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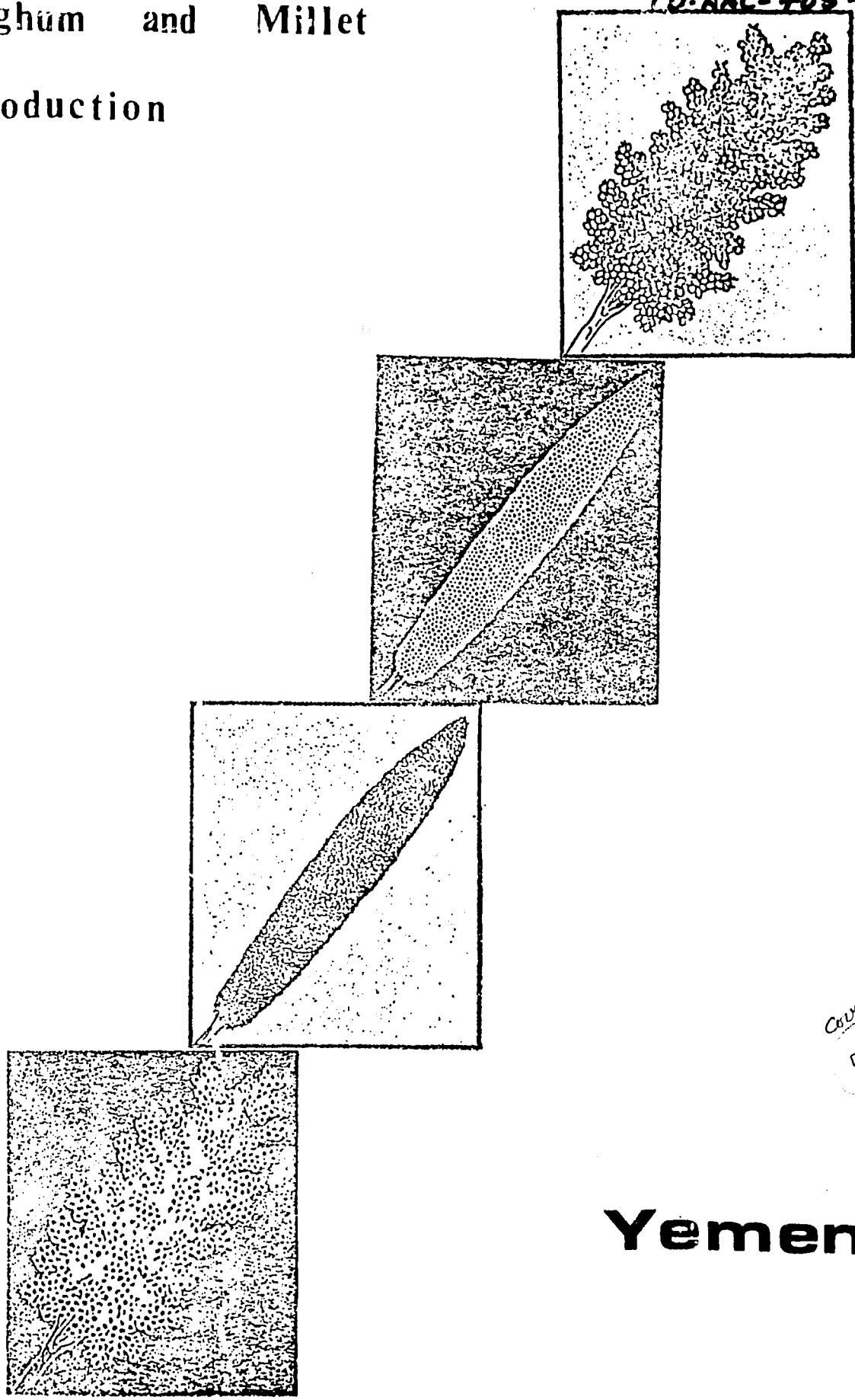
Sorghum and Millet Production



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Country Profiles
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Yemen

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PROGRESS REPORT

OF THE

YEMEN ARAB REPUBLIC

279001800 5301

MINISTRY OF AGRICULTURE

AND THE

UNITED STATES AGENCY

FOR INTERNATIONAL DEVELOPMENT

SORGHUM AND MILLET

PRODUCTION PROJECT

1973-1974

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INTRODUCTION

In recognition of the importance of agriculture to the Yemen economy and the place of sorghum (durra) and millet (dukan) as the major grain crops, the program developed in consultations between the Yemen Arab Republic Government and the United States Agency for International Development in fiscal year 1973 included a project designed to increase sorghum and millet production in Yemen. A two phase program is envisioned concentrating first on adaptive research and later on extending research results to farmers.

This report describes the research activities during the first two years of the project's operation (1973-1974).

SUMMARY

The program for 1973 and 1974 was primarily one of variety introduction, screening of germplasm, and evaluation. Studies on Agronomic practices, such as, dates of planting, plant spacing

and plant population, and fertilization have been initiated. A total of 4996 entries of sorghum, 93 entries of pearl millet, 56 entries of sudangrass, 2 varieties of forage sorghum, 3 varieties of corn, 4 varieties of birdsfoot trefoil and 2 varieties of alfalfa have been evaluated. In addition, 3 composite nurseries (a composite nursery contains from 4000 to 5000 individual plants) of sorghum, 5 composite nurseries of pearl millet, and 2 composite nurseries of sudangrass were grown in Sanaa, Taiz and Hodeida in 1974. The kind and number of entries tested, classified according to location and year, are presented in the appendix, Table 16.

The results of these experiments indicate that a substantial number of introduced sorghum entries are yielding more than the local. Some of the best introduced entries produced grains 3 to 4 times the yield of the local. Many yield figures come from unreplicated plots at one location and so identification of a few very elite types is not yet possible.

Giza varieties from Egypt look promising for more immediate use. Individual plants in other introductions look very promising, but will require further breeding before they can be properly evaluated.

Hybrid sorghum is resulting in almost a 100 percent increase in yield over introduced varieties.

Introduced varieties tend to be one or two weeks later than locals; cold tolerant types from Mexico and hybrids are exceptions, being earlier than the local.

Sources of high lysine sorghum have become available to the program.

An effort to collect local sorghum has begun. Collecting so far has been very limited and does not represent the diversity available in Yemen. A systematic collection would be valuable to Yemen and to other sorghum workers in the world.

Crossing and non-selective activities can be done elsewhere and support the program for Yemen, but evaluation of material must be done in the country. Already, the benefit from one season of selection is apparent in the nursery.

There is a need for a few better varieties to be shown in larger plots at the Sanaa farm primarily to show to visitors who are unfamiliar with breeding nurseries.

Pearl millet is performing very well in the Sanaa area with upper yields between 2 and 3 tons per hectare.

A number of introduced types yield 12 tons of forage per hectare as compared to 3 tons per hectare for the local. Hybrid sorghum yields substantially more (10-12 tons per hectare) than introduced varieties (3-7 tons per hectare). Some short hybrids and introduced varieties are apparently producing more forage than the taller local varieties.

Sudangrass, is yielding more forage than grain sorghum (17-20 tons per hectare). Sudangrass looks particularly good in Taiz where ratooning may be important. In Taiz, the combined use of a good grain sorghum for grain and feed and sudangrass for the bulk of the feed may result in higher farmer income.

The application of potassium fertilizer appears to increase the yield of the local sorghum. Very little or no response was obtained

by the application of nitrogen and phosphorus.

Delayed planting resulted in reduced grain and forage yield. Drastic yield reduction occured when planting was made after May 29 for Giza 54 and after June 5 for Sanaa White. Planting as early as April may be benificial.

Grain yield seemed to increase with wider between-row and closer within-row spacings. The highest yield was obtained when rows were spaced 75 centimeters apart with hills planted every 10 centimeters (about 133,333 plants per hectare).

An effort to improve the soil conditions at the Bir Al-Gahoum Research Farm through green manuring and rotation with alfalfa has been started.

Two synthetic corn varieties from Lebanon look promising both in Sanaa and Taiz.

Of a total of four counterparts, three completed training at the Arid Lands Agricultural Development Program in Lebanon. All four are now receiving on-the-job training in Sanaa.

A periodic seminar to review problems and possibilities including interested scientists and administrators from the Government and various other interested agencies would be useful. This might develop in time into an annual workshop for an all Yemen sorghum and millet crop improvement program.

VARIETY TRIALS

Mexican Sorghum

Eighty-three selected genotypes from the cool tolerance germplasm pool that has been developed at the Centro International de Mejoramiento de Maiz Trigo (CIMMYT) in Mexico at 2,200 meters elevation were grown at the Bir Al-Gahoum Research Center in Sanaa in 1973. The entries were planted in 2 row 5 meter plots replicated three times. The test was grown under irrigation. The results are presented in Table 1.

All of the introduced Mexican sorghum flowered under the cool night temperatures and warm day temperatures in Sanaa. The number of days from seeding to 50 percent bloom ranged from 87 days to 112 days. Plant height varied from 60 centimeters to 109 centimeters. Differences in tillering ability between entries were observed. Head type varied from loose to dense. Brown was the predominant grain color. Grain yield ranged from 45 kilograms to 1090 kilograms per hectare. Because of delayed planting, some entries did not reach maturity.

Of the original 33 entries introduced in 1973, 29 were selected for further evaluation in Sanaa in 1974. Selection was based primarily on grain yield, plant vigor and earliness. The seeds of the ten best entries in 1973 plus the local variety were sent to CIMMYT in Mexico for inclusion in their germplasm pool. The results of the second test are given in Table 2.

All the selected Mexican introductions flowered earlier in 1974 than the local variety (123 days). Plant height ranged from 84 centimeters to 131 centimeters. A majority of the Mexican entries were taller than the local check (85 cm). The grain yield of the best introduction was 1828 kilograms per hectare, 266 percent of the yield of the local check (686 kg/ha). The highest yielding entries were: Bat. 148 (71), Cuap 71-110-1, Cuap 80-1, Cuap 71-24-1, and Cuap 71 mezcla 6. Because of the importance of stover (stalks and leaves remaining after grain harvest) to farmers, data on stover yields was obtained. The highest stover yield of the Mexican introductions was 3.35 tons per hectare, compared to 2.50 tons for the local check.

Another set of 40 entries was received from CIMMYT in 1974. These were planted at the Bir Al-Gahoum Farm in single-row 5 meter unreplicated plots. The results are given in Table 3. Grain yield ranged from 17 kilograms to 1683 kilograms per hectare. The promising entries were: S-284, Can 2662-3, and S-282.

Great variations in head type, head size, and plant height were noted among and within the Mexican introductions. This presented an opportunity for individual plant selections. A total of 72 individual plant selections were made in 1974. These will be planted to head rows in 1975.

Table 1. Mean Performance of 83 CIMMYT Cool Tolerant Sorghum, Sanaa - 1973

Entry No.	Entry Pedigree	Days to 50% bloom	Plant height in cms	Tillering score[a]	Head type[b]	Head size[c]	Vigor score[d]	Grain Yield kg/ha	Grain % over Sanaa White
1	Man. 42-1	97	85	2.6	O	M	2.0	378	111
2	Man. 46-1	96	88	3.0	O	M	2.0	347	102
3	Man. 50-4	87	79	2.3	O	M	1.0	180	53
4	Man. 51	95	69	2.3	O	M	1.3	230	67
5	Man. 52-4	100	76	1.6	D	S	1.0	93	27
6	Man. 54	93	76	2.3	D	S	1.0	126	37
7	Man. 55	87	73	2.6	D	S	1.0	278	82
8	Man. 64	108	67	2.3	D	M	2.0	230	67
9	Man. 65-1	100	70	2.0	O	M	2.0	423	124
10	Man. 78	91	74	2.6	O	S	1.0	173	51
11	Man. 79-1	100	76	2.0	O	S	1.0	170	50
12	Man. 79-2	97	78	2.3	O	S	1.0	219	64
13	Man. 80-1	91	74	2.3	O	S	1.3	207	61
14	Man. 80-2	91	75	1.6	O	S	1.0	185	54
15	Man. 81	91	70	1.6	O	S	1.0	158	46
16	Man. 81-1	97	72	2.0	O	S	1.0	209	61
17	Man. 81-2	87	83	2.3	O	M	1.0	362	106
18	Man. 82-1	91	81	2.0	O	S	1.0	215	63
19	Man. 82-2	91	62	1.6	O	S	1.0	45	13
20	Man. 83-1	100	76	1.6	D	S	1.3	240	70
21	Man. 84-1	100	82	2.6	O	M	1.3	254	74
22	Man. 84-2	91	93	2.0	O	M	2.0	365	107
23	Bat. 71B-1-5	102	90	3.3	O	M	2.6	740	217
24	Bat. 148(71)	100	109	4.3	D	L	3.0	828	243
25	Bat. 371(71)	100	81	2.6	D	M	1.6	275	81

[a]Scored 1-5; 1 = no tillering, 5 = much tillering
[b]O = open, D = dense
[c]S = small, M = medium, L = large
[d]Scored 1-3; 1 = least vigorous, 3 = most vigorous

Table 1. (Contd.)

Entry No.	Pedigree	Days to 50% bloom	Plant height in cms	Tillering score[a]	Head type[b]	Head size[c]	Vigor score[d]	Grain Yield kg/ha	Grain% over Sanaa White
26	Cuap 71-24-1	96	72	4.0	D	L	3.0	1073	315
27	Cuap 71-30-1	106	62	3.3	D	M	1.6	471	138
28	Cuap 71-42-1	100	109	2.6	D	M	3.0	698	205
29	Cuap 76-1	100	71	2.6	D	M	2.3	396	116
30	Cuap 80-1	100	77	3.6	O	M	2.3	450	132
31	Cuap 71 95-2 96-1	103	67	3.6	D	M	2.0	612	179
32	Cuap 71 110-1	106	67	4.3	D	M	2.6	515	151
33	Cuap 71 111-1	100	82	4.3	D	M	2.3	731	214
34	Cuap 71 118-1	106	60	4.6	D	M	1.6	365	107
35	Cuap 71 120-1	100	79	3.3	D	M	2.6	572	168
36	Cuap 71 127-1 130-1	91	96	2.6	D	M	2.3	576	169
37	Cuap 71 720-1	100	69	3.0	D	M	2.0	479	140
38	Cuap 71 Bordo 2&3	102	86	3.3	D	M	2.6	590	173
39	Cuap 71 Mezcla-6	106	75	4.3	D	M	3.0	461	135
40	Cuap 71 Mezcla-8	96	84	5.0	D	L	2.6	750	220
41	Can 2423-3	91	71	2.0	O	S	1.3	288	84
42	Can 2502-2	96	90	2.3	D	L	2.3	803	235
43	Can 2504-1	112	84	2.0	O	M	2.0	221	65
44	Can 2639-3	87	77	2.6	O	M	1.0	261	77
45	Can 2639-4	93	64	2.6	O	S	1.0	209	61
46	Can 2646-1	91	71	3.3	O	S	1.3	266	78
47	Can 2646-2	96	74	2.3	O	S	1.0	164	48
48	Can 2646-3	91	66	2.3	O	M	1.0	236	69
49	Can 2649-1	93	72	2.6	O	S	1.0	252	74
50	Can 2649-2	91	69	2.0	O	M	1.0	225	66
51	Can 2649-3	97	62	1.0	O	S	1.0	122	36
52	Can 2649-5	96	80	3.0	O	M	1.6	432	127
53	Can 2649-9	96	78	1.6	O	S	1.0	158	46
54	Can 2649-10	100	81	3.0	O	S	1.0	219	64
55	Can 2478-1	96	77	2.0	O	S	1.0	144	42

Table 1. (Contd.)

Entry No.	Entry Pedigree	Days to 50% bloom	Plant height in cms	Tillering score[a]	Head type[b]	Head size[c]	Vigor score[d]	Grain Yield kg/ha	Grain % over Sanaa White
56	Can 2478-2	96	83	2.6	O	M	1.3	311	91
57	Can 2478-3	91	63	3.0	O	S	1.0	263	77
58	Can 2478-4	93	70	2.0	O	S	1.0	173	51
59	Can 2478-5	91	71	3.3	O	S	1.0	209	61
60	Can 2655-1	96	69	2.6	O	S	1.3	200	59
61	Can 2655-2	91	81	2.0	O	S	1.0	108	32
62	Can 2655-4	91	72	2.0	D	S	1.0	167	49
63	Can 2655-6	87	70	2.3	O	S	1.0	221	65
64	Can 2655-7	97	75	1.6	O	S	1.0	158	46
65	Can 2655-8	96	80	1.6	O	S	1.0	317	93
66	Can 2656-7	96	76	1.6	O	S	1.0	173	51
67	Can 2656-8	96	72	2.6	O	S	1.3	183	54
68	Can 2657-1	97	75	2.0	O	S	1.3	252	74
69	Can 2657-5	93	68	2.0	O	S	1.0	144	42
70	Can 2658-4	100	78	3.0	D	S	2.0	506	148
71	Can 2658-5	96	82	4.0	D	M	2.6	734	215
72	Can 2658-9	96	69	2.3	O	S	1.0	257	75
73	Can 2659-1	97	80	2.6	D	M	1.6	432	127
74	Can 2659-2	96	62	2.0	O	S	1.0	230	67
75	Can 2659-4	97	62	2.3	O	S	1.0	144	42
76	Can 2660-1	96	85	2.0	O	S	1.0	167	49
77	Can 2660-3	102	62	2.0	O	S	1.0	261	77
78	Can 2660-6	100	101	2.3	O	M	3.0	758	222
79	Can 2662-2	95	75	2.3	O	S	1.0	198	58
80	Can 2662-3	106	71	2.3	O	S	1.0	101	30
81	Can 2663-1	93	76	2.6	O	S	1.3	209	61
82	Can 2663-2	87	78	2.0	O	S	1.0	170	50
83	Bat 70-939	100	80	3.3	D	M	2.6	486	143
84	Sanaa White Local Check	100	94	1.6	D	M	2.6	341	100

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Table 2. Mean Performance of 29 Selected Mexican Grain Sorghum, Sanaa, 1974

Entry No.	Entry Pedigree	Days to 50% bloom	Plant height in cms	Stover yield tons/ha	Grain yield kg/ha	Grain % over Sanaa White
1	Man. 46-1	109	90	1.59	951	139
2	Man. 51	114	95	2.15	857	125
3	Man. 83-1	112	91	2.15	600	87
4	Man. 84-1	109	102	2.80	743	108
5	Man. 84-2	115	116	3.24	1028	150
6	Bat. 148 (71)	112	125	3.28	1828	266
7	Cuap. 71-24-1	113	112	2.15	1514	221
8	Cuap. 71-42-1	114	131	1.94	1228	179
9	Cuap. 80-1	112	99	3.02	1543	225
10	Cuap. 71-110-1	115	102	2.80	1743	254
11	Cuap. 71-111-1	117	103	1.08	1428	208
12	Cuap. 71-120-1	117	97	2.59	1314	192
13	Cuap. 71-720-1	116	104	2.15	914	133
14	Cuap. 71-Bordo 2&3	118	99	1.72	1286	187
15	Cuap. 71-Mazcla-6	118	98	2.15	1486	217
16	Cuap. 71-Mazcla-8	117	100	1.72	1257	183
17	Can. 2423-3	15	97	1.72	686	100
18	Can. 2502-2	20	103	2.59	971	142
19	Can. 26-6-1	06	88	1.08	486	71
20	Can. 2649-5	17	95	1.72	600	87
21	Can. 2478-2	15	86	1.94	428	62
22	Can. 2655-1	15	86	0.86	457	67
23	Can. 2656-8	18	70	1.50	457	67
24	Can. 2657-1	15	84	1.30	342	50
25	Can. 2658-5	19	101	2.59	1342	196
26	Can. 2659-1	20	89	2.37	1000	146
27	Can. 2660-6	18	121	2.80	1346	199
28	Can. 2663-1	15	86	3.45	342	50
29	Bat. 70-939	19	93	1.50	1171	171
30	Sanaa White (Local Check)	23	85	2.59	686	100

Table 3. Some Agronomic Characters of 40 New Mexican Sorghum Introductions, Samaca, 1974

Entry No.	Pedigree	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
1	Bat.71-371	100	80	471
2	Bat.71-B-149	100	70	137
3	Can.2649-1	90	65	523
4	Can.2659-2	100	70	248
5	Can.2662-3	90	75	1057
6	Can.2663-2	90	55	497
7	Cuap.71-95-2	90	70	286
8	Cuap.71-95-2T	100	55	106
9	Cuap.71-120-1	100	70	83
10	Cuap.71-Mezcla-6	90	60	177
11	Ensayo-349	100	60	286
12	S-47	90	50	603
13	IS-2930	100	80	117
14	Mabere	-	-	-
15	Magune	-	-	-
16	Man.64	100	55	203
17	Njundo	-	-	-
18	S-46	90	55	368
19	S-49	90	65	226
20	S-67	90	65	397
21	S-85	-	-	-
22	S-86	114	55	-
23	S-89	100	65	131
24	S-92	100	80	288
25	S-93	90	105	554
26	S-268	100	75	200
27	S-271	100	75	503
28	33	90	85	528
29	S-278	105	100	263
30	S-280	90	105	828
31	S-282	90	120	1054
32	S-283	100	80	240
33	S-284	90	100	1683
34	S-82	90	115	820
35	S-293	121	100	17
36	S-296	100	100	520
37	S-298	100	130	240
38	S-299	105	120	474
39	S-300	90	110	851
40	Precoz Blanco-1	90	80	306

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Sorghums from Africa and Asia

In cooperation with the Food and Agriculture Organization (FAO), of the United Nations, twenty-four sorghum varieties from Africa and Asia were tested at two locations (Sanaa and Taiz) in 1973.

These were planted in two-row plots 5 meters long, replicated three times. The results are presented in Tables 4 and 5.

Sanaa- The days from seeding to 50 percent bloom ranged from 103 days to 135 days. The local check flowered the earliest (103 days) while the Ethiopian entries flowered the latest (some had no flowers at frost date). Plant height varied from 62 centimeters to 129 centimeters. The local check had an average plant height of 100 centimeters. Although grain yields were not obtained due to late planting, observations indicated that the Egyptian entries Giza 54 and Giza 114 looked promising. The Ethiopian entries were vigorous, but very late maturing.

Taiz- Growing conditions in Taiz were more favorable (good soil, adequate rainfall, warmer temperatures) than in Sanaa. Consequently, the average performance of the entries planted in Taiz was better than those planted in Sanaa. Plant height ranged from 74 centimeters to 250 centimeters. The entries from Uganda scored favorably in plant vigor. Similar to Sanaa, the Ethiopian entries were vigorous, but very late maturing.

Grain yield ranged from 20 kilograms to 3109 kilograms per hectare. The large variation in yield was due largely to bird feeding. A majority of the hybrids from Uganda suffered very little bird damage and consequently gave the highest yields. The results of these two tests seem to indicate that the varieties suited for the central highlands (Sanaa) may not be the best for the midlands (Taiz). The present varieties used by farmers tend to support this statement. A white-seeded early maturing variety is popular (because it is adapted among farmers in Sanaa) while a brown or red-seeded late maturing variety is used by farmers in the midlands. Estimated average local sorghum yields in Sanaa and Taiz are 800 kilograms and 1200 kilograms per hectare, respectively.

