.6</u>	<u>5.0</u>	<u>8.4</u>	<u>8.9</u>
Intermediate (whole) podded															
Faria	S&G	6071	-5	52-	-3	50-	5	3	Med/Dark	4.9	9.8	10.2	4.8	6.7	7.3
Verina	RS	4868	-4	103	-1	98	5	4	Med/Dark	4.7	11.6	11.8	4.6	8.5	9.4
Zabri	C1	<u>11492</u>	<u>-1</u>	<u>-</u>	<u>-3</u>	<u>-</u>	<u>5</u>	<u>2</u>	<u>Med/Dark</u>	<u>3.7</u>	<u>11.5</u>	<u>12.4</u>	<u>5.0</u>	<u>7.6</u>	<u>7.6</u>
Sentry	As	4226	0	81	0	88	5	3	Med/Pale	4.8	10.5	10.9	4.0	9.2	9.4
MIV 315	C1	5220	+1	75-	+1	72-	4	2	Med/Pale	4.8	9.5	9.7	5.0	9.4	9.6
Clyde	S&G	5815	+2	-	+2	-	4	3	Medium	4.8	9.6	10.7	5.0	7.2	8.2
IMX 8051	HM	3251	+2	112	+2	127*	5	4	Med/Dark	4.9	12.5	12.8	5.0	9.6	9.8
Intermediate podded															
Filetty	Rh	4200	-8	52-	-9	50-	5	3	Pale/Med	4.8	10.7	11.4	5.0	9.1	9.7
Groffy	Nun	<u>3248</u>	<u>-3</u>	<u>100</u>	<u>-4</u>	<u>100</u>	<u>5</u>	<u>4</u>	<u>Pale/Med</u>	<u>4.9</u>	<u>11.0</u>	<u>11.9</u>	<u>5.0</u>	<u>10.7</u>	<u>11.0</u>
Rilla	PV	4852	-1	<u>90</u>	-3	<u>89</u>	5	3	Pale/Med	4.9	9.6	10.1	4.8	9.2	9.6
MIV 310	C1	3397	-1	64-	-3	70-	4	2	Medium	4.9	11.0	11.6	5.0	10.8	11.4
Histyle	HM	3974	+2	114	+1	122+	4	2	Medium	4.3	11.2	11.7	4.9	10.6	11.7
Trophy	Rog	3184	+2	73-	+2	62-	5	2	Medium	4.8	11.0	12.0	5.0	9.9	10.6
MOX 8044	HM	3340	+8	153+	+7	138+	4	4	Med/Dark	4.9	12.2	12.6	5.0	10.4	10.8

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GREEN BEAN VARIETY STUDIES

Summary of Agronomic Data - Green Bean Preliminary Variety Trial - 1987

Varieties placed in order of maturity within each group. Standard varieties underlined. All varieties sown on 1st June.
 Results are means of three replicates. Target population 40 plants/m². Row width 30 cm.

Variety	Source	Seeds /kg	Maturity (± days) as % of relative to Cascade	Yield (± days) relative to Groffy	Maturity as % of relative to Groffy	Plant habit	External colour	Shape 1=very curved 5=straight	Section 1=flat 5=round	Pod width mm. +	Pod Characteristics		
											No. of pods	Average length cm.	F
Long podded													
WAV 499	vW	2860	-1	153 ⁺	-2	152 ⁺	4	4	Medium	4.8	14.4	14.7	4.6
Cascade	Bk	2735	0 (2/9)	98	0 (7/9)	121 ⁺	4	3	Medium	4.2	13.9	15.3	4.9
Significance @ P = 0.05				SD		SD				SD	SD	SD	SD
LSD @ P = 0.05				22.9		20.2				0.97	0.57	0.83	0.60
C of V %				14.6		12.4				5.4	3.0	5.4	3.7

+ Significantly greater than; - Significantly less than Groffy. # Width at freezing stage.

Short pods (10 cm length or less) suitable freezing or canning whole; freezing stage seed length SL 80; canning SL 100. Intermediate (whole) pods width less than 9.5 mm, length 10-13 cm) suitable for freezing whole, or cut, freezing stage SL 90; canning SL 110. Intermediate (whole) filet types judged suitable by visual assessment, not according to seed length. Intermediate pods (length 10-13 cm) suitable cut freezing stage SL 90; canning SL 110. Long pods (length >13 cm) suitable cut/sliced freezing stage SL 100; canning SL 120.