The results of the 1974 test are presented in Table 6. In this test, Giza 54 and Giza 114 again looked very good. Some hybrids from Uganda also looked promising. Grain yield data was not obtained because of delayed planting due to late arrival of seeds.

Because of promising performance of Giza 54 and Giza 114 in 1973, large enough quantities of seeds to plant large plots were procured from Egypt in March 1974. Grain yields of Giza 54 and Giza 114 in this planting were 1903 kilograms and 2514 kilograms per hectare, respectively. The yield of the local check was 991 kilograms per hectare.

Table 4. Some Agronomic Characters of 25 Sorghum Varieties/Hybrids from Africa and Asia Planted in Sanaa, 1973

Entry No.	Name	Origin	Days to 50% bloom	Plant height (cms)	Ear type[a]	Vigor score[b]
1	Giza 3	Egypt	118	81	C	1
2	Giza 54	"	115	129	C	3
3	Giza 114	"	135	126	C	3
4	Alemaya Gato 994	Ethiopia	-	-	-	3
5	Alemaya Gato 1001	"				2
6	Alemaya Awash 1050	"	-	-	-	1
7	Alemaya W.S 1297	"	135	123	S	3
8	Alemaya W.S 1763	"	-	-	-	2
9	CSH 1	India	124	75	S	2
10	CSH 2	"	111	98	C	2
11	CSH 3	"	111	75	S	1
12	PSH 2	"	118	103	S	2
13	Swarna	"	118	93	S	1
14	H x 57 (SB65 x CK60A)	Uganda	107	96	S	2
15	H x 467 (5Dx61/6/2xCK60A)	"	111	110	S	2
16	5D x 61/6/2	"	120	81	S	1
17	5D x 36D	"	111	107	C	2
18	Serena	"	120	69	C	1
19	SR65 x Kafinam A	"	118	102	S	2
20	5D x 61/6/2 x Kafinam A	"	121	103	S	2
21	5D x 36D x Kafinam A	"	135	62	C	1
22	5D x 135/13/1/3/1	"	120	84	S	2
23	SSI	Pakistan	118	82	C	1
24	D.G Pearl	"	107	109	S	1
25	Sanaa White (Local check)	Yemen	103	100	C	2

[a]C = compact, S = semi-compact
[b]Scored 1-3; 1 = least vigorous, 3 = most vigorous

Table 5. Some Agronomic Characters of 24 Sorghum Varieties/Hybrids from Africa and Asia Planted in Taiz, 1973

Entry No.	Entry Name	Origin	Plant height in cms	Lodging %	Ear type[a]	Vigor score[b]	Bird Damage %
1	Giza 3	Egypt	-	-	-	2	-
2	Giza 34	"	-	-	-	1	80
3	Giza 114	"	133	18.7	C	1	95
4	Alemaya Gato 994	Ethiopia	-	-	-	3	-
5	Alemaya Gato 1001	"	-	-	-	3	-
6	Alemaya Awash 1050	"	-	-	-	3	-
7	Alemaya W.S 1297	"	-	-	-	3	-
8	Alemaya W.S 1763	"	-	-	-	3	-
9	CSH 1	India	74	0.0	S	1	50
10	CSH 2	"	112	7.1	C	2	50
11	CSH 3	"	90	0.0	S	2	nil
12	PSH 7	"	110	-	-	1	95
13	Swarna	"	78	6.6	-	1	95
14	H x 57 (SB65 x CK 60A)	Uganda	150	5.8	S	3	nil
15	H x 467 (5Dx61/6/2xCK60A)	"	140	6.2	S	2	nil
16	5D x 61/6/2	"	139	27.2	S	3	nil
17	5D x 36D	"	136	0.0	C	3	nil
18	Serena	"	142	0.0	C	3	nil
19	SB65 x Kafinam A	"	132	0.0	S	3	nil
20	5D x 61/6/2 x Kafinam A	"	145	8.3	S	2	85
21	5D x 36D c Kafinam A	"	95	7.6	C	3	nil
22	5D x 135/13/1/3/1	"	140	12.5	S	3	nil
23	SSI	Pakistan	123	0.0	C	1	70
24	D.G. Pearl	"	177	6.2	S	2	98
25	Local (check)	Yemen	250	100.0	-	2	-

[a]C = compact, S = semi-compact
[b]Scored 1-3; 1 = least vigorous, 3 = most vigorous

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Table 6. Performance of 23 Sorghum Varieties from Africa and Asia Planted in Sanaa, 1974.

Entry No.	Name	Origin	Days to bloom	Plant height in cms	Vigor score *
1	Giza 1	Egypt	133	72	1.3
2	Giza 3	"	130	68	1.3
3	Giza 54	"	127	108	3.0
4	Giza 114	"	129	117	3.0
5	Giza 123	"	127	107	2.3
6	Awash 1050	Ethiopia	136	83	2.3
7	Adi Ugri 149	"	135	75	1.3
8	W.S. 1297	"	139	78	1.3
9	W.S. 1763	"	-	-	2.3
10	Alemaya 70	"	-	-	2.3
11	Gato 994	"	-	-	1.0
12	462	Nigeria	-	-	1.3
13	181	"	130	68	2.3
14	S.S.2	Pakistan	132	78	2.0
15	D.G Pearl	"	121	105	2.0
16	CE 90 16-3	Senegal	126	70	1.0
17	5 D x 61/6/2	Uganda	120	78	1.3
18	5 D x 36/D	"	128	60	1.0
19	5 D x 135/13/1/3/1	"	117	90	2.0
20	Serena	"	-	-	-
21	Kafiram x 5D x 61/6/2	"	113	92	3.0
22	D x 57/2/3 Brown	"	121	80	1.3
23	9D x 4/FS/15	"	127	82	2.3
24	Local Check	Yemen	113	93	2.7

* scored 1-3; 1= least vigorous, 3= most vigorous

Table 6. Performance of 23 Sorghum Varieties from Africa and Asia Planted in Sanaa, 1974.

Entry No.	Name	Origin	Days to bloom	Plant height in cms	Vigor score *
1	Giza 1	Egypt	133	72	1.3
2	Giza 3	"	130	68	1.3
3	Giza 54	"	127	108	3.0
4	Giza 114	"	129	117	3.0
5	Giza 123	"	127	107	2.3
6	Awash 1050	Ethiopia	136	83	2.3
7	Adi Ugri 149	"	135	75	1.3
8	W.S. 1297	"	139	78	1.3
9	W.S. 1763	"	-	-	2.3
10	Alemaya 70	"	-	-	2.3
11	Gato 994	"	-	-	1.0
12	462	Nigeria	-	-	1.3
13	181	"	130	68	2.3
14	S.S.2	Pakistan	132	78	2.0
15	D.G Pearl	"	121	105	2.0
16	CE 90 16-3	Senegal	126	70	1.0
17	5 D x 61/6/2	Uganda	120	78	1.3
18	5 D x 36/D	"	128	60	1.0
19	5 D x 135/13/1/3/1	"	117	90	2.0
20	Serena	"	-	-	-
21	Kafiham x 5D x 67/6/2	"	113	92	3.0
22	D x 57/2/3 Brown	"	121	80	1.3
23	9D x 4/FS/15	"	127	82	2.3
24	Local Check	Yemen	113	93	2.7

* scored 1-3; 1= least vigorous, 3= most vigorous

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Sorghum from the U.S.A.

Fifty-one American sorghum cultivars obtained from Dr. R. E. Atkins at Iowa State University were tested at the Bir Al-Gahoum Research Farm in Sanaa in 1974. These were seeded in a non-replicated single row 5 meter plot. The test was grown under irrigation. The results of the test are presented in Table 7.

Hybrid sorghum resulted in almost 100% increase in yield over the varieties. De Kalb DD-50, RS 671, Pioneer 861, and Pioneer 885 were the highest yielders producing over 4000 kilograms of grain per hectare, about four times the yield of the local variety (991 kg/ha). The stover (stem and leaves remaining after the heads are harvested) yield in some of the best U.S. introductions was about 12 tons per hectare compared to about 3 tons for the local variety. Although the U.S. sorghums were shorter than the local variety profuse tillering compensated for their short stature. Earliness is another desirable trait of the U.S. hybrids.

Table 7. Performance of 51 Introduced American Sorghums, Sanaa, 1974

Brand/Variety	Days to 50% bloom	Plant height in cms	Stover yield tons/ha	Grain yield kg/ha	Grain % over Sanaa White
A-Line					
Martin	117	74	-	228	23
Combine Kafir 60	117	80	-	86	9
Wheatland	127	50	7.8	457	46
Redlan	127	75	-	57	6
Kansas 24	120	64	7.1	28	3
Redbine 58	117	74	10.4	86	9
Reliance	101	70	-	200	20
A 406 Martin (4 dwf)	116	55	7.8	57	6
A 616 Kafir (4 dwf)	117	50	7.8	200	20
B-Line					
Martin	118	70	9.5	371	37
Combine Kafir 60	120	75	12.0	371	37
Wheatland	125	44	8.6	28	3
Redlan	127	80	13.0	685	69
Kansas 24	120	60	8.6	114	12
Redbine 58	117	65	8.6	172	17
Reliance	101	80	3.4	600	60
B 406 Martin (4 dwf)	114	44	3.9	344	35
B 616 Kafir (4 dwf)	121	45	7.9	228	23
R-Line					
Texas 7078	116	55	5.2	485	49
Caprock	115	70	7.8	600	6
Plainsman	115	60	6.5	857	86
Redbine 60	115	70	3.9	457	46
Norghum	101	80	10.4	1828	184
Texas 04	115	75	3.9	828	84

Table 7. (Contd.)

Brand/Variety	Days to 50% bloom	Plant height in cms	Stover yield tons/ha	Grain yield kg/ha	Grain % over Sanza White
Texas 07	113	80	10.4	1600	161
Nebraska 0250	113	60	9.5	885	89
Nebraska 9040	126	50	8.3	57	6
Texas 2536		38	5.6	28	3
Hybrid					
Nebraska 504	111	85	-	2228	225
Nebraska 505	101	75	7.8	2457	248
RS 608	111	65	9.1	2057	208
RS 622	113	60	9.1	1343	136
RS 626	113	80	7.8	2514	254
RS 633	105	85	11.7	1943	196
RS 671	110	60	10.4	4114	415
Pioneer 820	116	60	12.1	457	46
Pioneer 846	110	70	7.0	1143	115
Pioneer 861	111	75	4.7	4086	412
Pioneer 866	111	80	12.1	3486	352
Pioneer 885	111	75	12.5	4086	412
Pioneer 894	104	55	9.1	3286	332
DeKalb C 44 A	110	55	3.9	2000	202
DeKalb DD-50	101	80	3.0	4457	450
DeKalb E 56 A	101	75	10.4	2400	242
DeKalb F 63	98	75	11.0	1971	173
Northrup-King NK 113	98	60	3.4	1714	173
Northrup- King NK 133	98	65	4.7	3342	337
Northrup-King NK 222	109	65	7.3	1828	184
Northrup-King NK 275	104	45	5.7	1686	170
Taylor-Evans TE 44	104	65	5.8	1343	136
Taylor- Evans TE 66	113	70	12.0	1200	121
Sanza White (local check)	124	94	3.0	991	100

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Sorghum from the ALAD Program in Lebanon

The Arid Lands Agricultural Development Program (ALAD), in Lebanon provided the largest number of entries for the YARG-USAID sorghum variety trials in 1973-1974. A total of 4636 entries plus two composites (a composite consists of about 4000 to 5000 individual plants) were received from ALAD for the two year period. Classified according to the kind of nursery, these are:

1973 main nursery

1973 regional nursery

Sanaa selections from 72 terbol

1973 terbol selections

Selection from RN TR '73

Selections made by YARG Trainees at ALAD in 1973

Male sterile composites

World Sorghum collection composite

1973 Main Nursery - The 1973 main nursery consisted of selections made at ALAD in Lebanon from a nursery which contained sorghum varieties from various locations in the world. A total of 2878 entries were included in this nursery. These were planted at the Bir Al-Gahoum Research Farm in Sanaa on June 12-16, 1973. Due to the late planting, most of the entries did not reach maturity. However, information on plant vigor, plant height, and flowering behavior were obtained. These are presented in the appendix, Table 17.

Of a total of 2878 entries, 30.8 percent attained 50 percent flowering, 13.6 percent had less than 50 percent flowers, and 55.6 percent had not flowered by frost date (November 1). In plant vigor, 12 percent of the total entries were rated either vigorous or fairly vigorous, while 88 percent were considered undesirables. Based on flowering behavior and plant vigor, only 9.1 percent of the 2878 entries were considered pormising for further testing in 1974.

1973 Regional Nursery - This nursery consisted of selections made by ALAD in Lebanon from several locations in the Middle East area. The nursery contained 447 entries, 404 of which were planted in Taiz and 43 entries were planted in Sanaa in 1973. The results are given in the appendix, Table 18 and 19.

Only 3 of the 43 entries planted in Sanaa were found promising while 42 percent of the 404 entries in Taiz were rated as either fair or good. This reflected the great difference in the natural selection factors operating in these two locations. Cold tolerance and drought resistance are the two main attributes needed by a variety in order to produce satisfactory yields in Sanaa.

Ethiopian and Sudanese Nursery- 106 entries from Ethiopia and Sudan were included in this nursery. These were planted in an unreplicated single 5 meter row plots at the Bir Al-Gahoum Research Farm in 1973. The results are given in the appendix, Table 20.

Because of late planting, many entries did not reach maturity. Based on plant vigor, 13 percent of the 106 entries were found promising for further testing in 1974. The Ethiopian entries were more vigorous than the Sudanese entries.

ALAD Regional Sorghum Yield Trial- 41 entries were included in this test. These were planted at the Bir Al-Gahoum Research Farm in Sanaa in 1974. Plots size was a single row 5 meter long, replicated three times. Grain yield and other agronomic characters are presented in Table 8.

Except for two hybrids, NB 635 and RS 506, the performance of the entries in this test was very poor. Grain yields were less than a ton. These varieties are supposedly the best when grown in Lebanon and elsewhere but they did very poorly in Sanaa. It is apparent that natural selection factors occuring in other places, are quite different from the natural selection factors operating in Yemen. These results indicate that crossing and non-selective activities can be done elsewhere, but evaluation must be done in Yemen.

1973 Sanaa Selections from ALAD Nurseries- 227 entries were selected from ALAD nurseries grown in Sanaa in 1973. Selection was based on plant vigor and flowering behavior, since yield data was not obtained. The selected entries were planted at the Bir Al-Gahoum Research Farm in 1974 for further evaluation. Grain yield, plant height and days to flowering are given in the appendix, Table 21.

The highest yielding entry produced 3320 kilograms of grain per hectare,

about three times the yield of the local variety. Of 227 entries, 15 were found yielding 1500 kilograms to 3320 kilograms to the hectare. According to rank, these were: Plot numbers 402, 415, 411, 403, 405, 426, 206, 226, 325, 294, 424, 266, 369, 357 and 250. Flowering dates of these entries ranged from 127 days to 140 days. Plant height varied from 60 centimeters to 147 centimeters. These entries will be included in a preliminary yield trial (one row, 3 replications) in 1975.

Terbol Selections- 654 entries were included in this nursery. A majority of the entries had very poor germination and were late maturing. The list of entries and some agronomic characters are given in the appendix Table 22.

Selections from RN TR 73- The problem in this test was poor germination due to the high moisture content of the seed harvest in Lebanon resulting in the rapid deterioration of the seed in storage. Of 145 entries none gave a good stand. The entries are listed in the appendix Table 23.

A and S Selections- During their training at the Arid Lands Agricultural Development Program in Lebanon in 1973, Ahmed Al-Anisi and Yahya Shuga, YARG sorghum counterparts, made selections from among the thousands of entries grown at the ALAD farm for sorghum types which they thought would be useful in Yemen. 40 selections were made. These were planted at the Bir Al-Gahoum Research Farm in Sanaa in 1974. The results were disappointing. None were found adapted to Sanaa conditions. Again, this illustrates that what is good in Lebanon may not do well in Yemen. Because of man power limitations, it is not possible, at the moment, for the YARG-USAID Sorghum Project to undertake crossing work. The best arrangement will be for ALAD or other International Centers (who have the facilities) to do the crosses and other non-selective activities and the YARG-USAID Sorghum Project do the actual selection in Yemen. It is important

that local Yemeni varieties be included in the crossing program.

Male - Sterile Composites- Unlike corn which is a natural outcrosser, sorghum is highly self-pollinated. The discovery of genetic mechanisms in sorghum controlling male-sterility made it possible to provide a means of rapid outcrossing. A male sterile composite obtained from the ALAD program in Lebanon was grown at the Bir Al-Gahoum Research Farm and in Taiz in 1974. These were interplanted with local types to allow intercrossing. Selections were made from these populations which will be planted in 1975, for another cycle of selection.

World Collection- A population of sorghum consisting of a mixture of different sorghum types from around the world was grown at the Bir Al-Gahoum Research Farm in 1974. Of a total of about 5000 plants, 124 individual head selections were made. Selection was based on traits such as earliness, plant height, grain color and head size. A local Yemeni farmer was invited to assist in the selection.

Local Sorghum Collections

Forty local sorghum types collected around Sanaa and Amran were planted at the Bir Al-Gahoum Research Farm in 1974. Two white grain types and two red grain types were found vigorous and produced good quality grains. The sorghums from Amran were tall and late.

The present local collection is very limited and does not represent the diversity available in Yemen. It is highly recommended that a systematic collection be made of all available sorghum types in Yemen. This should be done before locally used types are replaced by improved varieties which may be very different from local ones. This collection would be valuable to the program in Yemen and to the sorghum research effort in the world. Long-term storage is possible at Fort Collins, Colorado, U.S.A. in cooperation with the USDA Program in Puerto Rico and ICRISAT in India. Other crops of importance should be simultaneously collected.

High Lysine Sorghum

Two lines of high-lysine sorghum (IS 11167 and IS 11758) obtained from Purdue University, Lafayette, Indiana, U.S.A. were planted at the Bir Al-Gahoum Farm in Sanaa in 1974. Germination was poor and plants were weak. It is premature to draw conclusive results from a very limited sample of high-lysine sorghum lines. It may not be commercially feasible to use the Purdue high-lysine lines for commercial production, but it may be useful to incorporate the high-lysine content of these lines to adapted varieties in Yemen. Crosses can be made at the ALAD program in Lebanon or similar institutions and selections made in Yemen for adapted high lysine types.

Table 8. Performance of ALAD Regional Sorghum Yield Trial, Sanaa, 1974

Entry No.	Pedigree	Origin	Days to 50% bloom	Plant height in cms	Grain yield kg/ha	Grain % over local check
1	NES 50	WM73W758	131	62	397	33
2	NES 324	73TR.2204	135	63	317	26
3	NES 324	WM73W779	133	69	700	58
4	NES 633	WM73W551	150	64	248	21
5	NES 634	WM73W1035	136	63	134	11
6	NES 642	WM73W776	147	62	131	11
7	NES 650	WM73W759	138	83	268	22
8	NES 698	WM73W1004	139	77	220	18
9	NES 746	WM73W760	148	60	69	6
10	NES 760	72Ta332	130	67	540	45
11	NES 864	WM73W559	133	56	157	13
12	NES 867	WM73W789	132	69	288	24
13	NES 1146	WM73W761	138	100	897	74
14	NB 635		125	73	2023	167
15	NES 1310	72TA878	149	53	60	5
16	NES 1390	WM73W508	143	67	134	11
17	NES 1421	WM73W769	138	63	426	35
18	NES 1436	WM73W784	143	65	226	19
19	NES 1460	WM73W770	140	63	154	13
20	NES 1559	WM73W1037	129	84	906	75
21	Local check		125	103	1211	100
22	NES 1570	WM73 777	136	88	463	38
23	NES 1626	WM73 781	139	72	303	25
24	RS 506		125	83	2206	182
25	NES 1707	WM73 762	129	100	826	68
26	NES 1747	WM73 519	140	107	263	22
27	NES 1777	WM73 525	151	73	120	10
28	NB 691		131	67	1043	86
29	NES 1782	WM73W 1033	135	73	554	46
30	NES 1785	72TA 1350	135	73	463	38
31	NES 1787	WM73W 1034	130	62	166	14
32	NES 1789	WM73W 778	139	83	277	23
33	NES 1797	WM73W 772	144	99	168	14
34	NES 1803	WM73W 782	147	63	123	10
35	IS 209	WM73W 775	144	63	220	18
36	IS 339	WM73W 767	138	58	151	13
37	IS 406	WM73W 1009	131	80	797	66
38	IS410	WM73W 763	137	80	680	56
39	IS 825	WM73W 1020	129	109	683	56
40	IS 825	WM73W 1021	140	74	163	13
41	IS 858	WM73W 783	149	63	57	5
42	IS 3673	WM73W 10010	128	152	563	47

Millet From Africa and Asia

Nine varieties of African and Asian pearl millet varieties which were obtained through the Food and Agriculture Organization (FAO) of the United Nations, were planted at the Bir Al-Gahoum Research Center in Sanaa in 1973. Due to delayed planting, none reached flowering stage.

Another set of 12 pearl millet varieties from Nigeria, Pakistan, Senegal and Uganda were planted in Sanaa in 1974. The results are presented in Table 9.

Grain yield ranged from 351 kilograms to 2023 kilograms per hectare. The best varieties, Serere 2A and Serere 17, (both from Uganda) gave yields of over 2 tons per hectare, about three times the yield of the local check (650 kg/ha). The days from planting to 50 percent bloom ranged from 119 days to 136 days. The entries from Uganda were relatively earlier compared to the other entries. Except for one variety Ex. Bornu, lodging was not a problem. The local variety produced the most number of ears per plant but were small in size resulting in low total grain yield.

Millet from the ALAD Program

Pearl Millet Nursery - Seventy-two pearl millet entries supplied by the Arid Lands Agricultural Development Program in Lebanon were planted at the Bir Al-Gahoum Research Center in Sanaa in 1974. The results are presented in Table 10.

The highest grain yield obtained in this test was 3088 kilograms per hectare.

For a crop which has never been grown commercially in Sanaa (elevation 2300 meters) this yield looked surprisingly good. The average yield of the local sorghum variety in Sanaa is about 800 kilograms per hectare. In this test, the yield of the local millet variety is 650 kilograms per hectare. Current millet acreages in Yemen are concentrated in the coastal Tihamas (hot and dry) and to some extent in the midlands.

Early Pearl Millet composite - A mixture of early maturing pearl millet types was grown in Sanaa, Taiz and Hodeida in 1974. 202 head selections (from a population of about 5000 plants) were made in Sanaa, 330 head selections (from a population of about 4000 plants) in Taiz and 30 head selections (from a population of about 3000 plants) in Hodeida. Selection was based on plant vigor, head type, grain quality, bird resistance, and a potential for use as forage. The selected heads will be planted into head rows for evaluation in 1975.

Tel Amara Pearl Millet Composite- Another composite of pearl millet made up of selections in Lebanon was grown in Sanaa and Hodieda in 1974. 417 head selections in Sanaa and 86 head selections in Hodeida were made. The selected heads will be planted into head rows for evaluation in 1975.

Table 9. Performance of 12 Pearl Millet Varieties from Africa and Asia Planted in Sanaa-1974

Entry No	Pedigree	Origin	Days to 50% bloom	Plant height in cms	Lodging in pct	Average no. ears per plant	Grain yield kg/ha	Grain % over Local Check
1	Ex. Bornu	Nigeria	133	150	9.7	3.1	1566	241
2.	W.P. Composite	Nigeria	133	118	8.0	2.1	820	127
3.	Y/72	Pakistan	136	133	1.0	2.9	850	131
4.	18 BY	Pakistan	136	107	3.3	4.2	684	105
5.	Nain Composite	Senegal	133	32	0.0	3.5	351	54
6.	Souna 3	Senegal	136	108	0.0	2.7	420	65
7.	Serere 2 A	Uganda	121	135	2.7	4.3	2020	311
8.	23 A x Serere 2 A	Uganda	119	111	0.0	7.8	1520	234
9.	Serere 17	Uganda	120	113	1.7	4.1	2023	311
10.	Serere 10 LA x Serere 17	Uganda	121	126	0.0	5.6	1233	190
11.	Serere Composite	Uganda	119	105	3.7	4.1	1447	223
12.	Local Check	Yemen	133	128	0.0	10.6	650	100

Table 10. Performance of 72 Pearl Millet Entries from the ALAD Program, Sanaa-1974

Plot No.	NEP.	Origin 73 tr.	Days to 50% bloom	Plant height in cms	Grain yield kg/ha	Grain % over local Check
1401	7	5603	123	70	809	124
1402	10	5608-1	120	50	474	73
1403	11	5003	120	55	383	59
1404	11	5004-1	120	54	237	37
1405	13	5007-2	120	85	1980	305
1406	13	5513-1	120	87	1046	161
1407	13	5513-2	120	50	674	104
1408	13	5613-3	122	45	626	96
1409	13	5615	120	65	1351	208
1410	18	5008	118	70	903	139
1411	18	5011-2	121	70	911	140
1412	18	5011-3	121	90	1631	251
1413	18	5015	121	100	1477	227
1414	18	5016	123	95	1863	287
1415	18	5020	116	100	1637	252
1416	18	5023-1	116	95	2763	425
1417	18	5023-2	120	90	886	136
1418	18	5025-2	123	110	1768	272
1419	18	5033	116	80	726	112
1420	18	5035-1	125	110	660	102
1421	18	5037 Sp	116	100	1109	171
1422	18	5040 Op	120	115	2211	340
1423	18	5618 Sp	123	85	334	51
1424	18	5620-1 Op	116	90	1020	157
1425	18	5620-2 Op	124	75	526	81
1426	18	5621 Sp	124	95	1074	165
1427	18	5625 Sp	124	88	494	76
1428	18	5626-1 Sp	125	83	1126	173
1429	18	5626-2 Sp	125	87	300	46
1430	18	5629-Sp	127	93	117	18
1431	18	5630 Sp	127	68	77	12
1432	18	5632-1 Sp	124	93	1828	281
1433	18	5633-2 Op	124	92	2494	384
1434	18	5638-1 Sp	124	83	1883	290
1435	18	5638-2 Op	124	98	2017	310
1436	18	5640 Op	124	99	1246	192
1437	18	5641-2 Op	124	120	1977	304
1438	18	5642 Op	120	93	1426	219
1439	18	5644 Sp	126	95	643	99
1440	18	5645 Op	126	84	1048	161
1441	18	5646 Sp	123	74	814	125
1442	18	5657 Sp	120	86	597	92
1443	18	5654 Sp	120	91	1768	272

Table 10. (Contd.)

Plot No.	NEP	Origin 73 tr.	Days to 50% bloom	Plant height in cms	Grain yield kg/ha	Grain % over Local Check
1444	18	5657 Op	116	88	1637	252
1445	18	5663-1 Sp	120	96	2468	380
1446	18	5663-2 Sp	116	104	1708	263
1447	67	5043 Op	121	103	2214	340
1448	67	5668 Sp	121	90	1243	191
1449	69	5045 Op	120	112	1900	292
1450	69	5046 Op	120	110	2857	440
1451	104	5047 Op	120	111	2186	336
1452	104	5057-2 Sp	126	80	-	-
1453	104	5055 Sp	124	90	760	117
1454	104	5672 Sp	126	113	2426	373
1455	175	5056 Sp	126	74	586	90
1456	218	5057 Op	124	74	3088	475
1457	218	5059 Sp	124	62	534	82
1458	218	5061-1 Sp	124	90	583	90
1459	218	5061-2 Op	120	76	2134	328
1460	218	5061-3 Sp	124	73	1123	173
1461	218	5066 Op	124	80	1028	158
1462	218	5067 Op	127	40	691	106
1463	218	5678 Sp	127	90	911	140
1464	218	5681 Sp	127	47	417	64
1465	310	5682 Sp	127	44	546	84
1466	310	5685-1 Sp	127	62	191	29
1467	310	5685-2 Sp	127	65	440	68
1468	384	5689-1 Sp	127	93	631	97
1469	588	5069 Sp	127	76	860	132
1470	588	5690 Sp	127	70	646	99
1471	1017	5072 Op	127	75	823	127
1472	1018	5075 Op	127	90	834	128
Local Check			133	128	650	100

Sudangrass from the ALAD Program

Sudangrass Nursery - Fifty-six sudangrass entries supplied by the Arid Land Agricultural Development Program in Lebanon were tested at the Bir Al-Gahoum Research Farm in Senaa in 1974. Forage yield and other agronomic traits are given in Table 11. The highest forage yield obtained was 22.1 tons per hectare. Fodder yield of the local sorghum crop is about 3-5 tons per hectare. In Sanaa two cuttings may be possible if sudangrass is seeded early. Sudangrass is a new crop in Sanaa. It is grown to some extent in the midlands, where, because of warmer temperatures and higher rainfall 3 or 4 ratoon crops are possible. The present dual-purpose type local sorghum is inefficient in utilizing space. The combined us of a good grain sorghum for grain and forage as well as sudangrass for the bulk of the forage may result in higher farmer income.

Sudangrass Composite - A sudangrass composite obtained from the ALAD program in Lebanon was space planted at the Bir Al-Gahoum Farm in 1974. Of a total of about 3000 plants, 54 individual plant selections were made. These will be planted to head rows for evaluation in 1975.

Other

Alfalfa - In line with our crop rotation program, two varieties of alfalfa (Vernal and Saranac) introduced from the United States were Planted at the Bir Al-Gahoum Research Farm in 1973. The variety, Vernal, looked very promising.

Trefoil - Four varieties of birdsfoot trefoil (Carroll, Leo, Empire, Dawn) introduced from the United States were planted at the Bir-Al-Gahoum farm for observation in 1974. Trefoil, a forage legume, is grown by farmers in the United States and Canada for grazing. It has never been grown in Yemen before. It may be useful as permanent pasture.

Corn - Two varieties of field corn and one variety of sweet corn obtained from the ALAD program in Lebanon were planted in Sanaa and Taiz in 1974. The two field corn varieties, Bekaa No. 1 and Mt. Lebanon synthetic looked very promising in both locations. About 40 kilos of seeds were produced in 1974. Further seed increase and farmer distribution is planned for 1975.

Table 11. Forage yield and other agronomic Characters of 56 Sudangrass Entries from the ALAD Program planted in Sanaa - 1974

Plot No	IS	Origin 72 TA	Days to 50% bloom	Plant height in cms	Forage yield tons/ha
1301	186	2926	123	150	13.0
1302	3201	2957	123	170	16.9
1303	602	2976	123	155	16.3
1304	3283	2978	123	160	16.2
1305	3328	2980-1	114	140	12.8
1306	3289	2995	123	160	19.3
1307	NES				
1307	2792	3008	125	160	12.6
1308	2793	3009	114	165	13.9
1309	2794	3010	114	170	14.9
1310	2795	3011	114	180	16.2
1311	2798	3014	123	165	12.6
	IS	KF			
1312	147	4283	119	155	18.7
1313	601	4468	119	140	17.5
1314	602	4469	119	150	17.1
1315	604	4471	133	160	15.6
1316	605	4472	133	145	13.6
1317	606	4473	112	125	8.7
1318	607	4474	126	145	12.6
1319	608	4475	126	130	21 7
1320	609	4476	123	140	16.9
1321	614	4481	123	120	6.2
1322	615	4482	119	155	15.3
1323	616	4483	133	140	9.8
1324	648	4515	133	146	12.7
1325	696	4561	138	110	5.8
1326	709	4570	133	125	9.6
1327	803	4584	138	124	7.0
1328	1210	4026	119	120	8.5
1329	-		-	-	-
1330	1253	4853	123	100	4.5
1331	1263	4860-1	123	140	12.2
1332	1263	4860-2	123	135	7.3
1333	2347	5220	105	110	2.2
1334	2376	5240	105	55	1 3
1335	2433	5292	105	150	4.8
1336	2697	5438	123	155	16.8
1337	2710	5444	139	75	9.1
1338	2835	5510	105	145	5.2
1339	3193	5682	134	155	11 2
1340	3201	5685	123	140	17.5
1341	3203	5686	123	145	11 8
1342	3211	5687	123	150	16.9
1343	3274	5714	123	125	16.3
1344	3284	5719	123	160	12.6
1345	3299	5724	123	140	14.9
1346	3306	5726	123	140	13.5

Table 11. (Contd.)

Plot No.	IS	Origin 77 TA	Days to 50% bloom	Plant height in cms	Forage yield tons/ha
1347	3309	5729	128	150	19.1
1348	3310	5730	123	140	13.7
1349	3312	5731	123	135	12.3
1350	3318	5736	123	130	11.2
1351	6020	7096	123	115	7.3
1352	8819	8239	134	160	22.2
1353	8823	8241	134	165	14.0
1354	8826	8242	134	150	16.9
1355	8869	8246	123	145	11.5
1356	9407	8485	134	130	3.2

AGRONOMY

Variety/Planting Date Experiment

An experiment was conducted in Sanaa in 1973 to determine the effects of six planting dates (May 15, May 22, May 29, June 12, June 19) on two sorghum varieties (Sanaa white and Giza 54). The results are presented in Table 12. Delayed planting resulted in shorter plant heights, more immature heads, and reduced grain and stover yields. The effects were more pronounced in Giza 54. Planting after May 29, resulted in a drastic yield decline. Sanaa white tended to produce some grains even when planted late. However, planting after June 5 resulted in a pronounced yield reduction.

Fertilizer Test

A study was initiated in 1974 to determine the response of Sanaa white sorghum (local variety) to the application of N, P, and K. The test was conducted at the Bir Al-Gahoum Research Farm under irrigation. The results are presented in Table 13. Preliminary results indicated that grain and stover yields responded favorably to the application of potassium. This tends to support current farmers practice in applying wood ash to their field prior to planting sorghum. The application of nitrogen and phoshorous did not significantly increase grain and stover yields. It has been suggested that irrigation water in Yemen may contain considerable amount of nitrates.

Spacing and Plant Population Study

An experment was conducted to determine the performance of Sanaa White sorghum (local variety) under various intra- and inter-row spacings. The test was planted under irrigation at the Bir Al-Gahoum Research Farm in 1974. The results are presented in Table 14. Grain yield tended to increase with wider between-row spacings and closer within-row spacings. The highest grain yield was obtained when rows were spaced 75 centimeters apart with hills planted every 10 centimeters (about 133,333 plants per hectare).

Table 12 Performance of Giza 54 and Sanaa White Sorghum at Six Planting Dates, Sanaa-1974

Variety	Planting Date	Days to 50% bloom	Plant height in cms	Stover yield gs/plant	Grain Yield gs/plant	Mature Heads %	Immature Heads %
Giza 54	May 15	124.6	118	82	10.0	57.4	42.6
	May 22	125.0	113	102	8.0	20.9	79.1
	May 29	126.0	110	119	8.3	18.8	81.2
	June 5	126.3	107	109	0.8	11.7	88.3
	June 12	120.3	88	80	0.7	15.0	85.0
	June 19	108.0	75	73	0.0	4.2	95.8
	Mean	121 7	101.8	94.2	4.6	21.3	78.7
Sanaa White	May 15	113.6	102	56	22.4	76.4	23.6
	May 22	112.6	105	104	23.0	46.0	54.0
	May 29	112 0	93	91	21.3	56.1	43.9
	June 5	108.3	103	100	19.3	52.4	47.6
	June 12	102.6	92	74	14.9	62.1	37.9
	June 19	98.0	82	86	8.2	45.4	54.6
	Mean	107.8	96.2	85.2	18.2	56.4	43.6

Table 13. Grain and Stover Yields of Sanaa White Sorghum Grown under Varying Rates of N, P, K -Sanaa-1974

Kgms Per Hectare N	P_2O_5	K_2O	Stover Yield kg/ha	Grain Yield kg/ha
45	0	0	2614	900
90	0	0	2614	620
45	45	0	3347	951
45	90	0	3476	936
45	0	45	3827	1133
45	45	45	3716	934
90	45	45	4216	1063
0	0	0	3133	726

Table 14. Grain Yield of Sanaa White Sorghum Grown Under Various Inter-and-Intra Row Spacings

Spacing between rows in cms		Spacing within rows in cms	Plants per hectare	Grain Yield kg/ha
75	X	30	44,444	1021
75	X	20	66,666	1117
75	X	10	133,333	1801
50	X	30	66,666	1069
50	X	20	100,000	1264
50	X	10	200,000	1239
30	X	30	111,111	841
30	X	20	166,666	974
30	X	10	333,333	1183

Counterpart Training

Four counterparts from the Ministry of Agriculture have been assigned to the Sorghum and Millet Project. These are: Yahya Shuga, Ahmed Al-Anisi, Yahya Telha, and Mohamed Abu Talib. In May 1973, two participants (Yahya Shuga and Ahmed Al-Anisi) were selected and sent for a 7 month (May-November) sorghum-millet training to the Arid Lands Agricultural Development Project in Lebanon. This seven month period overlapped the growing period of the crop. An indication of topics covered in the training program is presented in Table 15. The following year two candidates were selected for training in Lebanon. However, only one, Mohaned Abu Talib participated in the training. The other candidate, Yahya Telha was transferred from the Sorghum Project to the Cotton Project in Hodeida. He was later replaced by Mohamed Baathar.

Of a total of four counterparts, three completed training at the Arid Lands Agricultural Development Program in Lebanon. All four are now receiving on-the-job training in Sanaa.

Table 15. Topics Presented in Sorghum-Millet Training Program at the Arid Lands Agricultural Development Program

- Shaping land for irrigation and drainage.
- Irrigation criteria.
- Machinery- maintenance and adjustment.
- Seed bed preparation.
- Plot layout for nursery, trials, crossing block.
- Weed control.
- Sowing procedures, plot map, plot size.
- Field house
- Agricultural experiment station operations.
- Insect pests.
- Diseases.
- Domestication and taxonomy.
- Anatomy
- Physiology and nutrition.
- Field books, accessions books, dispatch records.
- Row tags, field labels
- Pedigree systems.
- Regional cooperation.
- Note taking.
- Breeding techniques.
- Crossing, hand emasculation, sterility
- Crossing block operations.
- Hybrids vs. varieties, seed industry, quality control.
- Varietal release, naming of varieties.
- Relationship between extension and research.
- Statistics and experimental design.
- Agronomic experiments, multiple cropping.
- Forages.
- Bird control.
- Harvesting.
- Seed storage and processing.
- Storage pests-fumigation.
- Longevity and dormacy.

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TABLE 16

NUMBER OF ENTRIES TESTED

BY YEAR AND LOCATION

Table 16. Number of Entries Tested by Location and Year

Crop/Location	1973	1974	Total (73-74)
Sorghum			
Sanaa	3140	1253 + 2 Composites	4393 + 2 Comp.
Taiz	597	6 + 1 Composite	603 + 1 Comp.
Hodeida	0	0	0
Total	3737	1259 + 3 Composites	4996 + 3 Comp.
Pearl Millet			
Sanaa	9	84 + 2 Composites	93 + 2 Comp.
Taiz	0	1 Composite	1 Comp.
Hodeida	0	2 composites	2 Comp.
Total	9	84 + 5 Composites	93 + 5 Comp.
Sudangrass			
Sanaa	0	56 + 1 Composite	56 + 1 Comp.
Taiz	0	1 Composite	1 Comp.
Hodeida	0	0	0
Total	0	56 + 2 Composites	56 + 2 Comp.
Corn			
Sanaa	0	3	3
Taiz	0	2	2
Alfalfa			
Sanaa	0	2	2
Trefoil			
Sanaa	0	4	4
Forage Sorghum			
Sanaa	0	2	2
Hodeida	0	2	2

TABLE 17

1973 ALAD MAIN NURSERY

Table 17. Some Agronomic Traits of 2878 Entries of the ALAD Main Sorghum Nursery, Sanaa-1973

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score*
2.	2.	1001.	130.	30.	1.
2.	5-1.	1002.	130.	30.	1.
2.	7.	1003.	-	-	2.
6.	8.	1004.	124.	50.	2.
15.	18.	1005.	+	-	1.
31.	26.	1006.	134.	50.	2.
67.	58.	1007.	+	-	2.
104.	61-1.	1008.	+	-	2.
104.	61-2.	1009.	134.	50.	1.
50.	65-1.	1010.	124.	75.	2.
50.	65-2.	1011.	132.	50.	1.
50.	65-3.	1012.	132.	50.	1.
50.	66.	1013.	120.	75.	1.
50.	69.	1014.	+	-	1.
103.	71.	1015.	130.	50.	1.
110.	72-1.	1016.	134.	40.	1.
110.	72-2.	1017.	130.	50.	2.
27.	73-1.	1018.	120.	75.	1.
27.	73-2.	1019.	130.	70.	1.
153.	75.	1020.	+	-	1.
IS					
166.	85-1.	1021.	+	+	2.
166.	85-2.	1022.	134.	50.	1.
8355.	88.	1023.	+	-	1.
NES					
311.	103.	1024.	132.	47.	2.
311.	105-1.	1025.	+	-	1.
311.	105-2.	1026.	+	-	1.
452.	114.	1027.	122.	75.	2.
493.	115-1.	1028.	114.	78.	1.
493.	115-2.	1029.	114.	60.	2.
IS					
314.	120-1.	1030.	120.	77.	1.
314.	120-2.	1031.	120.	75.	2.
257.	121-1.	1032.	126.	73.	1.
NES					
257.	121-2.	1033.	126.	82.	1.
518.	124-1.	1034.	132.	45.	2.
518.	124-2.	1035.	132.	60.	2.