GREEN BEAN VARIETY STUDIES

Summary of Agronomic Data - Green Bean Screening Variety Trial - 1987
 Varieties placed in order of maturity within each group. Standard varieties underlined. All varieties sown on 18th May.
 Results are means of two replicates. Target population 40 plants/m². Row width 30 cm.

Variety	Source	Seeds /kg	Maturity (+ days) relative to Cascade	At Practical Freezing Stage		At Practical Canning Stage		Pod Characteristics									
				Yield* as % of relative Groffy	Maturity (+ days) relative to Cascade	Plant habit	Yield* as % of relative Groffy	Maturity (+ days) relative to Cascade	Plant habit	External colour	Section 1=flat 5=round	Pod width mm. *	F	F	C	F	F
<u>Short podded</u>																	
<u>Gitana</u>	RS	4189	<u>+1</u>	<u>66</u>	<u>0</u>	<u>56</u>	<u>5</u>	<u>5</u>	<u>3</u>	<u>Medium</u>	<u>4.9</u>	<u>9.0</u>	<u>9.2</u>	<u>5.0</u>	<u>8.6</u>	<u>7.4</u>	<u>8.7</u>
84 RS 1211	RS	7075	+9	=	+8	-	-	-	-	Dark	4.8	8.6	9.0	4.7	7.4	7.9	
<u>Intermediate (whole) podded</u>																	
<u>85 RS 1220</u>	RS	5325	-2	84	-2	71	5	3	Med/Dark	4.8	9.1	10.2	5.0	7.8	9.0		
WAV 581	vW	5530	+2	88	-3	68	5	4	Medium	4.7	10.4	10.9	5.0	8.4	9.0		
84 RS 1102	RS	4959	+16	66	+15	55	5	5	Med/Dark	4.5	10.4	10.8	4.8	7.2	7.5		
<u>Intermediate podded</u>																	
<u>TS 847523</u>	TS	3655	-3	76	-3	82	5	2	Medium	4.8	11.0	12.2	4.8	10.0	10.5		
Groffy	Nun	3248	-3	100	-3	100	5	5	Pale/Med	5.0	11.0	11.6	5.0	10.2	10.6		
PV 413	PV	3744	0	(9.9t/ha)	-	(12.8t/ha)	-	3	Med/Pale	4.7	10.8	11.4	5.0	10.8	11.1		
<u>Long podded</u>																	
<u>Cascade</u>	Bk	2735	<u>0(25/8)</u>	121	<u>0(29/8)</u>	<u>107</u>	<u>4</u>	<u>1</u>	<u>Medium</u>	<u>4.0</u>	<u>14.5</u>	<u>15.7</u>	<u>5.0</u>	<u>12.1</u>	<u>11.8</u>	<u>11.1</u>	<u>11.4</u>
Conf. 200	=	3544	+1	68	+1	59	5	4	Medium/Pale	4.6	11.2	12.2	5.0	12.5	12.7	5.0	9.1
84 RS 1350	RS	4607	+1	96	+1	93	5	4	Med/Dark	4.2	13.6	14.8	4.2	7.8	8.7		
85 RS 1360	RS	4136	+3	122	+3	110	5	3	Medium	4.6	13.6	14.8	4.2	7.8	8.7		
Irina	vW	3680	+7	-	-	-	3	4	Medium	3.9	13.0	12.9	5.0	10.5	10.8		

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GREEN BEAN VARIETY STUDIES

GREEN BEAN VARIETY STUDIES
 Summary of Agronomic Data - Green Bean Screening Variety Trial - 1987
 Varieties placed in order of maturity within each group. Standard varieties underlined. All varieties sown on 18th May.
 Results are means of two replicates. Target Population 40 Plants/m². Row width 30 cm.

* Yield data is in some cases from single plots, and all yields should be treated with caution.

- + Significantly greater than; - Significantly less than Groffy. \neq Width at freezing stage.

Short pods (10 cm length or less) suitable for freezing or canning whole; freezing stage seed length SL 80; canning SL 100. Intermediate (whole) pods width less than 9.5 mm, length 10-13 cm) suitable for freezing whole, or cut, freezing stage SL 90; canning SL 110.

Intermediate pods (length 10–13 cm) suitable cut freezing stage SL 90; canning SL 110
 Long pods (length >13 cm) suitable cut/sliced freezing stage SL 100; canning SL 120

12/1987

S U M M A R Y

B R O A D B E A N S

Varieties tested in 1986 were further evaluated in the 1987 Trial, and a new variety CLF 1 was also included. The standard varieties were Threefold White and Medes.