* Scored 1-3; 1 = least vigorous, 3= most vigorous

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cm.	Vigor score
528.	125.	1036.	132.	50.	1.
628.	158.	1037.	126.	70.	2.
628.	159.	1038.	-	-	3.
628.	164-1.	1039.	-	-	2.
628.	164-2.	1040.	132.	65.	1.
628.	164-3.	1041.	134.	70.	2.
628.	167.	1042.	126.	60.	2.
628.	168.	1043.	112.	53.	2.
632.	204.	1044.	132.	65.	1.
633.	205-1.	1045.	128.	55.	1.
633.	205-2.	1046.	130.	63.	1.
633.	205-3.	1047.	126.	42.	2.
633.	205-4.	1048.	130.	70.	1.
634.	206-1.	1049.	130.	55.	1.
634.	206-2.	1050.	124.	63.	2.
641.	213.	1051.	114.	60.	2.
643.	215-1.	1052.	112.	40.	1.
643.	215-2.	1053.	112.	37.	1.
644.	216.	1054.	128.	50.	1.
647.	219-1.	1055.	132.	47.	1.
647.	219-2.	1056.	130.	74.	1.
648.	220-1.	1057.	128.	63.	1.
648.	220-2.	1058.	126.	53.	1.
648.	220-3.	1059.	128.	78.	2.
650.	222-1.	1060.	-	-	1.
650.	222-2.	1061.	128.	56.	3.
650.	222-3.	1062.	-	-	1.
655.	227-1.	1063.	+	-	1.
655.	267-2.	1064.	130.	68.	1.
656.	228-1.	1065.	130.	55.	1.
656.	228-2.	1066.	130.	62.	1.
660.	232-1.	1067.	130.	60.	2.
660.	232-2.	1068.	126.	70.	2.
661.	233.	1069.	124.	82.	2.
675.	247-1.	1070.	128.	94.	2.
675.	247-2.	1071.	-	-	2.
676.	248-1.	1072.	-	-	1.
676.	248-2.	1073.	128.	64.	1.
677.	249.	1074.	-	-	3.
679.	251-1.	1075.	128.	80.	2.
679.	251-2.	1076.	112.	60.	1.
680.	252.	1077.	124.	64.	3.
688.	260-1.	1078.	-	-	3.
688.	260-2.	1079.	+	-	1.
689.	261-1.	1080.	132.	45.	1.
689.	261-2.	1091.	128.	42.	1.
689.	261-3.	1082.	130.	60.	2.
690.	262-1.	1083.	128.	50.	1.
690.	262-2.	1084.	132.	75.	1.
691.	263-1.	1085.	120.	50.	1.
691.	263-2.	1086.	130.	53.	2.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
692.	264-1.	1087.	124.	72.	2.
692.	264-2.	1088.	120.	62.	3.
692.	264-3.	1089.	120.	77.	3.
694.	266-1.	1090.	112.	45.	3.
694.	266-2.	1091.	122.	55.	1.
695.	267-1.	1092.	122.	70.	2.
695.	267-2.	1093.	112.	84.	3.
695.	267-3.	1094.	122.	100.	2.
696.	268.	1095.	130.	45.	3.
698.	270-1.	1096.	130.	43.	1.
698.	270-2.	1097.	132.	70.	1.
700.	272-1.	1098.	+	-	1.
700.	272-2.	1099.	-	-	1.
703.	275-1.	1100.	130.	75.	1.
703.	275-2.	1101.	124.	80.	2.
705.	277-1.	1102.	124.	61.	3.
705.	277-2.	1103.	120.	82.	1.
708.	280.	1104.	112.	62.	3.
710.	282.	1105.	128.	66.	1.
712.	284.	1106.	109.	80.	2.
715.	287.	1107.	120.	82.	2.
719.	291-1.	1108.	112.	90.	3.
719.	291-2.	1109.	-	-	1.
726.	298-1.	1110.	120.	65.	1.
726.	298-2.	1111.	120.	71.	2.
726.	298-3.	1112.	114.	70.	2.
727.	299.	1113.	122.	83.	3.
728.	300-1.	1114.	120.	74.	1.
728.	330-2.	1115.	126.	62.	2.
731.	303.	1116.	130.	73.	1.
734.	306.	1117.	130.	70.	2.
735.	307.	1118.	+	-	1.
742.	314.	1119.	132.	40.	2.
745.	317.	1120.	124.	80.	2.
746.	318.	1121.	120.	70.	2.
748.	320.	1122.	128.	49.	1.
753.	325-1.	1123.	124.	112.	1.
753.	325-2.	1124.	114.	75.	1.
756.	328-1.	1125.	124.	60.	1.
756.	328-2.	1126.	116.	77.	2.
757.	329.	1127.	116.	65.	1.
758.	330-1.	1128.	122.	59.	2.
758.	330-2.	1129.	130.	52.	2.
758.	330-3.	1130.	130.	50.	1.
760.	332.	1131.	132.	85.	2.
762.	334.	1132.	116.	60.	2.
767.	339-1.	1133.	132.	40.	2.
767.	339-2.	1134.	112.	73.	1.
773.	345.	1135.	112.	65.	1.
776.	348.	1136.	122.	65.	2.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
784.	356.	1137.	114.	110.	2.
788.	360.	1138.	+	-	1.
805.	377-1.	1139.	130.	40.	1.
805.	377-2.	1140.	-	-	1.
807.	379-1.	1141.	132.	118.	1.
807.	379-3.	1142.	134.	65.	2.
812.	384-1.	1143.	134.	60.	1.
821.	393-1.	1144.	120.	68.	1.
821.	393-2.	1145.	120.	75.	3.
821.	393-3.	1146.	132.	50.	2.
821.	393-4.	1147.	132.	80.	1.
822.	394-1.	1148.	130.	50.	1.
822.	394-2.	1149.	130.	40.	1.
823.	395.	1150.	132.	60.	2.
825.	397-1.	1151.	132.	65.	1.
825.	397-2.	1152.	-	-	1.
826.	398.	1153.	134.	110.	2.
827.	399.	1154.	128.	53.	1.
828.	400-1.	1155.	-	-	1.
828.	400-2.	1156.	134.	50.	1.
828.	400-3.	1157.	114.	50.	1.
829.	401-1.	1158.	124.	75.	2.
829.	401-2.	1159.	132.	45.	2.
829.	401-3.	1160.	122.	67.	2.
829.	401-4.	1161.	130.	52.	2.
840.	412.	1162.	+	-	1.
841.	413.	1163.	-	-	1.
845.	417-1.	1164.	-	-	1.
845.	417-2.	1165.	134.	50.	1.
853.	425-1.	1166.	134.	70.	1.
853.	425-2.	1167.	134.	80.	3.
853.	425-3.	1168.	134.	60.	1.
854.	42601.	1169.	132.	75.	1.
854.	426-2.	1170.	134.	43.	2.
854.	426-3.	1171.	116.	47.	2.
854.	426-4.	1172.	116.	40.	2.
854.	426-5	1173.	124.	55.	2.
854.	426-6.	1174.	128.	95.	3.
856.	428-1.	1175.	128.	70.	2.
856.	428-2.	1176.	+	-	2.
856.	428-3.	1177.	+	-	1.
857.	429-1.	1178.	+	-	1.
857.	429-2.	1179.	132.	55.	1.
858.	430-1.	1180.	124.	62.	1.
858.	430-2.	1181.	120.	50.	1.
860.	432.	1182.	116.	55.	1.
861.	433.	1183.	+	-	1.
863.	435.	1184.	132.	35.	1.
864.	436-1.	1185.	124.	30.	1.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
864.	436-2.	1186.	132.	80.	2.
866.	438.	1187.	134.	50.	1.
868.	440.	1188.	-	-	1.
891.	463.	1189.	-	-	1.
892.	464.	1190.	126.	90.	2.
893.	465.	1191.	124.	70.	1.
895.	467.	1192.	124.	65.	1.
906.	478.	1193.	120.	100.	1.
908.	480.	1194.	126.	80.	1.
911.	483.	1195.	+	-	1.
912.	484.	1196.	120.	95.	1.
917.	489.	1197.	124.	65.	2.
918.	490.	1198.	132.	95.	2.
919	491.	1199.	122.	90.	2.
920.	492.	1200.	-	-	1.
921.	493.	1201.	134.	45.	1.
941.	513.	1202.	134.	70.	1.
944.	516-1.	1203.	132.	45.	1.
944.	516-2.	1204.	+	-	1.
944.	516-3.	1205.	-	-	2.
945.	517.	1206.	+	-	1.
946.	518-1.	1207.	-	-	1.
946.	518-2.	1208.	+	-	1.
949.	521.	1209.	120.	55.	2.
950.	522.	1210.	132.	33.	1.
954.	526-1.	1211.	+	-	1.
954.	526-2.	1212.	-	-	1.
955.	557-1.	1213.	120.	55.	1.
955.	527-2.	1214.	132.	40.	1.
956.	528-1.	1215.	-	-	1.
956.	528-2.	1216.	120.	120.	3.
957.	529-1.	1217.	120.	130.	3.
957.	529-2.	1218.	+	-	2.
958.	530.	1219.	120.	50.	1.
959.	531.	1220.	114.	45.	1.
961.	533-1.	1221.	130.	40.	1.
961.	533-2.	1222.	134.	75.	1.
966.	538.	1223.	-	-	1.
968.	540-1.	1224.	-	-	1.
968.	540-2.	1225.	-	-	1.
968.	540-3.	1226.	120.	50.	2.
984.	556.	1227.	134.	50.	2.
1005.	577-1.	1228.	+	-	1.
1005.	577-2.	1229.	+	-	2.
1007.	579-1.	1230.	+	-	1.
1007.	579-2.	1231.	132.	60.	2.
1008.	580-1.	1232.	134.	50.	1.
1008.	580-2.	1233.	-	-	1.
1012.	584.	1234.	132.	90.	2.
1013.	585-1.	1235.	+	-	2.

Table 17. (Contd.)

Pedigree MES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1013	585-2.	1236.	+	-	1.
1014.	586.	1237.	-	-	1.
1016.	588.	1238.	+	-	1.
1017.	589.	1239.	+	-	1.
1018.	590.	1240.	122.	50.	1.
1021.	593.	1241.	134.	60.	2.
1027.	599-1.	1242.	122.	100.	1.
1027.	599-2.	1243.	130.	67.	1.
1033.	640.	1244.	132.	60.	1.
1035.	606.	1245.	+	-	1.
1037.	608-1.	1246.	-	-	1.
1037.	608-2.	1247.	122.	70.	1.
1038.	609.	1248.	130.	40.	1.
1042.	613-1.	1249.	114.	72.	1.
1042.	613-2.	1250.	134.	40.	1.
1043.	614-1.	1251.	128.	60.	1.
1043.	614-2.	1252.	132.	40.	1.
1043.	614-3.	1253.	134.	50.	1.
1043.	614-4.	1254.	+	-	1.
1046.	617-1.	1255.	+	-	1.
1046.	617-2.	1256.	+	-	1.
1047.	618-1.	1257.	120.	57.	1.
1047.	618-2.	1258.	-	-	1.
1070.	640.	1259.	132.	108.	2.
1071.	641.	1260.	120.	60.	1.
1072.	642.	1261.	128.	60.	2.
1074.	644.	1262.	114.	60.	1.
1177	746-1.	1263.	134.	45.	1.
1076.	646-2.	1264.	120.	70.	1.
1079.	649-1.	1265.	120.	70.	2.
1079.	649-2.	1266.	130.	70.	1.
1121.	691-1.	1267.	130.	80.	1.
1121.	691-2.	1268.	128.	45.	1.
1127.	697.	1269.	-	-	1.
1131.	701.	1270.	120.	80.	1.
1144.	713-1.	1271.	+	-	1.
1144.	713-1.	1272.	112.	104.	1.
1145.	714-1.	1273.	112.	65.	1.
1145.	714-2.	1274.	+	-	1.
1146.	715.	1275.	+	-	1.
1148.	717.	1276.	128.	50.	2.
1152.	721-1.	1277.	134.	75.	1.
1152.	721-2.	1278.	-	-	2.
1154.	723.	1279.	132.	50.	1.
1156.	725-1.	1280.	+	-	1.
1156.	725-2.	1281.	-	-	1.
1159.	728-1.	1282.	-	-	1.
1159.	728-2.	1283.	132.	83.	1.
1159.	728-3.	1284.	+	-	1.
1160.	729-1.	1285.	+	-	1.

Table 17. (Contd.)

Pedigree NSS	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Plant score
1160.	729-2.	1286.	-	-	1.
1162.	731-1.	1287.	128.	93.	2.
1162.	731-2.	1288.	120.	50.	1.
1163.	732.	1289.	-	-	2.
1165.	734.	1290.	-	-	1.
1170.	739.	1291.	112.	105.	1.
1178.	747.	1292.	120.	80.	2.
1180.	749.	1293.	128.	70.	2.
1181.	750.	1294.	116.	67.	2.
1182.	751.	1295.	130.	113.	2.
1185.	753.	1296.	120.	110.	2.
1189.	757.	1297.	+	-	1.
1191.	759-1.	1298.	-	-	1.
1191.	759-2.	1299.	120.	110.	2.
1193.	761.	1300.	109.	80.	2.
1198.	766-1.	1301.	112.	70.	1.
1198.	766-2.	1302.	128.	65.	1.
1198.	766-3.	1303.	132.	85.	2.
1202.	770.	1304.	128.	70.	2.
1205.	773-1.	1305.	128.	60.	1.
1205.	773-2.	1306.	112.	65.	1.
1208.	776-1.	1307.	116.	120.	2.
1208.	776-2.	1308.	122.	100.	1.
1208.	776-3.	1309.	120.	95.	2.
1209.	777.	1310.	128.	70.	2.
1211.	779.	1311.	114.	60.	2.
1215.	783-1.	1312.	120.	80.	2.
1215.	783-2.	1313.	120.	80.	2.
1215.	783-3.	1314.	128.	90.	1.
1219.	787.	1315.	116.	105.	1.
1220.	788.	1316.	128.	55	2.
1221.	789.	1317.	112.	90.	1.
1231.	799-1.	1318.	128.	50.	1.
1231	799-2.	1319.	122.	100.	1.
1234.	802-1.	1320.	132.	100.	1.
1234.	802-2.	1321.	132.	80.	1.
1235.	803-1.	1322.	134.	75.	2.
1235.	803-2.	1323.	114.	75.	2.
1237.	805.	1324.	130.	85.	1.
1238.	806.	1325.	128.	75.	2.
1240.	808.	1326.	+	-	1.
1241.	809-1.	1327.	-	-	1.
1241.	809-2.	1328.	122.	130.	1.
1246.	814-1.	1329.	130.	45.	1.
1246.	814-2.	1330.	132.	75.	1.
1248.	816.	1331.	132.	75.	3.
1251.	819.	1332.	134.	80.	3.
1253.	821.	1333.	132.	70.	1.
1264.	832-1.	1334.	130.	90.	1.
1264.	832-2.	1335.	-	-	1.
1280.	848-1.	1336.	120.	80.	1.
1280.	848-2.	1337.	114.	120.	3.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1282.	850.	1338.	120.	90.	3.
1283.	851.	1339.	-	-	3.
1286.	854.	1340.	130.	60.	3.
1290.	858.	1341.	120.	70.	2.
1294.	862-1.	1342.	-	-	1.
1294.	862-2.	1343.	120.	60.	2.
1335.	903.	1344.	128.	45.	2.
1339.	907.	1345.	130.	50.	2.
1349.	917-1.	1346.	-	-	1.
1349.	917-2.	1347.	134.	80.	2.
1350.	918.	1348.	122.	100.	2.
1351.	919.	1349.	+	-	1.
1354.	922.	1350.	-	-	1.
1365.	933-1.	1351.	+	-	1.
1365.	933-2.	1352.	132.	60.	1.
1371.	939.	1353.	-	-	1.
1376.	944.	1354.	-	-	1.
1379.	947-1.	1355.	130.	80.	2.
1379.	947-2.	1356.	112.	80.	1.
1381.	949-1.	1357.	109.	80.	2.
1381.	949-2.	1358.	+	60.	2.
1381.	949-3.	1359.	132.	60.	2.
1383.	951-1.	1360.	128.	78.	2.
1383.	951-2.	1361.	122.	80.	2.
1384.	952-1.	1362.	116.	60.	2.
1384.	952-2.	1363.	128.	65.	2.
1385.	953.	1364.	128.	80.	2.
1387.	955-1.	1365.	132.	50.	2.
1387.	955-2.	1366.	130.	45.	1.
1393.	961-1.	1367.	+	-	1.
1400.	961-2.	1368.	116.	100.	2.
1399.	967.	1369.	128.	70.	2.
1400.	968.	1370.	128.	62.	2.
1401.	969.	1371.	128.	50.	1.
1402.	970.	1372.	-	-	2.
1404.	972.	1373.	128.	60.	2.
1405.	973.	1374.	128.	50.	1.
1406.	974-1.	1375.	128.	100.	1.
1406.	974-2.	1376.	128.	60.	1.
1406.	974-3.	1377.	120.	72.	1.
1407.	975-1.	1378.	+	-	1.
1407.	975-2.	1379.	120.	90.	1.
1409.	977.	1380.	-	-	1.
1411.	979-1.	1381.	-	-	1.
1411.	979-2.	1382.	-	-	1.
1416.	984.	1383.	-	-	1.
1422.	990-1.	1384.	120.	110.	1.
1422.	990-2.	1385.	-	-	1.
1422.	990-3.	1386.	+	-	1.
1424.	992-1.	1387.	-	-	1.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1424.	992-2.	1388.	+	-	1.
1425.	993-1.	1389.	-	-	1.
1425.	993-2.	1390.	-	-	1.
1425.	993-3.	1391.	-	-	1.
1425.	993-4.	1392.	-	-	1.
1426.	994-1.	1393.	-	-	1.
1426.	994-2.	1394.	-	-	1.
1427.	995.	1395.	128.	40.	1.
1428.	996.	1396.	128.	50.	1.
1429.	997-1.	1397.	112.	105.	2.
1429.	997-2.	1398.	132.	40.	1.
1430.	998-1.	1399.	134.	40.	1.
1430.	998-2.	1400.	128.	70.	1.
1431.	999.	1401.	130.	115.	1.
1432.	1000-1.	1402.	132.	80.	1.
1432.	1000-2.	1403.		-	1.
1434.	1002.	1404.	120.	120.	2.
1435.	1003.	1405.	-	-	1.
1437.	1005.	1406.	128.	40.	2.
1438.	1006-1.	1407.	120.	80.	1.
1438.	1006-2.	1408.	128.	40.	1.
1443.	1011-1.	1409.	122.	30.	2.
1443.	1011-2.	1410.	120.	75.	1.
1444.	1012-1.	1411.	-	-	1.
1444.	1012-2.	1412.	+	-	1.
1445.	1013.	1413.	-	-	1.
1447.	1015-1.	1414.	-	-	1.
1447.	1015-2.	1415.	+	-	2.
1448.	1016.	1416.	128.	70.	1.
1450.	1018.	1417.	120.	60.	2.
1454.	1022-1.	1418.	-	-	1.
1454.	1022-2.	1419.	120.	80.	1.
1454.	1022-3.	1420.	122.	70.	1.
1457.	1025.	1421.	116.	70.	1.
1458.	1026.	1422.	134.	60.	2.
1459.	1027.	1423.	-	-	1.
1462.	1030.	1424.	+	-	1.
1465.	1033.	1425.	116.	100.	2.
1467.	1035.	1426.	+	-	1.
1468.	1036-1.	1427.	130.	45.	1.
1468.	1036-2.	1428.	120.	50.	1.
1469.	1037-1.	1429.	120.	70.	1.
1469.	1037-2.	1430.	132.	30.	1.
1470.	1038.	1431.	120.	65.	1.
1472.	1040.	1432.	132.	50.	1.
1475.	1043.	1433.	114.	70.	2.
1480.	1048-1.	1434.	130.	40.	1.
1480.	1048-2.	1435.	132.	40.	2.
1481.	1049-1.	1436.	134.	60.	2.
1481.	1049-2.	1437.	114.	55.	1.
1483.	1051-1.	1438.	134.	40.	2.
1483.	1051-2.	1439.	120.	100.	1.

Table 17. (Contd.)

Pedigree NBS	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1484.	1052-1.	1440.	112.	55.	2.
1434.	1052-2.	1441.	182.	45.	1.
1434.	1052-3.	1442.	-	-	1.
1489.	1057.	1443.	120.	60.	1.
1490.	1058-1.	1444.	120.	70.	1.
1490.	1058-2.	1445.	120.	40.	1.
1498.	1066.	1446.	-	-	1.
1499.	1067.	1447.	128.	45.	1.
1500.	1068-1.	1448.	120.	87.	2.
1500.	1068-2.	1449.	120.	75.	2.
1500.	1068-3.	1450.	120.	80.	1.
1500.	1068-4.	1451.	130.	130.	1.
1500.	1068-5.	1452.	132.	60.	1.
1500.	1068-6.	1453.	-	-	1.
1503.	1071-1.	1454.	-	-	1.
1503.	1071-2.	1455.	-	-	1.
1503.	1071-3.	1456.	132.	40.	1.
1505.	1073.	1457.	134.	60.	1.
1506.	1074.	1458.	+	-	1.
1511.	1079-1.	1459.	-	-	1.
1511.	1079-2.	1460.	-	-	1.
1512.	1080-1.	1461.	+	-	1.
1512.	1080-2.	1462.	+	-	1.
1516.	1084.	1463.	-	-	1.
1517.	1085.	1464.	120.	90.	1.
1520.	1088-1.	1465.	-	-	1.
1520.	1088-2.	1466.	-	-	1.
1521.	1089.	1467.	130.	50.	1.
1523.	1091-1.	1468.	120.	80.	1.
1523.	1091-2.	1469.	114.	75.	1.
1559.	1097-1.	1470.	132.	70.	1.
1559.	1097-2.	1471.	122.	100.	1.
1559.	1097-3.	1422.	-	-	1.
1559.	1097-4.	1473.	128.	60.	1.
1559.	1097-5.	1474.	120.	55.	1.
1530.	1098-1.	1475.	120.	90.	2.
1530.	1098-2.	1476.	-	-	1.
1531.	1099.	1477.	-	-	1.
1532.	1100.	1478.	+	-	1.
1533-1.	1101-1.	1479.	+	-	1.
1533-2.	1101-2.	1480.	-	-	1.
1534.	1102-1.	1481.	132.	95.	1.
1534.	1102-2.	1482.	128.	55.	1.
1535.	1103-1.	1483.	+	-	1.
1535.	1103-2.	1484.	-	-	1.
1537.	1105.	1485.	-	-	1.
1541.	1109.	1486.	-	-	1.
1542.	1110.	1487.	114.	80.	1.
1543.	1111-1.	1488.	114.	105.	1.
1543.	1111-2.	1489.	-	-	1.
1544.	1112.	1490.			1.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1549.	1117.	1491.	-	-	1.
1550.	1118.	1492.	-	-	1.
1550.	1118-2.	1493.	+	-	1.
1550.	1118-3.	1494.	-	-	1.
1559.	1127-1.	1495.	+	-	1.
1559.	1127-2.	1496.	120.	75.	1.
1559.	1127-3.	1497.	132.	75.	1.
1563.	1131-1.	1498.	128.	110.	2.
1563.	1131-2.	1499.	134.	85.	1.
1564.	1132-1.	1500.	116.	50.	1.
1564.	1132-2.	1501.	128.	50.	1.
1565.	1133-1.	1502.	128.	55.	1.
1565.	1133-2.	1503.	128.	50.	1.
1568.	1134-1.	1504.	112.	80.	2.
1569.	1137.	1505.	112.	60.	1.
1572.	1140-1.	1506.	112.	55.	2.
1572.	1140-2.	1507.	112.	70.	1.
1573.	1141-1.	1508.	112.	70.	2.
1573.	1141-2.	1509.	130.	30.	1.
1578.	1146.	1510.	114.	75.	2.
1581.	1149-1.	1511.	-	-	2.
1581.	1149-2.	1512.	128.	75.	2.
1582.	1150-1.	1513.	128.	80.	1.
1582.	1150-2.	1514.	-	-	2.
1583.	1151-	1515.	-	-	1.
1586.	1154.	1516.	+	-	1.
1595.	1163-1.	1517.	+	-	1.
1595.	1163-2.	1518.	+	-	1.
1595.	1163-3.	1519.	+	-	1.
1603.	1171-1.	1520.	-	-	1.
1603.	1171-2.	1521.	128.	60.	1.
1605.	1173-1.	1522.	-	-	1.
1605.	1173-2.	1523.	128.	60.	1.
1605.	1173-3	1524.	128.	60.	2.
1606.	1174-1	1525.	112.	80.	2.
1606.	1174-2.	1526.	114.	45.	2.
1607.	1175.	1527.	128.	50.	2.
1611.	1179.	1528.	112.	80.	2.
1616.	1184-1.	1529.	120.	60.	2.
1616.	1184-2.	1530.	114.	60.	2.
1617.	1185-1.	1531.	120.	62.	2.
1617.	1185-2.	1532.	128.	55.	2.
1619.	1187.	1533.	128.	30.	2.
1620.	1188.	1534.	132.	40.	2.
1626.	1194-1.	1535.	132.	50.	2.
1626.	1194-2.	1536.	128.	52.	2.
1629.	1197.	1537.	134.	60.	1.
1630.	1198.	1538.	+	-	2.
1631.	1199-1.	1539.	-	-	2.
1631.	1199-2.	1540.	132.	60.	2.
1631.	1199-3.	1541.	130.	80.	1.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1632.	1200-1.	1542.	128.	60.	1.
1632.	1200-2.	1543.	120.	55.	1.
1634.	1202.	1544.	-	-	1.
1635.	1203-1.	1545.	+	-	1.
1635.	1203-2.	1546.	-	-	1.
1637.	1205.	1547.	134.	45.	1.
1655.	1222.	1548.	-	-	1.
1659.	1226.	1549.	134.	44.	1.
1662.	1229.	1550.	121.	85.	1.
1668.	1234.	1551.	+	-	1.
1673.	1239.	1552.	+	-	1.
1675.	1241.	1553.	121.	70.	2.
1683.	1249.	1554.	127.	65.	1.
1681.	1247.	1555.	119.	100.	3.
1684.	1250.	1556.	132.	70.	1.
1686.	1252.	1557.	134.	68.	1.
1687.	1253.	1558.	119.	60.	2.
1698.	1264-1.	1559.	111.	100.	3.
1698.	1264-2.	1560.	127.	70.	1.
1703.	1269.	1561.	-	-	2.
1704.	1270-1.	1562.	+	-	2.
1704.	1270-2.	1563.	-	-	3.
1704.	1270-3.	1564.	-	-	1.
1704.	1270-4.	1565.	-	-	1.
1705.	1271.	1566.	-	-	2.
1706.	1272-1.	1567.	-	-	1.
1706.	11272-2.	1568.	-	-	1.
1706.	1272-3.	1569.	-	-	1.
1707.	1273-1.	1570.	134.	60.	1.
1707.	1273-2.	1571.	+	-	2.
1707.	1273-3.	1572.	-	-	2.
1710.	1276.	1573.	134.	80.	1.
1728.	1294.	1574.	-	-	1.
1751.	1297.	1575.	-	-	1.
1734.	1300.	1576.	-	-	1.
1752.	1317-1.	1577.	119.	55.	1.
1752.	1317-2.	1578.	130.	50.	1.
1756.	1321.	1579.	134.	40.	1.
1757.	1322.	1580.	-	-	1.
1779.	134402.	1581.	134.	80.	1.
1779.	1344-3.	1582.	-	-	1.
1810.	1375.	1583.	134.	60.	1.
1811.	1376.	1584.	+	-	1.
1812.	1377.	1585.	-	-	1.
1814.	1379.	1586.	-	-	1.
1817.	1382.	1587.	-	-	1.
1818.	1383.	1588.	-	-	1.
1827.	1392-1.	1589.	130.	55.	1.
1827.	1392-2.	1590.	+	-	1.
1833.	1397-2.	1591.	-	-	1.
1836.	1399.	1592.	+	-	1.
1837.	1400.	1593.	-	-	1.

Table 17. (Contd.)

Pedigree NES +	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1842.	1405-1,	1594.	-	-	1.
1842.	1405-2.	1595.	132.	60.	1.
1844.	1407.	1596.	113.	70.	1.
1848.	1411.	1597.	-	-	1.
1851.	1414.	1598.	-	-	1.
1877.	1440-1.	1599.	-	-	1.
1877.	1440-2.	1600.	-	-	1.
1877.	1440-3.	1601.	-	-	1.
1898.	1461.	1602.	-	-	1.
1908.	1471.	1603.	-	-	1.
1910.	1473.	1604.	-	-	1.
1917.	1480.	1605.	-	-	1.
1938.	1510.	1606.	-	-	1.
1942.	1505-1.	1607.	-	-	1.
1942.	1505-2.	1608.	-	-	1.
1977.	1540.	1609.	121.	60.	2.
1995.	1558.	1610.	-	-	1.
1997.	1560.	1611.	-	-	1.
2001.	1564.	1612.	-	-	1.
2004.	1567.	1613.	-	-	1.
2006.	1569.	1614.	-	-	1.
2008.	1571.	1615.	-	-	1.
2009.	1572-1.	1616.	-	-	1.
2009.	1572-2.	1617.	-	-	1.
2012.	1575-1.	1618.	-	-	1.
2012.	1575-2.	1619.	+	-	1.
2014.	1577.	1620.	127.	60.	1.
2026.	1589.	1621.	130.	90.	1.
2029.	1592-1	1622.	130.	110.	[illegible]
2029.	1592- 2	1623.	-	-	1.
2030.	1593.	1624.	127.	70.	1.
2031.	1594.	1625.	134.	67.	1.
2037.	1600.	1626.	-	-	1.
2045.	1680-1.	1627.	-	-	1.
2045.	1608-2.	1628.	-	-	1.
2047.	1610.	1629.	-	-	1.
2048.	1611.	1630.	-	-	1.
2050.	1613.	1631.	-	-	1.
2015.	1614.	1632.	+	-	1.
2055.	1618.	1633.	-	-	1.
2058.	1621.	1634.	-	-	1.
2066.	1629.	1635.	-	-	1.
2073.	1636.	1636.	132.	-	1.
2076.	1639.	1637.	-	-	1.
2079.	1642-1.	1638.	-	-	1.
2079.	1642-2.	1639.	-	-	1.
2083.	1645.	1640.	-	-	1.
2083.	1646.	1641.	113.	90.	2.
2083.	1646.	1642.	-	-	1.
2087.	1650.	1643.	-	-	1.
2089.	1652.	1644.	-	-	1.
2100.	1663.	1645.	-	-	1.

Table 17. (Contd.)

Pedigree NES	Origin 72 TA	Plot NO.	Days to 50% bloom	Plant heigth in cms	Vigor score
2104	1667.	1646.	-	-	1.
2105.	1668.	1647.	134.	40.	1.
2113.	1676-2.	1648.	-	-	1.
2122.	1685.	1649.	-	-	1.
2124.	1687.	1650.	-	-	2.
2136.	1699.	1651.	-	-	1.
2141.	1704-2.	1652.	134.	45.	2.
1242.	1705.	1653.	134.	40.	2.
2144.	1707.	1654.	134.	60.	2.
2152.	1715.	1655.	+	-	1.
2159.	1722-1.	1656.	127.	60.	1.
2159.	1722-2.	1657.	-	-	1.
2162.	1725.	1658.	+	-	1.
2163.	1726.	1659.	-	-	1.
2167.	1730.	1660.	-	-	1.
2179.	1742-2.	1661.	-	-	1.
2182.	1745-1.	1662.	-	-	1.
2182.	1745-2.	1663.	-	-	1.
2183.	1646.	1664.	-	-	1.
2187.	1750.	1665.	-	-	1.
2190.	1753-2.	1666.	127.	70.	1.
2194.	1757.	1667.	127.	65.	1.
2195.	1758.	1668.	-	-	1.
2199.	1762.	1669.	+	-	1.
2200.	1763.	1670.	119.	63.	1.
2201.	1764.	1671.	119.	55.	1.
2203.	1766-1.	1672.	-	-	1.
2203.	1766-2.	1673.	+	-	1.
2212.	1775.	1674.	-	-	1.
2224.	1787-2.	1675.	-	-	1.
2273.	1800-1.	1676.	-	-	1.
2273.	1800-2.	1677.	-	-	1.
2238.	1801.	1678.	-	-	1.
2243.	1806.	1679.	-	-	1.
2260.	1823.	1680.	-	-	1.
2261.	1824-1.	1681.	-	-	1.
2261.	1824-2.	1682.	+	-	1.
2261.	1824-3.	1683.	-	-	1.
2264.	1627-1.	1684.	134.	50.	1.
2264.	1627-2.	1685.	132.	50.	1.
2264.	1627-3.	1686.	-	-	1.
2269.	1832.	1687.	-	-	1.
2270.	1833.	1688.	-	-	1.
2273.	1835.	1689.	127.	80.	2.
2275.	1839.	1690.	-	-	1.
2276.	1839.	1691.	-	-	1.
2278.	1841.	1692.	-	-	1.
2279.	1842.	1693.	-	-	1.
2281.	1844.	1694.	-	-	1.
2288.	1851.	1695.	-	-	1.
2312.	1875.	1696.	-	-	1.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
2316.	T879.	1697.	119.	65.	1.
2320.	1883.	1698.	-	-	1.
2337.	1900.	1699.	-	-	1.
2338.	1901.	1700.	-	-	1.
2339.	1902-1.	1701.	-	-	1.
2339.	1902-2.	1702.	132.	45.	1.
2341.	1904-1.	1703.	132.	60.	1.
2341.	1904-2.	1704.	-	-	1.
2342.	1905-1.	1705.	-	-	1.
2342.	1905-2.	1706.	-	-	1.
2361.	2924.	1707.	-	-	1.
2362.	1925-1.	1708.	-	-	1.
2362.	1925-2.	1709.	-	-	1.
2362.	1925-3.	1710.	-	-	1.
2365.	1928.	1711.	+	-	2.
2366.	1929.	1712.	-	-	1.
2375.	1938.	1713.	130.	35.	1.
2372.	1935.	1714.	-	-	1.
2395.	1958-1.	1715.	-	-	1.
2395.	1958-2.	1716.	-	-	1.
2396.	1959.	1717.	-	-	1.
2400.	1963.	1718.	111.	90.	1.
2422.	1985.	1719.	-	-	1.
2429.	1992.	1720.	-	-	1.
2436.	1999.	1721.	-	-	1.
2459.	2022-2.	1722.	132.	50.	1.
2464.	2027-1.	1723.	127.	130.	1.
2464.	2027-2.	1724.	-	-	1.
2464.	2027-3.	1725.	132.	80.	1.
2468.	2031.	1726.	-	-	1.
2470.	2033.	1727.	-	-	1.
2472.	2035.	1728.	132.	32.	1.
2484.	2047.	1729.	+	-	1.
2485.	2048.	1730.	-	-	1.
2488.	2051.	1731.	119.	60.	1.
2493.	2056.	1732.	119.	75.	1.
2494.	2057-1.	1733.	+	-	1.
2496.	2059-1.	1734.	-	-	1.
2496.	2059-2.	1735.	-	-	1.
2500.	2063.	1736.	119.	85.	1.
2514.	2077.	1737.	127.	80.	1.
2522.	2085.	1738.	-	-	1.
2523.	2086-1.	1739.	-	-	1.
2523.	2086-2.	1740.	124.	50.	1.
2524.	2087.	1741.	134.	55.	1.
2525.	2088.	1742.	127.	54.	1.
2528.	2091.	1743.	121.	107.	2.
2529.	2092.	1744.	-		1.

Table 17. (Contd.)

Pedigree NES	Origin 72TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
2533.	2096.	1745.	132.	45.	1.
2535.	2098.	1746.	+	-	1.
2547.	2110.	1747.	-	-	1.
2550.	2113.	1748.	+	-	1.
2551.	2115.	1749.	-	-	1.
2556.	2119.	1750.	-	-	1.
2553.	2126.	1751.	-	-	1.
2568.	2131.	1752.	-	-	1.
2570.	2133.	1753.	113.	60.	1.
2576.	2139.	1754.	111.	50.	1.
2582.	2145.	1755.	134.	60.	1.
2618.	2181-1.	1756.	-	-	1.
2618.	2181-2.	1757.	+	-	1.
2619.	2182.	1758.	-	-	1.
2734.	2197.	1759.	134.	90.	2.
2638.	2210-1.	1760.	+	-	1.
2638.	2201-2.	1761.	127.	60.	1.
2639.	2202.	1762.	+	-	2.
2640.	2203.	1763.	134.	57.	2.
2642.	2205.	1764.	-	-	1.
2645.	2208.	1765.	-	-	1.
2650.	2213-1.	1766.	-	-	1.
2650.	2213-2	1767.	130.	47.	1.
2652.	2215.	1768.	134.	50.	1.
2655.	2218.	1769.	121.	70.	2.
2661.	2224-1.	1770.	119.	58.	1.
2661.	2224.	1771.	119.	70.	1.
2662.	2225.	1772.	-	-	1.
2664.	2227.	1773.	127.	80.	1.
2667.	2230.	1774.	-	-	1.
2669.	2232.	1775.	127.	75.	1.
2670.	2233.	1776.	127.	57.	1.
2682.	2245.	1777.	-	-	1.
2688.	2251.	1778.	127.	70.	2.
2689.	2252.	1779.	-	-	1.
2690.	2253.	1780.	-	-	2.
2691.	2254.	1781.	-	-	1.
2692.	2255.	1782.	-	-	1.
2701.	2264.	1783.	132.	80.	1.
IS					
534.	2271.	1784.	-	-	1.
2046.	2277.	1785.	+	-	1.
207.	2307.	1786.	+	-	1.
8165.	2310.	1787.	+	-	1.
8305.	2340.	1788.	119.	60.	1.
531.	850.	1789.	+	-	1.
825.	2354.	1790.	+	-	1.
834.	2357.	1791.	+	-	1.
2043.	2368.	1792.	+	-	1.
2043.	2369.	1793.	-	-	1.
2046.	2370.	1794.	+	-	1.
9243.	2446-1.	1795.	+	-	3.

Table 17. (Contd.)

Pedigree	Origin	Plot	Days to 50% bloom	Plant height in cms	Vigor Score
NES	72TA	No.			
0242.	2496-2.	1796	121.	75.	2.
0246.	2498.	1797.	+	-	3.
0255.	2500.	1798.	113.	60.	2.
0258.	2501.	1799.	119.	60.	2.
NES					
0713.	2505.	1800.	+	-	1.
0714.	2506.	1801.	+	-	1.
0715.	2507-1.	1802.	-	-	1.
0715.	2507-2.	1803.	+	-	1.
0717.	2509.	1804.	-	-	1.
0718	2510.	1805.	-	-	1.
0722.	2515-1	1806.	119.	70.	1.
0723	2515-2.	1807.	-	-	1.
0724.	2516.	1808.	-	-	1.
0725.	2517.	1809.	-	-	1.
0745.	2533-1.	1810.	132.	60.	1.
0745.	2533-2.	1811.	-	-	1.
0745.	2533-3.	1812.	-	-	1.
84.	2553.	1813.	+	-	1.
062	2557.	1814.	134.	50.	1.
NES.					
0760	2566.	1815.	+	-	1.
0765.	2571.	1816.	-	-	1.
0784	2587.	1817.	+	-	1.
IS					
2602(203)	2602	1818.	134.	50.	1.
2602(405)	2603.	1819.	132.	70.	1.
2708(261)	2605.	1820.	134.	50.	3.
IS					
2644(217)	2606/	1821.	-	-	1.
2797(270)	2607.	1822.	-	-	1.
470.	2930.	1823.	+	-	1.
509.	2931.	1824.	127.	110.	3.
661	2934.	1825.	134.	90.	3.
2723.	2951	1826.	127.	142.	1.
2840.	2954.	1827.	-	-	1.
NES					
2844.	3040.	1828	-	-	1.
2845.	3041.	1829.	119.	50.	1.
2846.	3042.	1830.	-	-	1.
2847.	3043.	1831.	130.	90.	1.
2848	3044.	1832.	+	-	1.
2849.	3045.	1833.	134.	60.	1.
2870.	3086-1.	1834.	134.	70.	1.
2870	3086-2.	1835.	-	-	1.
2893.	3108.	1836.	-	-	1.
2894.	3110.	1837.	-	-	1.
2845.	3111.	1838.	+	-	1.
IS					
674.	3152.	1839.	-	-	1.
3404.	3164.	1840.	-	-	1.
8534.	3118.	1841	+	-	1.
8541.	3182.	1842.	134.	70.	3.
406.	4200.	1843.	+	-	1.

Table 17. (Contd.)

Pedigree NES	Origin 79A	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1100.	3201.	1844.	111.	50.	2.
2594.	3202.	1845.	113.	85.	1.
6276.	3203.	1846.	112.	75.	1.
6280	3204-1.	1847.	120.	70.	1.
6282.	3204-2.	1848.	127.	67.	1.
6315.	3210.	1849.	127.	65.	1.
6316	3211.	1850.	130.	75.	1.
7104.	3212.	1851.	130.	60.	1.
84.	3216.	1852.	-	-	1.
534.	3217.	1853.	-	-	1.
2941	3220.	1854.	-	-	1.
2936.	3227.	1855.	-	-	1.
2941	3233.	1856.	-	-	1.
3672.	3238.	1857.	-	-	1.
NES					
2935.	3246.	1858.	-	-	1.
ES					
657	3255.	1859.	-	-	1.
930	3263.	1860.	-	-	1.
2430.	3276.	1861.	-	-	1.
8742.	3283.	1862.	-	-	1.
9347	3295.	1863.	-	-	1.
9926.	3305.	1864.	-	-	1.
9952.	3307.	1865.	-	-	1.
9955.	3308.	1866.	+	-	1.
9131.	3309.	1867.	-	-	1.
935.	3312.	1868.	-	-	1.
9544.	3335-1.	1869.	-	-	1.
8544.	3335-2.	1870.	-	-	1.
9247.	3341	1871.	-	-	1.
3642.	3346.	1872.	-	-	1.
NES					
2930.	3351	1873	-	-	1.
2930.	3352.	1874.	-	-	1.
2931.	3353.	1875.	-	-	1.
2934.	3356-1.	1876.	-	-	1.
2934.	3356-2.	1877.	132.	75.	1.
2934.	3356-3.	1878	-	-	1.
2935.	3357.	1879.	-	-	1.
2935.	3360.	1880.	-	-	1.
2939.	3361-1	1881.	-	-	1.
2939.	3361-2.	1882.	132.	70.	1.
2942.	3365-1.	1883.	-	-	1.
2943.	3365-2.	1884.	134.	60.	1.
2948.	3370	1885.	-	-	1.
2950	3372.	1886.	-	-	1.
2952.	3375-1	1887.	-	-	1.
2952.	3375-2.	1888.	+	-	
2952.	3375-3	1889	-	-	1.
2952.	3380.	1890.	-	-	1.
2950.	3381.	1891.	-	-	1.
2960.	3382.	1892.	-	-	1.

Table 17 (Cont'd.)

Pedigree NES	Origin ZMTA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
2074.	3398.	1893.	+	-	1.
2087.	3409.	1894.	+	-	1.
2090.	3437.	1895.	+	-	1.
2091	3442.	1896.	+	-	1.
2092.	3442.	1897.	+	-	1.
2094.	3445.	1898.	+	-	1.
2096.	3447.	1899.	130	45.	1.
2057.	3478-1.	1900.	-	-	1.
2057.	3478-2.	1901.	-	-	1.
2061	3482.	1902.	-	-	1.
2065.	3488.	1903.	-	-	1.
2108	3520.	1904.	132.	90.	1.
2110.	3531.	1905.	-	-	1.
2127	3558.	1906.	-	-	1.
2145	3562.	1907.	-	-	1.
2158.	3570.	1908.	-	-	1.
2160	3584.	1909.	-	-	1.
TS	79KF.				
82	4236-1.	1910.	-	-	1.
83.	4236-2.	1911.	-	-	1.
84.	4237.	1912.	-	-	1.
100.	4242-1	1913.	-	-	1.
100.	4242-2.	1914.	-	-	1.
100.	4242.	1915.	113.	60.	1
106	4246-1	1916.	115.	60.	1
106.	4246-2.	1917.	-	-	1.
106.	4246-3.	1918.	-	-	1.
106.	4246-4.	1919.	-	-	1.
108.	4248.	1920.	-	-	1.
112.	4252.	1921.	-	-	1.
116	4256-1.	1922.	+	-	1.
116.	4256-2.	1923.	111.	40.	1.
121	4261	1924.	111.	65.	1.
122	4262.	1925.	113.	83.	1
124	4264-1	1926.	113.	70.	1.
124.	4264-2	1927.	116.	120.	2.
126	4265.	1928.	127.	50	1.
127.	4266.	1929.	-	-	1.
129	4268-1	1930.	119.	60.	1.
129	4268-2.	1931.	116.	60.	1.
132.	4275.	1932.	116.	50.	1.
139	4276-1	1933.	-	-	1.
139	4276-2.	1934.	+	-	1.
139	4276-3.	1935.	+	-	1.
140.	4278-1	1936.	+	-	1.
140	4278-2.	1937.	-	-	1.
140.	4278-3.	1938.	-	-	1.
140.	4278-4.	1939.	130.	70.	1.
143.	4279.	1940	-	-	1
144.	4280	1941.	-	-	1.
149.	4285.	1942.	-	-	1.
151	4287-1.	1943.	-	-	1.
151.	4287-2.	1944.	+	-	1.
152.	4289.	1945.	-	-	1.

Pedigree NES	Origin 7TA	Plot No.	Days to 50% bloom	Plant height in cm.	Vigor score
167.	4303-1.	1946.	+	-	1.
167.	4303-2.	1947.	-	-	1.
168	4304.	1948.	-	-	1.
169.	4305-1.	1949.	-	-	1.
169.	4305-2.	1950.	-	-	1.
172	4310.	1951.	-	-	1.
191	4327-1	1952.	-	-	1.
191	4327-2.	1953.	-	-	1.
189.	4324.	1954.	-	-	1.
214.	4350	1955.	-	-	1.
228.	4568.	1956.	-	-	1.
305.	4372.	1957.	-	-	1.
306	4374.	1958.	130.	110.	1.
507.	4449.	1959.	-	-	1.
509	4445.	1960.	132.	85.	1.
531.	4463.	1961.	-	-	1.
532.	4464.	1962.	-	-	1.
534.	4465.	1963.	-	-	1.
535.	4466.	1964.	-	-	1.
635.	4502.	1965.	-	-	1.
636.	4503.	1966.	+	-	1.
637.	4504.	1967.	-	-	1.
640.	4507.	1968.	-	-	1.
642.	4509.	1969.	134.	95.	1.
644.	4511	1970.	-	-	1.
645.	4512	1971.	-	-	1.
646.	4513.	1972.	+	-	1.
652.	4520	1973.	-	-	1.
658.	4525.	1974.	-	-	1.
661	4528.	1975.	-	-	1.
672.	4539.	1976.	-	-	1.
670.	4545.	1977.	-	-	1.
832.	4611.	1978.	-	-	1.
834.	4613.	1979.	-	-	1.
835.	4614.	1980.	-	-	1.
836.	4615-1.	1981.	-	-	1.
836.	4615-2.	1982.	-	-	1.
840.	4618.	1983.	-	-	1.
8636	4642-1.	1984.	-	-	1.
868.	4642-2.	1985.	-	-	1.
874.	4647.	1986.	134.	70.	1.
875.	4648-1	1987.	+	-	1.
875.	4648-2.	1988.	-	-	1.
891.	4661.	1989.	-	-	1.
892.	4662.	1990.	-	-	1.
893.	4663.	1991.	-	-	1.
899.	4697.	1992.	-	-	1.
950	4707.	1993.	119.	70.	1.
955.	4712.	1994.	-	-	1.
965.	4721-1	1995.	134.	70.	2.
963.	4719.	1996.	113.	60.	1.
965.	4721-2.	1997.	-	-	1.
966.	4722.	1998.	+	-	1.
995.	4723.	1999.	-	-	1.

Table 17. (Cont'd.)

Pedigree NES	Origin 77TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1066.	4769.	5000.	-	-	1.
IS					
1081.	4777.	5001.	119.	80.	1.
1108.	4790.	5002.	134.	90.	1.
1209.	4824.	5003.	-	-	1.
1226.	4840.	5004.	-	-	1.
1308.	4872.	5005.	-	-	1.
1381.	4884.	5006.	-	-	1.
1320.	4885.	5007.	127.	90.	1.
1417.	4888.	5008.	-	-	1.
1540.	4900-1	5009.	-	-	1.
1540.	4900-2.	2010.	-	-	1.
1551.	4901.	5011.	130.	110.	1.
1[illegible].	4909.	5012.	-	-	1.
1[illegible].	4907.	5013.	-	-	1.
1[illegible].	4905.	5014.	-	-	1.
[illegible]	[illegible]	[illegible]			
1[illegible]5.	4970.	5015.	-	-	1.
1846.	4993.	5016.	113.	120.	1.
1981.	4996.	5017.	-	-	1.
2021.	5011.	5018.	-	-	1.
2036.	5019.	5019.	-	-	1.
2197.	5090.	5020.	132.	110.	5.
IS					
2638.	5411.	5021.	-	-	1.
2346.	5591.	5022.	-	-	1.
2966.	5671.	5023.	-	-	1.
3024.	6060.	5024.	-	-	1.
3025.	6061.	5025.	-	-	1.
3031.	6095-1	5026.	-	-	1.
3031.	6095-2.	5027.	-	-	1.
5087.	6681.	5028.	-	-	1.
6340.	7274.	5029.	130.	80.	1.
6972.	7412.	5030.	132.	35.	1.
6977.	7414.	5031.	-	-	1.
7030.	7443.	5032.	130.	58.	1.
7050.	7466.	5033.	-	-	1.
7125.	7500.	5034.	-	-	1.
7156.	7521.	5035.	-	-	1.
7186.	7537.	5036.	115.	60.	1.
7242.	7567.	5037.	-	-	1.
7287.	7587.	5038.	-	-	1.
8000.	7860.	5039.	134.	60.	1.
8066.	7879.	5040.	119.	60.	1.
IS					
8094.	7893.	5041.	113.	40.	1.
8110.	7901.	5042.	130.	75.	1.
8111.	7902.	5043.	-	-	1.
8156.	7927.	5044.	-	-	1.
8172.	7942.	5045.	-	-	1.
8221.	7975.	5046.	-	-	1.
8224.	7976.	5047.	-	-	1.
8229.	7979.	5048.	-	-	1.
8238.	7987.	5049.	-	-	1.
8235.	7984.	2050.	-	-	1.