B R O A D B E A N T R I A L - 1 9 8 7

Seed of all varieties was treated with fungicide to control damping off diseases. The trial was drilled on 16th April into good seedbed conditions. Emergence was good and growth of all varieties vigorous in a very wet season.

Talia (Witkiem) was the shortest strawed variety. CLF 1 was the only variety to suffer from lodging and was the tallest variety. Talia suffered a slight infection of chocolate spot (Botrytis fabae) and in a herbicide tolerance test was found to be rather more sensitive than other broad beans to pre-emergence herbicides.

Harvesting began on 31st August with Medes and CLF 1 the earliest varieties to mature. Yields were very good this season. The conventional large seeded varieties Medes, HS 500 and Threefold White giving significantly higher yields than Talia, which was small seeded and CLF 1 smaller still. CLF 1 gave the lowest yields. Medes and HS 500 yielded better than Threefold White but differences were not statistically significant.

All varieties produced good quality samples for quick-freezing and canning and the small seeded bean Talia had a particularly attractive appearance with good colour and even size. CLF 1 was a smaller size (similar to Beryl) than Talia, with a slightly rounded shape and was also attractive.

BROAD BEAN VARIETY STUDIES

Summary of Agronomic Data - Broad Bean Variety Trial - 1987
 Varieties placed in order of maturity. All varieties sown on 16th April. Row width 15 cm & target population 18 plants/m².
 Results are means of three replicates. Standard variety underlined.

Variety	Source	Seeds /kg	At Practical Freezing Stage			At Practical Canning Stage		
			Maturity (± days) relative to Threefold White	Yield as % of Threefold White	Mean bean length mm	Maturity (± days) relative to Threefold White	Yield as % of Threefold White	Plant height cm.
Medes	Ni/Zw	920	-4	-4	107	18	-5	103
CLF1	C1	1721	-4	-4	75-	15-	-6	56-
Talia (Witkiem)	Nun	1381	-2	-2	83-	16-	-5	83-
Threefold White	BiK HS	780 798	0(3/8) +1	100(6.4t/ha) +1	20 101	0(17/8) +1	100(9.3t/ha) +1	91-
HS 500					SD	SD	SD	117 115
Significance @ P = 0.05					13.8	4.3	15.9	SD
LSD @ P = 0.05					7.9	1.8	9.3	7.0
C of V %								3.4

+ Significantly greater than; - Significantly less than Threefold White.

Practical Freezing Stage TR 110 - 140 for a 140g sample.
 Practical Canning Stage TR 115 - 140 for a 56g sample.

A P P E N D I X

Full Postal AddressCode

As	Asgrow Seed Company, Kalamazoo, Michigan 49001,	U.S.A.
Bk	Booker Seeds Ltd., Boston Road, Sleaford, Lincs.	U.K.
Cl	Société Clause, Comptabilité, 1 av. L. Clause, 91221 Bretigny Cedex,	France
HS	Holland Select, P.O. Box 27, 1619 ZG, Andijk,	Holland
HM	Harris Moran International BV, P.O. Box 272, 1600 AG Enkhuizen,	Holland
Ni/Zw	Nickersons Zwaan BV., c/o Nickersons Seed Specialists Ltd., Holton Le Clay, Grimsby, S. Humberside,	U.K.
Nun	Nunhems Zaden BV, P.O. Box 4005, 6080 AA Haelen,	Holland
PV	Pop Vriend Seeds, P.O. Box 5, 1619 ZG, Andijk,	Holland
Rh	Fa H. Rhode Samenzucht, Ellenberger Strasse 12, 3501 Guxhagen, Fe	Federal Republic of Germany

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Rog	International Group, Rogers Brothers Seed Co., P.O. Box 4727, Boise, ID 83711-0727,	U.S.A.
RS	Royal Sluis BV, P.O. Box 22, 1600 AA, Enkhuizen,	Holland
S & G	Sluis & Groot BV, P.O. Box 13, 1600 AA, Enkhuizen,	Holland
TS	TS Seeds BV, P.O. Box 263, 3340 AG H.I. Ambacht,	Holland
VW	Van Waveren-Pflanzenzucht GmbH, D 3405 Rosdorf, Uber Gottingen,	Federal Republic of Germany