Table 17. (Contd.)

Pedigree NES	Orgin 77TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
8260	7998.	2051.	+	-	1.
8299.	8020	2052.	113.	80.	1.
8357.	8067.	2053.	113.	70.	1.
8355.	8065.	2054.	+	-	1.
8359.	8069.	2055.	-	-	1.
8379.	8081	2056.	-	-	1.
8384.	8084.	2057.	-	-	1.
8385.	8085.	2058.	+	-	1.
8533.	8093.	2059.	119.	65.	1.
8534.	8094.	2060.	134.	100.	1.
8574.	8116.	2061	-	-	1.
8575.	8117.	2062.	-	-	1.
8576.	8118	2063.	-	-	1.
8578.	8119.	2064.	130.	80.	1.
8582.	8121	2065.	+	-	1.
8632.	8137.	2066.	134.	40.	1.
8650.	8143.	2067.	+	-	1.
8661	8145.	2068.	-	-	1.
8671	8152.	2069.	-	-	1.
8680	8168.	2070.	143.	80.	1.
8701	8168.	2071.	+	-	1.
8720	8186.	2072.	-	-	1.
8717	8176.	2073.	-	-	1.
8730.	8187.	2074.	+	-	1.
8740	8191	2075.	+	-	1.
8742.	8194.	2076.	132.	70.	1.
8748.	8198.	2077.	132.	60.	1.
8751.	8201	2078.	-	-	1.
8752.	8202.	2079.	-	-	1.
8753.	8203.	2080.	-	-	1.
IS			-	-	
8766.	8213.	2081.	-	-	1.
8769.	8216.	2082.	-	-	1.
8770.	8217.	2083.	-	-	1.
8775.	8222.	2084.	-	-	1.
8778.	8224.	2085.	-	-	1.
9118.	8317.	2086.	-	-	1.
9178.	8335.	2087.	-	-	1.
9180	8337.	2088.	-	-	1.
9181.	8338.	2089.	113.	40.	1.
9265.	8370	2090.	-	-	1.
9280	8367	2091.	-	-	1.
9282.	8389.	2092	-	-	1.
9300	8405.	2093.	137.	60.	1
9327.	8440.	2094.	-	-	1.
9436.	8571	2095.	-	-	1.
9458.	8573.	2096.	-	-	1.
9496.	8588.	2097.	-	-	1.
9527.	8618.	2098.	-	-	1.
9556.	8626.	2099.	-	-	1.
9557.	8627-1.	2100.	-	-	1.
9557.	8627-2.	2101	130.	60.	1.
9565.	8633.	2102.	137.	70.	1.
9569.	8639.	2103.	-	-	1.
			-	-	

Pedigree SES	Origin 77TA	Plot No.	Days to 50% Bloom	Plant height in cms	Vigor score
9670.	8864.	2104.	134.	50	1
9672.	8680.	2105.	-	-	1.
9679.	8681.	2106.	[illegible]	-	1.
9672.	8683.	2107.	[illegible]	-	1.
9673.	8684.	2108.	+	-	1.
TS			-	-	[illegible]
9680	8727.	2109.	-	-	1.
9691	8728.	2110.	+	-	1.
9916.	8840.	2111.	-	-	1.
9945.	8865.	2112.	+	[illegible]	1.
9988.	8900.	2113.	134.	40.	1.
9996.	8923.	2114.	-	-	1.
9953.	8945.	2115.	+	-	1.
9957	8949.	2116.	-	-	1.
10229.	9022.	2117.	+	-	1.
10242.	9027.	2118.	+	-	1.
10256.	9033.	2119.	+	-	1.
10286.	9044.	2120.	+	-	1.
10291	9046.	2121.	-	-	1.
10305.	9053.	2122.	-	-	1.
10366.	9076-1.	2123.	119.	80.	1.
10366.	9076-2.	2124.	119.	90.	1.
10386.	9086.	2125.	+	-	1.
10411	9098.	2126.	-1	-	1.
10392	9089.	2127.	+	-	1.
10416	9101	2128.	-	-	1.
10444	9111	2129.	132.	80.	1.
10514	9153.	2130.	+	-	1.
10523.	9162.	2131.	-	-	1.
10524	9163.	2132.	-	-	1.
10590	9196.	2133.	-	-	1.
10600	9210-1	2134.	-	-	1.
10600	9210-2	2135.	-	-	1.
10624.	9217.	2136.	134.	60.	1.
10682.	9241	2137	-	-	1.
10790.	9261.	2138.	-	-	1.
10791	9262.	2139.	-	-	1.
10792	9263.	2140.	-	-	1.
10792	9282.	2141	130.	40.	1.
10878	9280.	2142.	113.	70.	1.
10917	9291.	2143.	[illegible]	-	1.
10910	9292.	2144.	-	-	[illegible]
10927	9301	2145.	-	-	[illegible]
10940	9312-1	2146.	132.	80.	[illegible]
10940.	9313-2	2147.	+		[illegible]
11192.	9333.	2148.	119.	55.	[illegible]
11331	9341.	2149.	-	-	[illegible]
11362.	9380.	2150.	132.	70.	[illegible]
11529	9403.	2151.	-	-	[illegible]
11538	9407.	2152.	113.	80.	[illegible]
11540	9409.	2153.	-	-	[illegible]
11936.	9438.	2154.	-	-	[illegible]
11987	9439.	2155.	130.	50.	[illegible]
12007.	9447.	2156.	+	[illegible]	[illegible]
12154.	9460.	2157.	+	-	1.

Table 17. (Contd.)

Pedigree NES	Origin 7[illegible]TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
12191	9479.	2158.	119.	70.	[illegible]
12205	9479.	2159.	113.	68.	[illegible]
12286	9499.	2160.	113.	60.	[illegible]
12291	9486.	2161.	-	-	1.
12299	9514.	2162.	-	-	1.
12486	9517.	2163.	-	-	1.
NES	7[illegible] TA				[illegible]
[illegible]11	[illegible]	2164.	-	-	1.
[illegible]10	10.	2165.	-	-	1.
[illegible]12	11-1	2166.	-	-	1.
[illegible]12	11-2.	2167.	-	-	1.
[illegible]12	12	2168.	-	-	1
[illegible]2.	32.	2169.	134.	70.	1.
[illegible]50.	34-1	2170.	-	-	1.
[illegible]50.	34-2.	2171.	-	-	1.
53.	35-1	2172.	-	-	1.
53.	35-2.	2173.	127.	50.	1.
53.	36.	2174.	127.	46.	1.
76.	40.	2175.	-	-	1.
76.	41	2176.	-	-	1.
92.	42-1.	2177.	130.	30.	1.
92.	42-2.	2178.	+	-	1.
92.	56.	2179.	-	-	1.
76.	59.	2180.	-	-	1.
NES	7[illegible] TA				
76.	60.	2181.	-	-	1.
95.	64.	2182.	-	-	1.
50.	67-1.	2183.	+	-	1.
50	67-2.	2184.	-	-	1
69	70-1	2185.	-	-	1.
69	70-2.	2186.	-	-	1.
110	74-1	2187.	127.	70.	[illegible]
110	74-2.	2188.	127.	98.	1.
IS					
148	77.	2189.	+	-	1.
9697.	90.	2190	-	-	1.
9697.	90-1	2191.	-	-	1.
9697	90-2.	2192.	-	-	1.
NES	95-1	2193.	[illegible]	[illegible]	1
969.	95-2	2194.	-	-	1.
966.	96-1	2195.	-	-	1.
965.	96-2.	2196.	-	-	1.
968.	97.	2197.	-	-	1.
969.	99-1	2198.	-	-	1.
969.	99-2.	2199.	-	-	1.
969	102-1	2200	-	-	1.
NES		[illegible]			
969.	102-2	2201.	-	-	1.
NES			[illegible]	[illegible]	
969.	102-3.	2202.	-	-	1.
994.	106.	2203.	-	-	1.
994.	107-1.	2204.	-	-	1.
			-	-	

BEST AVAILABLE COPY

Table 17. (Contd.)

Pedigree	Origin	Plot	Days to 50%	Plant height	Vigor
SES	79TA	No.	bloom	in cms	score
324.	107-2	2205.	-	-	1.
327	108.	2206	-	-	1.
IS			-		
330	111-1.	2207	-	-	1.
330.	111-2	2208	-	-	1.
335					
340	113	2209	-	-	1.
300	118.	2210	121	50.	2.
600	140-1	2211	-	-	1.
600.	140-2.	2212	-	-	1.
600	143	2213	134	50.	2.
600.	145.	2214	+	-	2.
600	148.	2215	134	50.	1.
600.	115-1	2216	-	-	1.
600.	155-2.	2217	-	-	1.
600	157-1.	2218	-	-	1.
600.	157-2	2219	-	-	1.
600.	165.	2220	+	-	1.
635	207-1.	2221	+	-	1.
635.	207-2.	2222	-	-	1.
636.	208-1.	2223	-	-	1.
636.	208-2.	2224	130	50.	1.
637	209.	2225	134.	60.	1.
638.	210.	2226	-	-	1.
640	211	2227	+	-	1.
649.	221-1.	2228	+	-	1.
649	221-2.	2229	+	-	1.
700	274-1	2230.	132.	70	2.
700.	274-2.	2231.	-	-	1.
700	274-3.	2232.	-	-	1.
700.	310.	2233.	-	-	1.
777.	349.	2234.	127.	50.	2.
782.	354.	2235	-	-	1.
785.	367.	2236.	-	-	1.
786.	368.	2237.	-	-	1.
788.	370.	2238.	-	-	1.
800.	374-1.	2239.	-	-	1
800	374-2.	2240	+	-	1.
807	379-2.	2241	+	-	1
811	383.	2242.	-	-	1.
820	402-1	2243.	-	-	1.
820.	402-2	2244.	-	-	1.
827	403.	2245.	-	-	1
832.	405-1	2246.	-	-	1.
832.	405-2.	2247.	-	-	1.
832	405-3.	2248.	-	-	1.
832.	405-4.	2249.	-	-	1.
835.	407-1	2250.	-	-	1.
835.	407-2	2251	-	-	1.
847.	419.	2252.	-	-	1.
870	442-1	2253.	-	-	1.
870	442-2.	2254.	-	-	1.
871	443.	2255.	-	-	1.

BEST AVAILABLE COPY

Table 17 (Contd)

Pedigree NES	Origin 72 TS	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
875	477-1	2256	-	-	1
875	477-2	2257	-	-	1
910	482	2258	-	-	1
912	485	2259	-	-	1
915	487	2260	-	-	1
916	488-1	2261	-	-	1
916	488-2	2262	-	-	1
922	494	2263	-	-	1
924	497-1	2264	x	-	1
924	497-2	2265	x	-	1
926	498-1	2266	-	-	1
926	498-2	2267	-	-	1
927	499	2268	-	-	1
928	500	2269	-	-	1
929	501	2270	-	-	1
931	503	2271	-	-	1
939	511-1	2272	-	-	1
939	511-2	2273	-	-	1
939	511-3	2274	-	-	1
970	542	2275	-	-	1
971	543-1	2276	-	-	1
971	543-2	2277	-	-	1
973	545-1	2278	-	-	1
973	545-2	2279	-	-	1
973	545-3	2280	-	-	2
987	559	2281	x	-	1
988	560-1	2282	x	-	1
988	560-2	2283	-	-	1
989	561	2284	-	-	1
990	562	2285	-	-	1
991	563	2286	-	-	1
993	565	2287	-	-	1
1000	572-1	2288	-	-	1
1000	572-2	2289	-	-	1
1015	587-1	2290	x	-	1
1015	587-2	2291	-	-	1
1020	592-1	2292	-	-	1
1020	592-2	2293	-	-	1
1025	597-1	2294	-	-	1
NES					
1025	597-2	2295	-	-	1
1026	598-1	2296	-	-	1
1026	598-2	2297	-	-	1
1062	634	2298	-	-	1
1064	635	2299	x	-	1
1067	638	2300	-	-	1
1068	639-1	3301	x	-	1
1068	639-2	3302	-	-	1
1104	674	3303	130	70	1
1133	703-1	3304	132	30	1
1133	703-2	3305	x	-	1
1137	736-1	3306	-	-	1

Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
1176	736-2	3307	-	-	1
1177	746-2	3308	x	-	1
1195	763-1	3309	-	-	1
1195	763-2	3310	-	-	1
1199	767-1	3311	-	-	1
1199	767-2	3312	-	-	1
1200	768	3313	-	-	1
1201	769	3314	-	-	1
1222	790-1	3315	-	-	1
1222	790-2	3316	-	-	1
1254	822	3317	-	-	1
1260	828	3318	-	-	1
1261	829-1	3319	-	-	1
1261	829-2	3320	-	-	1
1262	830	3321	-	-	1
1288	856-1	3322	-	-	1
1288	856-2	3323	x	-	1
1308	876	3324	-	-	1
1311	879	3325	x	-	1
NES					
1327	905	3326	-	-	1
1355	923-1	3327	x	-	1
1355	923-2	3328	x	-	1
1356	924	3329	x	-	1
1357	925	3330	-	-	1
1359	927	3331	-	-	1
1362	930	3332	132	45	1
1364	932	3333	x	-	1
1390	958-1	3334	-	-	1
1390	958-2	3335	-	-	1
1391	959	3336	-	-	1
1396	964	3337	134	50	1
1397	965	3338	-	-	1
1412	980	3339	-	-	1
1413	981	3340	-	-	1
1414	982-1	3341	-	-	1
1414	982-2	3342	-	-	1
1418	986-1	3343	x	-	1
1418	986-2	3344	132	50	1
1421	989	3345	-	-	1
1422	1001	3346	-	-	1
1429	1007-1	3347	134	50	1
1429	1007-2	3348	134	40	1
1453	1024	3349	x	-	1
1460	1028	3350	127	50	1
1462	1031	3351	-	-	1
1463	1032	3352	-	-	1
1482	1050-1	3353	-	-	1
1482	1050-2	3354	-	-	1
1482	1050-3	3355	x	-	1
1485	1053	3356	-	-	1

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Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
1487	1055	2357	-	-	1
1488	1061	2358	-	-	1
1512	1081	2359	-	-	1
1519	1087-1	2360	-	-	1
1519	1087-2	2361	-	-	1
1528	1096	2362	-	-	1
1536	1104-1	2363	-	-	1
1536	1104-2	2364	-	-	1
1536	1104-3	2365	-	-	1
1539	1107-1	2366		-	1
1539	1107-2	2367	-	-	1
1539	1107-3	2368	127	65	1
1545	1113-1	2369	132	50	1
1545	1113-2	2370	-	-	1
1545	1113-3	2371	-	-	1
1554	1122	2372	-	-	1
1556	1124	2373	-	-	1
1557	1125-1	2374	-	-	1
1557	1125-2	2375	-	-	1
1560	1128	2376	-	-	1
1561	1129	2377	-	-	1
1562	1130	2378	-	-	1
1563	1136-1	2379	-	-	1
1568	1136-2	2380	-	-	1
157	1144-1	2381	-	-	1
157	1144-2	2382	-	-	1
1576	1144-3	2383	-	-	1
1581	1155	2384	-	-	1
1582	1160	2385	-	-	1
1583	1161	2386	-	-	1
1584	1164	2387	-	-	1
1589	1170-1	2388	130	60	1
1589	1170-2	2389	130	100	1
1618	1186	2390	-	-	1
1623	1191	2391	-	-	1
1624	1192	2392	-	-	1
1625	1212	2393	-	-	1
1642	1216	2394	-	-	1
1652	1225	2395	-	-	1
1665	1231	2396	-	-	1
1670	1236	2397	-	-	1
1674	1240	2398	-	-	1
1688	1262	2399	-	-	1
1689	1265-1	2400	-	-	1
1699	1265-2	2401	-	-	1
1713	1279	2402	-	-	1
1720	1288	2403	-	-	1
1721	1287	2404	-	-	1
1740	1305	2405	-	-	1
1742	1307	2406	-	-	1
1747	1312-1	2407	-	-	1

Table [illegible] (contd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
1747	1312-2	2408	-	-	1
1753	1313	2409	-	-	1
1754	1319	2410	-	-	1
1759	1324	2411	-	-	1
1760	1325	2412	-	-	1
[illegible]	1327	2413	-	-	1
[illegible]	1330	2414	-	-	1
1772	1337	2415	-	-	1
1773	1338	2416	-	-	1
1773	1347	2417	-	-	1
1774	1339-1	2418	-	-	1
NES					
1774	1339-2	2419	-	-	1
1775	1340-1	2420	-	-	1
1775	1340-2	2421	-	-	1
1776	1341-1	2422	x	-	1
1776	1341-2	2423	-	-	1
1778	1341-2	2424	x	-	1
1777	1342-1	2425	-	-	2
1777	1342-2	2426	-	-	1
1779	1343	2427	x	-	1
1779	1344-1	2428	-	-	1
1780	1345	2429	-	-	1
1781	1346	2430	x	-	1
1782	1348	2431	127	65	1
1784	1349	2432	-	-	1
1785	1350	2433	-	-	1
1786	1351-1	2434	-	-	1
1786	1351-2	2435	-	-	1
1787	1352	2436	-	-	1
1788	1353	2437	-	-	1
1790	1355-1	2438	-	-	1
1790	1355-2	2439	-	-	1
1792	1358	2440	-	-	1
1829	1393	2441	-	-	1
1833	1397-1	2442	-	-	1
1845	1408	2443	130	70	1
1852	1415	2444	x	-	1
1854	1417-1	2445	x	-	1
1854	1417-2	2446	-	-	1
1856	1419	2447	-	-	1
1860	1423	2448	-	-	1
1871	1434	2449	-	-	1
NES					
1975	1538	2450	-	-	1
1994	1557	2451	-	-	1
1993	1561	2452	-	-	1
1999	1562-1	2453	-	-	1
1999	1562-2	2454	-	-	1
2000	1563	2455	-	-	1
2005	1568	2456	-	-	1
2025	1588	2457	132	110	1
2022	1596	2458	-	-	1

Table 1 (cont'd.)

Pedigree NES	Origin 79 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
2063	1626	2459	-	-	1
2064	1627	2460	-	-	1
2093	1655	2461	-	-	1
2094	1657	2462	-	-	1
2097	1660	2463	x	-	1
2101	1664	2464	-	-	1
2102	1670-1	2465	-	-	1
2107	1670-2	2466	134	105	2
2107	1670-3	2467	113	95	1
2113	1676-1	2468	127	70	1
2130	1693	2469	-	-	1
2131	1694	2470	-	-	1
2141	1704-1	2471	134	75	1
2172	1735	2472	-	-	1
2173	1736	2473	-	-	1
2176	1739	2474	134	45	1
2179	1742-1	2475	-	-	1
2180	1743	2476	-	-	1
2190	1753-1	2477	134	50	1
2191	1754	2478	-	-	1
2192	1756-1	2479	x	-	1
2193	1756-2	2480	-	-	1
2198	1761	2481	-	-	1
2202	1765	2482	x	-	1
2206	1769	2483	-	-	1
2220	1783	2484	-	-	1
2232	1796	2485	x	-	1
2240	1803	2486	-	-	1
2258	1821	2487	x	-	1
2267	1830	2488	-	-	1
2268	1831	2489	x	-	1
2281	1864	2490	-	-	1
2285	1868	2491	-	-	1
2313	1876	2492	x	-	1
2319	1882	2493	-	-	1
2322	1886	2494	-	-	1
2324	1887	2495	-	-	1
2325	1888	2496	-	-	1
2326	1891	2497	-	-	1
2334	1897-1	2498	x	-	1
2334	1897-2	2499	-	-	1
2336	1899	2500	-	-	1
2344	1909	2501	x	-	1
2352	1916	2502	-	-	1
2356	1939	2503	-	-	1
2377	1940	2504	-	-	1
2382	1945	2505	-	-	1
2383	1946	2506	-	-	1
2389	1951	2507	-	-	1
2404	1967	2508	-	-	1
2413	1981-1	2509	x	-	1
2413	1981-2	2510	-	-	1
2422	1986	2511	x	-	1

Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
NES					
2424	1987	2512	-	-	1
2425	1989-1	2513	-	-	1
2426	1989-2	2514	-	-	1
2427	1990	2515	-	-	1
2428	1987	2516	-	-	1
2429	1993	2517	132	64	1
2431	1994	2518	-	-	1
2432	1995	2519	-	-	1
2433	1996	2520	x	-	1
2434	1997	2521	132	60	1
2435	1998	2522	132	140	1
2437	2000-1	2523	x	-	1
2437	2000-2	2524	-	-	1
2438	2001	2525	130	63	2
2439	2002	2526	x	-	1
2440	2002	2527	123	56	1
2441	2004	2528	132	120	1
2442	2005	2529	-	-	1
2443	2006	2530	x	-	1
2444	2007	2531	-	-	1
2445	2008	2532	x	-	2
2446	2009	2533	127	60	1
2447	2010	2534	130	70	1
2448	2011	2535	x	-	1
2449	2012	2536	132	60	1
2451	2014	2537	-	-	1
2452	2015	2538	127	70	2
2453	2016	2539	127	70	2
2454	2017	2540	-	-	1
2455	2018	2541	x	-	1
2456	2019	2542	123	54	1
AFS					
2457	2020	2543	115	20	1
2458	2021	2544	x	-	1
2459	2022-1	2545	-	-	1
2460	2023	2546	x	-	1
2461	2025	2547	123	50	1
2462	2023	2548	-	-	1
2463	2022	2549	-	-	1
2464	2052	2550	x	-	1
2465	2053	2551	x	-	1
2566	2089	2552	123	47	1
2567	2090	2553	112	56	1
2568	2149	2554	123	100	1
2547	2210	2555	x	-	1
2653	2216	2556	127	105	2
2654	2226	2557	127	60	1
2655	2228	2558	114	92	2
2656	2229	2559	x	-	1
2657	2261	2560	114	77	1

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Table 17 (Cont'd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
IS					
2021	2272	2561	-	-	1
3677	2294	2562	-	-	1
3824	2297	2563	127	80	1
3922	2298	2564	-	-	1
220	2308	2565	-	-	1
220	2309	2566	-	-	1
517	2338	2567	x	-	1
209	2347	2568	x	-	2
209	2348	2569	x	-	2
323	2356	2570	115	85	2
856	2360	2571	127	62	1
857	2362	2572	132	78	1
858	2363	2573	-	-	1
IS					
2220	2372	2574	x	-	1
2239	2375	2575	x	-	1
NES					
2720	2512	2576	-	-	1
2721	2513	2577	123	61	2
2722	2514	2578	115	77	1
IS					
187'	2554	2579	127	60	1
825	2555	2580	x	-	1
2230	2558	2581	-	-	1
2761	2567	2582	x	-	1
2031 (132)	2601	2583	-	-	1
3027 (413)	2608-1	2584	115	103	2
3024 (413)	2608-2	2585	125	110	1
82	2924	2586	125	96	3
177	2925	2587	130	74	2
692	2927	2588	123	90	2
NES					
2897	3113	2589	x	-	1
2898	3114	2590	134	50	1
2899	3115	2591	127	70	1
2900	3125	2592	123	115	3
IS					
83	3141	2593	134	90	2
133	3147	2594	134	110	1
214	3149	2595	-	-	1
2227	3154	2596	134	98	1
3128	3163	2597	134	70	1
2668	3170	2598	-	-	1
5973	3175-1	2599	132	66	1
5972	3175-2	2600	132	58	1
5975	3176	2601	-	-	1
9618	3191	2602	123	78	2
1619	3192	2603	134	63	1
9620	3193	2604	134	68	1

Table 17 (Cont'd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
IS					
9624	3194	2605	134	78	1
9627	3195	2606	x	-	1
9628	3196	2607	x	-	1
2301	3218	2608	-	-	1
2031	3224	2609	-	-	1
3677	3239	2610	-	-	1
3924	3241	2611	x	-	1
3923	3242	2612	132	67	1
3556	3249	2613	130	96	1
517	3251	2614	-	-	1
187	3253	2615	-	-	1
825	3257	2616	-	-	1
828	3258	2617	123	80	1
960	3265	2618	-	-	1
2040	3266	2619	-	-	1
2229	3268	2620	134	90	1
2412	3269	2621	x	-	1
NES					
2257	3279	2622	x	-	1
IS					
8748	3284	2623	x	-	1
9174	3285	2624	x	-	1
9182	3285	2625	123	54	1
3665	3320	2626	-	-	1
5216	3333	2627	-	-	1
9132	3340	2628	132	54	1
NES					
2023	3355	2629	134	70	1
2042	3364	2630	123	85	1
2046	3368	2631	-	-	1
2054	3376	2632	125	80	2
2019	3440	2633	113	93	1
2066	3487	2634	132	100	1
2141	3562	2635	127	60	1
IS	72 KF				
88	4240	2636	x	-	1
148	4284	2637	111	84	1
150	4286-1	2638	134	40	1
150	4286-2	2639	134	64	2
154	4290-1	2640	134	74	2
154	4290-2	2641	127	100	3
155	4291-1	2642	123	110	1
155	4291-2	2643	x	-	1
156	4292-1	2644	-	-	1
156	4292-2	2645	-	-	1
156	4292-3	2646	x	-	1
158	4294-1	2647	-	-	1
158	4294-2	2648	x	-	1
159	4295	2649	111	70	1
160	4296-1	2650	x	-	1
160	4296-2	2651	-	-	1
161	4297-1	2652	-	-	1
161	4297-2	2653	134	40	1

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Table 12 (Contd.)

Accession IS	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
162	4298-1	2654	134	55	1
162	4298-2	2655	x	-	1
162	4298-3	2656	x	-	1
163	4299	2657	-	-	1
166	4302-1	2658	x	-	1
166	4302-2	2659	x	-	1
166	4302-3	2660	x	-	1
172	4308	2661	x	-	1
174	4310-1	2662	x	-	1
174	4310-2	2663	x	-	1
180	4316-1	2664	x	-	1
180	4316-2	2665	-	-	1
181	4317-1	2666	-	-	1
IS 181	4317-2	2667	x	-	1
183	4319	2668	-	-	1
186	4322	2669	123	88	1
204	4340-1	2670	111	70	1
204	4340-2	2671	134	70	1
211	4347-1	2672	x	-	1
211	4347-2	2673	-	-	1
224	4359	2674	x	-	1
225	4360	2675	-	-	1
226	8361	2676	-	-	1
227	4362	2677	127	54	1
263	4390	2678	125	75	1
366	4392	2679	130	62	1
404	4398	2680	-	-	1
406	4400-1	2681	x	-	1
406	4400-2	2682	134	46	1
407	4401	2683	x	-	1
411	4405	2684	x	-	1
412	4406	2685	x	-	1
412	4407	2686	-	-	1
415	4408	2687	x	-	1
504	4440	2688	134	60	1
517	4450	2689	-	-	1
622	4495	2690	-	-	1
629	4496	2691	x	-	1
630	4497-1	2692	x	-	1
630	4497-2	2693	x	-	1
824	4605-1	2694	x	-	1
824	4605-2	2695	-	-	1
828	4607-1	2696	x	-	1
828	4607-2	2697	125	75	1
IS 837	4616	2698	-	-	1
870	4644	2699	111	93	1
877	4650	2700	125	90	2
879	4652	2701	-	-	1
1300	4875	2702	x	-	1
1436	4912	2703	x	-	1
2006	5002-1	2704	x	-	1

Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
2006	5002-2	2705	123	84	1
2007	5003	2706	132	90	1
2012	5006	2707	-	-	1
2042	5024	2708	-	-	1
2698	5439	2709	123	58	2
2731	5474	2710	127	60	1
2842	5517	2711	-	-	1
2851	5525	2712	113	130	1
2852	5526	2713	132	64	1
3141	5647	2714	109	94	1
3953	6075	2715	123	46	1
4939	6647	2716	-	-	1
5201	6715	2717	125	80	2
5314	6758	2718	x	-	1
6979	7416	2719	113	60	1
8190	7952	2720	x	-	1
8380	8082	2721	-	-	1
8687	8687	2722	115	40	1
8722	8188	2723	x	-	1
8348	8441-1	2724	-	-	1
8348	8441-2	2725	x	-	1
8571	8641-1	2726	-	-	1
8571	8641-2	2727	-	-	1
8582	8640	2728	x	-	1
IS					
9616	8663	2729	-	-	1
9617	8669	2730	-	-	1
9618	8670	2731	x	-	1
9619	8671	2732	-	-	1
9620	8672	2733	-	-	1
9624	8676	2734	-	-	1
9627	8679	2735	x	-	1
9648	8696	2736	109	60	1
10238	9025	2737	-	-	1
10240	9026	2738	-	-	1
10246	9029	2739	x	-	1
10250	9031	2740	x	-	1
10252	9032	2741	-	-	1
10258	9035	2742	-	-	1
10262	9037-1	2743	134	70	2
10262	9037-2	2744	134	65	2
10306	9054	2745	127	55	1
10315	9059	2746	130	50	1
10316	9060	2747	-	-	1
10317	9061	2748	-	-	1
10318	9062	2749	-	-	1
10346	9067	2750	-	-	1
10348	9068	2751	134	50	2
10350	9069	2752	132	70	1
10356	9072	2753	132	65	2
10360	9073	2754	-	-	1
10362	9074	2755	-	-	1
10364	9075	2756	-	-	1

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Table 1[illegible] (Cont'd.)

Pedigree IS	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
10368	9077	2757	-	-	1
10370	9078	2758	-	-	1
10372	9079	2759	-	-	1
IS					
10374	9080-1	2760	-	-	1
10374	9080-2	2761	-	-	1
10376	9081	2762	-	-	1
10378	9082-1	2763	x	-	1
10378	9082-2	2764	x	-	2
10380	9083	2765	x	-	1
10384	9085-1	2766	-	-	1
10384	9085-2	2767	-	-	1
10388	9087	2768	-	-	1
10398	9092	2769	-	-	1
10400	9093-1	2770	-	-	1
10400	9093-2	2771	-	-	1
10406	9096	2772	-	-	1
10408	9097-1	2773	-	-	1
10408	9097-2	2774	-	-	1
10414	9100-1	2775	-	-	1
10414	9100-2	2776	-	-	1
10414	9100-3	2777	-	-	1
10420	9103-1	2778	-	-	1
10420	9103-2	2779	-	-	1
10426	9204	2780	-	-	1
10428	9105-1	2781	-	-	1
10428	9105-2	2782	-	-	1
10428	9105-3	2783	-	-	1
10430	9106	2784	-	-	1
10432	9107	2785	-	-	1
10434	9108	2786	-	-	1
10436	9109	2787	-	-	1
10448	9112	2788	-	-	1
10472	9123	2789	-	-	1
10475	9125	2790	-	-	1
IS					
10478	9127	2791	-	-	1
10479	9128	2792	-	-	1
10480	9129	2793	-	-	1
10482	9131	2794	-	-	1
10483	9132	2795	-	-	1
10484	9133	2796	-	-	1
10485	9134	2797	-	-	1
10486	9135	2798	-	-	1
10487	9136-1	2799	-	-	1
10487	9136-2	2800	-	-	1
10489	9137	2801	-	-	1
10491	9138	2802	-	-	1
10493	9139	2803	-	-	1
10495	9140	2804	-	-	1
10499	9141-1	2805	-	-	1
10499	9141-2	2806	-	-	1

BEST AVAILABLE COPY

Table 1[illegible] (Contd.)

Pedigree IS	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
10499	9141-3	2807	-	-	1
10500	9142	2808	-	-	1
10501	9143-1	2809	-	-	1
10501	9143-2	2810	-	-	1
10502	9144	2811	-	-	1
10403	9145-1	2812	-	-	1
10403	9145-2	2813	-	-	1
10504	9146	2814	-	-	1
10507	9147	2815	-	-	1
10508	9148	2816	-	-	1
10509	9149	2817	-	-	1
10510	9150	2818	-	-	1
10511	9151	2819	-	-	1
10513	9152	2820	-	-	1
10514	9160	2821	-	-	1
IS					
10522	9161	2822	-	-	1
10526	9164-1	2823	-	-	1
10526	9164-2	2824	-	-	1
10531	9168	2825	-	-	1
10548	9173	2826	-	-	1
10550	9175	2827	-	-	1
10552	9177	2828	-	-	1
10560	9183-1	2829	-	-	1
10560	9183-2	2830	-	-	1
10562	9184	2831	-	-	1
10564	9185	2832	-	-	1
10572	9189	2833	-	-	1
10582	9197-1	2834	-	-	1
10582	9197-2	2835	-	-	1
10586	9199	2836	-	-	1
10593	9200	2837	-	-	1
10602	9201	2838	-	-	1
10604	9202	2839	-	-	1
10606	9203	2840	-	-	1
10608	9204	2841	-	-	1
10610	9205	2842	-	-	1
10613	9209	2843	-	-	1
10630	9215	2844	-	-	1
10638	9219-1	2845	-	-	1
10638	9219-2	2846	-	-	1
10644	9222	2847	-	-	1
10[illegible]	9227	2848	-	-	1
10[illegible]	9224	2849	-	-	1
10[illegible]	9238	2850	-	-	1
10[illegible]36	9245	2851	-	-	1
10[illegible]	9246	2852	-	-	1
IS					
10703	9251	2853	-	-	1
10704	9252-1	2854	-	-	1
10704	9252-2	2855	-	-	1
10704	9252-3	2856	-	-	1

Table 17 (Contd.)

Pedigree IS	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
10720	9270	2857	-	-	1
10750	9275	2858	-	-	1
10775	9307	2859	-	-	1
10925	9308	2860	-	-	1
10975	9314	2861	-	-	1
10944	9310	2862	-	-	1
12279	9486	2863	130	90	1
12283	9489	2864	121	40	1
12284	9490	2865	121	60	1
12286	9492	2866	121	70	1
12309	9503	2867	-	-	1
12310	9504	2868	-	-	1
12311	9505	2869	-	-	1
12313	9507-1	2870	x	-	1
12317	9507-2	2871	121	50	1
12321	9511	2872	-	-	1
	9548	2873	-	-	1
NES	72 TA				
14	14	2874	-	-	1
23	20-1	2875	-	-	1
23	20-1	2876	-	-	1
42	33-1	2877	-	-	1
42	33-2	2878	-	-	1
92	44-1	2879	-	-	1
92	44-2	2880	-	-	1
92	46	2881	-	-	1
92	47	2882	-	-	1
105	49	2883	-	-	1
NES					
1	50-2	2884	-	-	1
13	52	2885	-	-	1
IS					
143	81-1	2886	-	-	1
143	81-2	2887	-	-	1
NES					
261	93	2888	-	-	1
629	169-1	2889	-	-	1
629	169-2	2890	-	-	1
642	214-1	2891	-	-	1
642	214-2	2892	-	-	1
681	253-1	2893	-	-	1
681	253-2	2894	-	-	1
681	253-3	2895	-	-	1
681	253-4	2896	-	-	1
682	255	2897	-	-	1
707	279	2898	-	-	1
766	338	2899	x	-	1
778	350	2900	-	-	1
780	352-1	2901	-	-	1
780	352-2	2902	x	-	1
781	352	2903	-	-	1

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Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
792	368	2904	-	-	1
337	409	2905	-	-	1
342	415-1	2906	-	-	1
843	415-2	2907	-	-	1
849	421	2908	-	-	1
351	423	2909	-	-	1
352	424	2910	-	-	1
357	439	2911	-	-	1
372	444	2912	-	-	1
374	446	2913	x	-	1
380	452	2914	-	-	1
NES					
888	460	2915	-	-	1
889	461	2916	138	60	1
900	472	2917	-	-	1
925	507-1	2918	-	-	1
925	507-2	2919	-	-	1
960	532	2920	x	-	2
1019	591-1	2921	-	-	1
1019	591-2	2922	x	-	1
1022	595-1	2923	-	-	1
1022	595-2	2924	-	-	1
1051	622	2925	x	-	1
1054	625	2926	-	-	1
1059	630-1	2927	-	-	1
1059	630-2	2928	-	-	1
1061	632	2929	-	-	1
1072	643-1	2930	-	-	1
1072	643-2	2931	-	-	1
1075	645-1	2932	-	-	2
1075	645-2	2933	-	-	1
1077	647	2934	-	-	1
1078	648-1	2935	-	-	1
1078	648-2	2936	-	-	1
1081	651-1	2937	-	-	1
1081	651-2	2938	-	-	1
1082	653	2939	-	-	1
1084	654	2940	-	-	1
1085	655-1	2941	x	-	1
1085	655-2	2942	-	-	1
1086	656	2943	-	-	1
1087	657	2944	-	-	1
1088	658-1	2945	-	-	1
1088	658-2	2946	-	-	1
1106	676	2947	-	-	1
1161	730	2948	-	-	1
1174	743-1	2949	-	-	1
1174	743-2	2950	-	-	1
1175	744-1	2951	-	-	1
1175	744-2	2952	-	-	1
1176	745-1	2953	121	85	2
1176	745-2	2954	122	60	2

BEST AVAILABLE COPY

Table 17 (Con'd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
1179	748	2955	-	-	1
1240	817	2956	x	-	1
1257	825-1	2957	-	-	1
1257	825-2	2958	-	-	1
1258	826-1	2959	-	-	1
1258	826-2	2960	-	-	1
1258	826-3	2961	-	-	1
1285	853-1	2962	-	-	1
1285	853-2	2963	-	-	1
1285	853-3	2964	-	-	1
1289	857-1	2965	-	-	1
1289	857-2	2966	-	-	1
1299	867	2967	-	-	1
1419	987	2968	-	-	1
1446	1014	2969	-	-	1
1449	1017-1	2970	-	-	1
1449	1017-2	2971	-	-	1
1453	1021-1	2972	-	-	1
1453	1021-2	2973	-	-	1
1471	1039	2974	-	-	1
1488	1056	2975	-	-	1
1491	1059	2976	-	-	1
NES					
1570	1138	2977	-	-	1
1575	1143	2978	-	-	1
1577	1145	2979	-	-	1
1579	1147-1	2980	-	-	1
1579	1147-2	2981	-	-	1
1579	1147-3	2982	-	-	1
1579	1147-4	2983	-	-	1
1579	1147-5	2984	-	-	1
1590	1158-1	2985	-	-	1
1590	1158-2	2986	-	-	1
1689	1255-1	2987	-	-	1
1689	1255-2	2988	x	-	1
1689	1255-3	2989	-	-	1
1690	1256	2990	-	-	1
1691	1257-1	2991	-	-	1
1691	1257-2	2992	-	-	1
1691	1257-3	2993	-	-	1
1697	1263	2994	-	-	1
1794	1359	2995	-	-	1
1796	1361	2996	-	-	1
1797	1362	2997	-	-	1
1799	1364	2998	-	-	1
1800	1365	2999	-	-	1
1815	1380-1	3000	-	-	1
1815	1380-2	3001	-	-	1
1859	1422	3002	-	-	1
1973	1536	3003	-	-	1
1988	1551	3004	-	-	1
1990	1553	3005	-	-	1
1992	1555	3006	-	-	1
2027	1590	3007	-	-	1

Table 1[illegible] (Contd.)

Pedigree	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
NES					
2022	1591	3008	-	-	1
2026	1599-1	3009	-	-	1
2026	1599-2	3010	-	-	1
2033	1601	3011	-	-	1
2041	1604	3012	-	-	1
2042	1605	3013	-	-	1
2036	1647	3014	-	-	1
2121	1684	3015	-	-	1
2122	1746-2	3016	-	-	1
2224	1787-1	3017	-	-	1
2241	1804	3018	-	-	1
2253	1326	3019	-	-	1
2298	1861	3020	-	-	1
2343	2906	3021	-	-	1
2345	2908	3022	-	-	1
2347	1910	3023	-	-	1
2348	1911	3024	-	-	1
2389	1952	3025	-	-	1
2391	1954	3026	-	-	1
2402	2065	3027	-	-	1
2410	1973	3028	-	-	1
2473	2036	3029	-	-	1
2474	2037	3030	-	-	1
2476	2039	3031	-	-	1
2477	2040	3032	-	-	1
2491	2054	3033	-	-	1
2493	2061	3034	-	-	1
2515	2078	3035	130	30	1
2526	2099	3036	-	-	1
2529	2101	3037	-	-	1
2649	2212	3038	-	-	1
2694	2257	3039	-	-	1
2695	2258	3040	-	-	1
2696	2259	3041	-	-	1
2697	2260	3042	-	-	1
2702	2265	3043	x	-	1
2708	2299	3044	-	-	1
IS					
181	2346	3045	-	-	1
856	2359	3046	-	-	2
6712	2406	3047	134	65	2
NES					
2716	2508	3048	-	-	1
IS					
6418 C	2524	3049	-	-	1
857	2556	3050	-	-	1
NES					
2773	2579	3051	x	-	1
2780	2586-1	3052	-	-	1
2780	2586-2	3053	-	-	1
2782	2588	3054	-	-	1
IS					
2691	2604	3055	-	-	1

Table 1[illegible] (Contd.)

Pedi[illegible] IS	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
857	2941	3056	-	-	1
NES					
2925	3243	3057	-	-	1
2926	3244	3058	-	-	1
IS					
9279	3252	3059	-	-	1
857	3261	3060	-	-	1
858	3262	3061	-	-	1
214	3330	3062	-	-	1
2152	3331	3063	-	-	1
6903	3334	3064	-	-	1
8628	3338	3065	-	-	1
9796	3348	3066	-	-	1
NES					
2962	3385	3067	-	-	1
2983	3405	3068	-	-	1
2993	3420	3069	-	-	1
NES					
3086	3507	3070	-	-	1
IS	72 Kf				
75	4229	3071	-	-	1
213	4348	3072	-	-	1
460	4421	3073	-	-	1
825	4606	3074	-	-	1
841	4619-1	3075	-	-	1
841	4619-2	3076	-	-	1
845	4622	3077	-	-	1
856	4633	3078	-	-	1
857	4634	3079	-	-	1
858	4635	3080	-	-	1
862	4638	3081	-	-	1
912	4682	3082	-	-	1
942	4700	3083	121	80	1
2069	5034	3084	123	130	1
2145	5062	3085	-	-	1
2740	5455	3086	123	60	1
2742	5457	3087	121	65	1
2744	5458	3088	121	82	2
2800	5478	3089	121	75	1
2802	5479	3090	-	-	1
2806	5483	3091	121	50	1
2814	5490	3092	130	60	1
2828	5503	3093	134	60	2
4897	6605	3094	-	-	2
7046	7456	3095	132	70	1
7047	7457	3096	132	80	1
8670	8151	3097	-	-	1
9285	8392	3098	121	70	1
9561	8631	3099	121	50	1
11492	9401	3100	121	90	1
IS					
11527	9406	3101	130	70	1

Table 1 (Contd)

Pedigree IS	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
1220[illegible]	9487	3102	130	70	1
NES	72 TA				
30	22	3103	-	-	1
30	30	3104	x	-	1
IS					
166	86-1	3105	-	-	1
166	86-2	3106	-	-	2
9634	92	3107	-	-	1
NES					
646	218-1	3108	-	-	1
646	218-2	3109	-	-	1
671	243-1	3110	-	-	1
671	243-2	3111	x	-	1
671	243-3	3112	-	-	1
674	246-1	3113	132	60	1
674	246-2	3114	-	-	1
674	246-3	3115	x	-	1
751	323-1	3116	134	50	1
751	323-2	3117	x	-	1
751	323-3	3118	132	50	1
817	389-1	3119	-	-	1
817	389-2	3120	x	-	1
817	389-3	3121	-	-	1
848	420	3122	-	-	1
904	476	3123	-	-	1
937	509	3124	x	-	2
951	523-1	3125	-	-	1
951	523-2	3126	-	-	1
953	525	3127	-	-	1
964	536-1	3128	-	-	1
964	536-2	3129	-	-	1
1001	573-2	3130	-	-	1
1001	573-2	3131	-	-	1
1003	575	3132	-	-	1
1009	581	3133	-	-	1
1029	601	3134	-	-	1
1110	680-1	3135	-	-	1
1110	680-2	3136	-	-	1
1113	683-1	3137	-	-	1
1113	683-2	3138	132	90	1
1113	683-3	3139	134	70	1
1116	686	3140	-	-	1
1130	700	3141	-	-	1
1158	727-1	3142	-	-	1
1158	727-2	3143	-	-	1
1158	727-3	3144	-	-	1
1197	765-1	3145	-	-	1
1197	765-2	3146	-	-	1
1218	786-1	3147	-	-	1
1218	786-2	3148	-	-	1
1229	797	3149	-	-	1
1301	869	3150	x	-	1
1302	870-1	3151	x	-	2
1302	870-2	3152	-	-	1

Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
1303	871-1	3153	-	-	1
1303	871-2	3154	-	-	1
1304	872-1	3155	-	-	1
1304	872-2	3156	-	-	1
1372	941	3157	-	-	1
1382	950	3158	-	-	1
1386	954-1	3159	-	-	1
1386	954-2	3160	-	-	1
1388	956-1	3161	-	-	1
1389	956-2	3162	-	-	1
NES					
1389	957	3163	-	-	1
1417	985-1	3164	-	-	1
1417	985-2	3165	-	-	1
1417	985-3	3166	-	-	1
1442	1010-1	3167	-	-	1
1442	1010-2	3168	-	-	1
1461	1029-1	3169	x	-	1
1461	1029-2	3170	-	-	1
1466	1034	3171	x	-	1
1477	1045	3172	-	-	1
1540	1108-1	3173	-	-	1
1540	1108-2	3174	-	-	1
1540	1108-3	3175	-	-	1
1585	1153-1	3176	-	-	1
1585	1153-2	3177	x	-	1
1533	1156	3178	-	-	1
1533	1157	3179	-	-	1
1628	1196-1	3180	-	-	1
1628	1196-2	3181	-	-	1
1300	1266	3182	-	-	1
1331	1292	3183	-	-	1
1330	1354	3184	-	-	1
1331	1395	3185	-	-	1
1332	1396	3186	-	-	1
2002	1565	3187	-	-	1
2002	1566	3188	-	-	1
2059	1622	3189	-	-	1
2167	1728	3190	-	-	1
2210	1722	3191	-	-	1
2250	1813	3192	-	-	1
2256	1919	3193	-	-	1
NES					
2322	1956	3194	-	-	1
2416	1970-1	3195	-	-	1
2416	1970-2	3196	-	-	1
2522	2149	3197	-	-	1
2527	2150	3198	-	-	1
2921	2270-1	3199	-	-	1
2936	2270-2	3200	-	-	1
2943	2291	3201	x	-	1
2943	2292	3202	-	-	1
3672	2293	3203	-	-	1

Table 17 (Contd.)

Pedigree IS	Origin 72 TA	Plot NO	Days to 50% bloom	Plant height in cms	Vigor score
		3203			
471	2974	3204	-	-	1
472	2975	3205	-	-	1
NES					
2865	3081	3206	x	-	1
IS					
3665	3169	3207	-	-	1
2936	3219	3208	-	-	1
2948	3221	3209	-	-	1
2046	3225	3210	-	-	1
2945	3236	3211	-	-	1
2948	3237	3212	-	-	1
2957	3267	3213	-	-	1
3663	3277	3214	-	-	1
3665	3278	3215	-	-	1
2948	3317	3216	-	-	1
NES					
2999	3421	3217	-	-	1
3001	3423	3218	-	-	1
3002	3424	3219	-	-	1
IS					
11	4204-1	3220	-	-	1
11	4204-2	3221	-	-	1
15	4207-1	3222	-	-	1
15	4207-2	3223	-	-	1
28	4213-1	3224	-	-	1
IS					
28	4213-2	3225	-	-	1
30	4215	3226	-	-	1
34	4218	3227	-	-	1
35	4219-1	3228	-	-	1
35	4219-2	3229	-	-	1
38	4222-1	3230	-	-	1
38	4222-2	3231	-	-	1
38	4222-3	3232	-	-	1
820	4601	3233	-	-	1
885	4657	3234	-	-	1
889	4659	3235	-	-	1
1054	4761	3236	-	-	1
2033	5016	3237	-	-	1
2034	5017	3238	-	-	1
7790	7764	3239	-	-	1
8296	8024	3240	-	-	1
8306	3030	3241	-	-	1
9837	8859	3242	x	-	1
10536	9171-1	3243	x	-	1

Table 17 (Contd.)

Pedigree NES	Origin 72 TA	Plot No.	Days to 50% bloom	Plant height in cms	Vigor score
1097	667	3252	-	-	1
1098	668	3253	-	-	1
1100	670-1	3254	-	-	1
1100	670-2	3255	-	-	1
NES					
1125	695	3256	-	-	1
1126	696	3257	-	-	1
1142	711	3258	-	-	1
1275	843-1	3259	-	-	1
1275	843-2	3260	-	-	1
1276	844	3261	-	-	1
1281	849-1	3262	-	-	1
1281	849-2	3263	-	-	1
1292	860	3264	x	-	1
1297	865-1	3265	-	-	1
1297	865-2	3266	-	-	1
1297	875-1	3267	-	-	1
1297	875-2	3268	-	-	1
1299	877-1	3269	-	-	1
1299	877-2	3270	-	-	1
1310	878-1	3271	-	-	1
1310	878-2	3272	-	-	1
1312	880-1	3273	-	-	
1312	880-2	3274	-	-	1
1312	880-3	3275	-	-	1
1312	880-4	3276	-	-	1
1312	881	3277	-	-	1
1317	885	3278	-	-	1
1318	886-1	3279	-	-	1
1318	886-2	3280	-	-	1
1318	886-3	3281	-	-	1
1319	887-1	3282	-	-	1
1319	887-2	3283	-	-	1
1319	887-3	3284	-	-	1
1320	888-1	3285	-	-	1
1320	888-2	3286	-	-	1
1321	889-1	3287	-	-	1
1321	889-2	3288	-	-	1
1321	889-3	3289	-	-	1
1322	890	3290	-	-	1
1323	891-1	3291	-	-	1
1323	891-2	3292	-	-	1
1323	891-3	3293	-	-	1
1323	891-4	3294	-	-	1
1324	892-1	3295	-	-	1
1324	892-2	3296	-	-	1
1331	899-1	3297	x	-	1
1331	899-2	3298	-	-	1
1331	899-3	3299	-	-	1
1332	900	3300	-	-	2
1333	901	3301	-	-	2
1334	902-1	3302	-	-	2

Table 17 (Cont'd)

Pedigree	Origin	Plot	Days to 50% bloom	Plant height in cms	Vigor score
NES	79 TA	No			
1334	902-2	3303	-	-	1
1341	909	3304	-	-	1
1345	913	3305	-	-	1
1347	915-1	3306	-	-	1
1347	915-2	3307	-	-	1
1348	916	3308	-	-	1
1363	931-1	3309	-	-	1
1363	931-2	3310	-	-	1
1791	1356	3311	x	-	1
1890	1385	3312	-	-	1
375	447	3313	134	70	1
376	448	3314	-	-	1
378	450	3315	-	-	1
379	451-1	3316	-	-	1
379	451-2	3317	-	-	1
NES					
337	459	3318	132	40	1
2098	1661	3319	-	-	1
2196	1759	3320	-	-	1
2397	1960	3321	121	90	2
IS					
6311	2208	3322	138	30	1
NES					
2965	3387	3323	132	60	1
3049	3470	3324	-	-	1
IS	79 Kf				
81	4234	3325	130	100	1
115	4255-1	3326	121	94	1
115	4255-2	3327	-	-	1
170	4306	3328	138	90	1
642	4510	3329	x	-	2
649	4516	3330	x	-	1
921	4683	3331	134	70	2
932	4693	3332	x	-	1
1256	4857	3333	-	-	1
1463	4924	3334	134	70	1
2625	5401	3335	-	-	1
9800	8902	3336	x	-	1
529	4461	3337	x	-	1
626	4493	3338	-	-	1
657	4524	3339	-	-	1
8620	8135	3340	-	-	1
NES					
1802	1367	3341	-	-	1
1805	1370	3342	-	-	1
2473	2041	3343	-	-	1
2479	2042	3344	-	-	1
2430	2043	3345	-	-	1
2432	2045	3346	-	-	1
2433	2046	3347	-	-	1
346	418	3348	-	-	1

Table 17 (Contd)

Pedigree IS	Origin 72 TA	Plot NO	Days to 50% bloom	Plant height in cms	Vigor score
10536	9171-2	3244	-	-	1
10636	9218	3245	-	-	1
12328	9513	3246	-	-	1
NES	72 TA				
1036	607	3247	-	-	1
1092	662-1	3248	-	-	1
1092	662-2	3249	-	-	1
1096	666-1	3250	-	-	
1096	666-2	3251	-	-	1
					1

TABLE 18

1973 ALAD REGIONAL NURSERY - SANAA

Table 18 Some Agronomic Traits of 53 Entries of ALAD Regional Sorghum Nursery planted in Sanaa Yemen- 1973

Pedigree IS	Origin 72 KF	Plot No	Days to 50% bloom	Plant height in cms	Vigor score*
102	4242	483	-	-	1
148	4284	484	-	-	1
158	4284	485	121	70	1
166	4302	486	-	-	1
172	4308	487	-	-	1
174	4310	488	-	-	1
180	4316	489	-	-	1
407	4401	490	134	40	2
412	4406	491	-	-	2
460	4421	492	-	-	1
511	4447	493	-	-	1
825	4606	494	-	-	1
862	4638	495	-	-	1
891	4661	496	-	-	1
2214	5105	497	-	-	1
2215	5106	498	-	-	1
2222	5113	499	-	-	1
2223	5114	500	-	-	-
2226	5117	501	-	-	1
2230	5120	502	-	-	1
2232	5122	503	134	70	1
2233	5123	504	138	60	2
2234	5124	505	-	-	1
2237	5573	506	-	-	1
2230	5575	507	-	-	1
2650	5930	508	-	-	1
2665	5933	509	-	-	1
2693	5950	510	-	-	1
9618	8670	511	-	-	1
9624	8676	512	-	-	1
10258	9035	513	-	-	1
10262	9037	514	-	-	2
10283	9044	515	-	-	1
10420	9103	516	-	-	1
10428	9105	517	-	-	1
10432	9107	518	-	-	1
10472	9125	519	-	-	1
10472	9123	520	-	-	1
10476	9128	521	-	-	1
10484	9133	522	-	-	1
10592	9197	523	-	-	1
10598	9200	524	134	50	1
10644	9222	525	134	40	1
NES	FODD COMP 72 Kf				
2727	72 Kf	526	134	53	1
2728	72 Kf	527	134	50	1
2729	72 Kf	528	-	-	1
2730	72 Kf	529	-	-	1

* Scored 1-3: 1- least vigorous 3- Most vigorous

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Table 13 (Contd.)

Pedigree IS	Origin 79 KF	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
3731	79 Kf	530	-	-	1
3732	79 Kf	531	-	-	1
3733	79 Kf	532	-	-	1
3734	79 Kf	533	-	-	1
3735	79 Kf	534	-	-	2
3736	79 Kf	535	-	-	1

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TABLE 19

1973 ALAD REGIONAL NURSERY - TAIZ

Table 19. Some Agronomic Traits of 482 entries of the ALAD Regional Sorghum Nursery, Taiz-1973

Pedigree NES	Origin 72 TA	Plot No.	Plant height in cms	Vigor score*	Bird feeding in pct.
13	57	1	-	-	-
67	58	2	-	-	-
76	59	3	-	-	-
50	65	4	72	3	0
50	66	5	73	3	0
50	69	6	81	3	0
103	71	7	105	1	40
27	73	8	112	1	30
152	75	9	104	1	0
IS 8355	88	10	69	1	0
NES 311	103	11	64	1	0
311	105	12	78	1	0
519	124	13	82	1	0
628	163	14	-	-	-
628	164	15	-	-	-
632	204	16	-	-	-
633	205	17	30	1	0
634	206	18	76	1	0
641	213	19	160	1	0
642	215	20	107	2	0
648	220	22	134	2	20
650	222-1	23	58	2	0
650	222-2	24	94	1	0
650	222-3	25	86	3	40
655	227	26	77	1	30
676	248	27	82	1	20
677	249	28	70	1	10
679	251	29	-	-	-
688	260	30	110	2	0
690	262	31	124	1	0
695	267	32	160	2	0
698	270	33	61	1	5
702	275	34	57	1	30
705	277	35	69	1	5
708	280	36	111	1	0
710	282	37	85	1	0
712	284	38	80	1	5
726	298	39	91	1	0
727	299	40	83	1	0
731	303	41	84	1	10
724	306	42	71	1	0
746	318	43	76	1	0

*Scored 1-3: 1 = least vigorous, 3 = most vigorous

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Table 1[illegible] (Cont'd.)

Pedigree NES	Origin 72 TA	Plot No.	Plant height in cms	Vigor score	Bird feeding in pct.
799	371	44	-	-	-
815	337	45	-	-	-
821	393	46	-	-	-
823	396	47	80	1	5
826	398	48	143	2	20
845	417	49	82	2	5
854	426	50	76	1	5
858	430	51	129	2	5
861	433	52	87	1	5
944	516	53	108	2	30
954	526	54	78	1	0
1037	608	55	97	1	5
1043	614	56	73	2	5
1076	646	57	75	1	10
1131	701	58	78	1	40
1146	715	59	94	1	50
1148	717	60	128	2	10
1162	731	61	66	1	0
1165	734	62	60	1	0
1233	851	63	76	3	0
1290	858	64	75	1	0
1365	933	65	89	1	10
1385	953	66	74	2	0
1390	967	67	77	1	0
1404	972	68	76	1	10
1405	973	69	78	1	0
1411	979	70	60	1	0
1416	984	71	59	1	0
1427	995	72	82	2	5
1429	997	73	90	1	5
1430	998	74	88	1	5
1431	999	75	103	1	0
1434	1002	76	93	1	0
1445	1013	77	95	1	0
1459	1027	78	81	1	0
1462	1030	79	-	-	-
1465	1033	80	76	2	0
1660	1227	81	114	1	0
1683	1249	82	110	2	5
1684	1250	83	62	1	0
1707	1273	84	88	1	40
1734	1300	85	90	1	30
1757	1322	85	1	50	
1810	1375	87	85	1	10
1817	1382	88	100	1	50
1827	1392	89	65	1	60
1836	1399	90	92	1	10
2200	1763	91	79	1	0
2438	2051	92	107	1	30
IS					

Table 12 (Cont'd.)

Pedigree NES	Origin 72 TA	Plot No	Plant height in cms	Vigor score	Bird feeding in pct.
2066	2277	93	87	1	5
0955	2500	94	102	1	0
NES					
2712	2509	95	75	1	5
2719	2510	96	73	1	5
IS					
419	2930	97	70	2	5
NES					
2824	3040	98	51	1	5
2826	3042	99	69	1	0
2827	3043	100	59	1	0
2894	3110	101	75	1	5
2895	3111	102	70	1	5
IS					
3404	3164	103	72	3	0
406	3200	104	61	2	0
2762	3238	105	82	1	40
0952	3307	106	79	2	10
0955	3308	107	78	1	0
0181	3309	108	40	1	0
NES					
3137	3558	109	51	1	0
3142	3563	110	65	1	0
12	10	111	60	1	0
52	34	112	73	1	0
53	35	113	-	-	-
76	40	114	74	1	0
76	41	115	-	-	-
95	48	116	-	-	-
50	67	117	-	-	-
IS					
0627	91	118	-	-	-
NES					
262	95	119	-	-	-
266	96	120	52	1	0
269	99	121	75	1	0
324	106	122	75	2	0
324	107	123	77	2	0
IS					
329	111	124	75	1	0
NES					
440	112	125	70	1	0
309	118	126	63	1	0
629	143	127	72	1	0
629	145	128	70	1	0
629	148	129	66	1	5
630	155	130	73	1	0
628	157	131	96	1	0
635	207	132	-	-	-
636	208	133	-	-	-
637	209	134	-	-	-
649	221	135	-	-	-

Table 19 (Contd.)

Pedigree	Entry	Plot	Plant height	Vigor	Bird feeding
IES	22 IA	No	in cms	score	in pct.
309	374	136	58	1	0
311	393	137	44	1	0
330	402	138	50	1	0
333	405	139	62	1	0
339	411	140	37	1	0
371	443	141	64	1	0
926	498	142	57	1	0
970	542	143	87	1	0
1015	587	144	109	2	0
1020	592	145	84	1	0
1025	597	146	63	2	0
1302	876	147	77	2	0
1350	947	148	81	2	0
1390	958	149	70	1	0
1412	981	150	87	1	0
1418	986	151	62	1	0
1421	989	152	106	2	0
1439	1007	153	102	2	0
1460	1028	154	69	1	0
1464	1032	155	60	2	0
1487	1055	156	55	1	0
1560	1128	157	-	-	-
1561	1129	158	86	1	0
1599	1160	159	-	-	-
1606	1164	160	51	2	0
1620	1198	181	82	2	0
1742	1307	162	69	3	0
1743	1312	163	116	3	0
1760	1325	164	90	2	0
1764	1329	165	74	2	0
1765	1330	166	69	2	0
1774	1339	167	70	2	0
1775	1340	168	79	1	0
1777	1342	169	71	1	0
1779	1344	170	80	2	0
1780	1345	171	76	2	0
1785	1350	172	72	2	0
1790	1355	173	75	2	0
1801	1366	174	82	2	0
2202	1755	175	48	1	0
2422	1986	176	82	2	5
2653	2216	177	80	2	5
IS					
209	2347	178	65	2	5
209	2348	179	75	2	5
325	2354	180	92	40	
825	2355	181	93	3	40
828	2356	182	77	1	30
83	2924	183	111	3	40
2227	3154	184	78	2	5
2138	3163	185	113	2	50

Table 19 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Plant height in cms	Vigor score	Bird feeding in pct.
3668	3170	186	82	1	5
5373	3175	187	79	1	10
9618	3191	188	80	2	5
9619	3192	189	90	2	10
9620	3193	190	78	2	5
9624	3194	191	65	1	0
9623	3196	192	55	1	5
928	3258	193	75	1	50
2339	3268	194	72	1	5
517	3310	195	87	2	0
NES					
3141	3562	196	63	1	50
28	20	197	67	2	0
42	33	198	81	1	5
92	46	199	55	1	0
105	49	200	69	1	0
143	81	201	74	1	0
NES					
261	93	202	73	1	0
628	169	203	81	1	5
642	214	204	61	1	10
681	253	205	75	1	20
707	279	206	69	1	10
790	362	207	-	-	-
827	409	208	65	2	0
843	415	209	114	2	0
851	423	210	120	2	0
872	444	211	64	2	0
1022	595	212	2	0	
1077	647	213	79	2	5
1087	657	214	55	1	0
1299	867	215	112	2	0
1491	1059	216	121	2	0
1570	1138	217	105	3	0
1590	1158	218	54	1	0
1689	1255	219	108	1	0
1690	1256	220	83	1	0
1815	1380	221	87	2	20
IS					
857	2941	222	93	3	0
NES					
30	22	223	61	3	0
31	23	224	50	1	0
IS					
9634	22	225	95	1	20
NES					
646	218	226	55	1	20
751	323	227	82	1	30
951	523	228	80	1	0
1218	786	229	68	1	40
1389	957	230	70	1	0

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Table 12 (Contd.)

[illegible]	[illegible] 72 [illegible]	Plot No	Plant height in cms	Vigor score	Bird feeding in pct
1789	1354	231	76	2	0
IS					
3665	3169	232	74	1	0
2046	3225	233	83	2	0
2048	8237	234	70	1	0
NES					
2096	866	235	115	2	0
1275	843	236	72	1	0
1309	877	237	-	-	-
1310	878	238	-	-	-
1322	890	239	-	-	-
1323	891	240	-	-	-
1324	892	241	-	-	-
1325	893	242	-	-	-
1334	902	243	-	-	-
1347	915	244	-	-	-
1791	1356	245	70	1	0
875	447	246	65	3	0
879	451	247	117	3	0
645	217	248	105	2	50
	72D				
758	199	249	80	1	20
760	212	250	75	1	30
763	214	251	65	1	0
772	220	252	70	2	0
775	222	253	-	-	-
776	223	254	60	2	5
777	224	255	93	2	5
780	226	256	90	3	5
781	227	257	70	2	0
782	228	258	-	-	-
784	230	259	52	1	0
785	231	260	55	2	0
792	236	261	56	2	0
801	244	262	-	-	-
802	245	263	60	3	0
817	255	264	67	2	0
818	256	265	55	2	0
827	265	266	54	1	0
841	277	267	56	1	0
849	283	268	78	2	0
850	284	269	85	2	0
853	286	270	80	2	0
855	288	271	87	2	0
856	289	272	93	2	0
864	296	273	-	-	-
866	297	274	76	2	0
867	298	275	65	1	0
873	303	276	50	1	0
892	320	277	83	3	0
908	335	278	45	1	0

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Table 19 (Cont'd.)

Pedigree NES	Origin 72 TA	Plot No	Plant height in cms	Vigor score	Bird feeding in pct.
913	344	279	90	1	0
922	348	280	64	1	0
941	365	281	86	2	0
985	397	282	82	2	0
989	398	283	96	2	0
1001	409	284	80	1	0
1012	425	285	56	2	0
1019	426	286	61	1	0
1021	428	287	64	1	0
1026	437	288	85	3	0
1028	439	389	107	3	0
1097	490	290	55	2	0
1145	529	291	95	1	0
1173	558	292	115	2	0
1180	542	105	2	0	
1191	567	294	75	1	0
1195	571	295	96	2	0
1199	575	296	66	1	30
1237	607	297	75	1	0
1276	643	298	100	1	0
1280	647	299	100	1	0
1281	648	300	96	1	0
1312	678	301	48	1	0
1326	689	302	70	2	0
1332	694	303	75	2	0
1333	695	304	82	2	0
1337	699	305	100	2	0
1339	700	306	43	1	0
1340	701	307	82	2	0
1341	702	308	79	1	0
1342	703	309	95	1	0
1343	704	310	93	2	0
1344	705	311	72	2	0
1345	706	312	74	2	0
1354	715	313	65	1	0
1357	718	314	71	2	0
1386	745	315	76	1	0
1391	750	316	-	-	-
1392	751	317	109	1	0
1396	754	318	-	-	-
1400	758	319	65	1	0
1401	759	320	-	-	-
1402	760	321	-	-	-
1403	761	322	68	1	0
1407	764	323	122	2	0
1412	769	324	56	1	0
1414	771	325	66	1	0
1417	773	326	59	1	0
1420	776	327	41	1	0
1432	789	328	71	2	0
1435	791	329	45	1	0

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Table 19 (Contd)

Pedigree NES	Origin 72 TA	Plot No	Plant height in cms	Vigor score	Bird feeding in pct.
1436	792	330	46	1	0
1440	795	331	60	1	0
1442	797	332	80	1	0
1443	798	333	80	1	0
1450	804	334	45	1	0
1456	809	335	58	1	0
1457	810	336	54	1	0
1463	815	337	-	-	-
1466	818	338	58	1	0
1470	821	339	78	1	0
1471	822	340	70	2	0
1477	824	341	100	1	0
1478	825	342	70	1	0
1482	828	343	71	2	0
1483	829	344	73	1	0
1499	836	345	61	2	0
1516	851	346	57	1	0
1517	852	347	59	1	0
1518	853	348	73	1	0
1519	854	349	82	2	0
1525	859	350	60	1	0
1526	860	351	67	1	0
1529	861	352	86	1	5
1533	865	353	55	1	0
1542	871	354	75	2	0
1544	873	355	86	1	0
1550	877	356	81	2	0
1552	879	357	54	1	0
1554	881	358	66	1	0
1556	883	359	59	1	0
1559	885	360	72	1	0
1562	888	361	64	1	0
1574	897	362	92	1	0
1576	899	363	78	1	0
1609	919	364	65	1	0
1619	925	365	63	1	0
1621	927	366	52	1	0
1624	930	367	-	-	0
1625	931	368	-	-	0
1626	932	369	65	2	0
1634	939	370	-	-	0
1637	942	371	58	1	0
1638	943	372	51	1	0
1642	945	373	97	1	0
1645	948	374	58	2	0
1647	949	375	70	2	0
1648	950	376	54	1	0
1658	954	377	57	1	0
1659	955	378	-	-	-
1661	957	379	-	-	-
1670	962	380	76	1	0
1673	963	381	66	1	0

Table 19 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Plants height in cms	Vigor score	Bird feeding in pct
1674	964	382	54	1	0
1675	965	383	90	1	0
1680	969	384	53	1	0
1685	972	385	51	2	0
1687	974	386	70	1	0
1696	988	387	72	1	5
1715	997	388	67	1	0
1720	1000	389	65	1	0
1724	1003	390	-	-	-
1726	1004	391	-	-	-
1728	1005	392	61	1	0
1731	1007	393	93	2	0
1762	1031	394	-	-	-
1767	1036	395	61	1	0
1768	1037	396	72	1	0
1769	1038	397	73	1	0
1773	1041	398	72	2	0
1776	1044	399	81	2	0
1782	1049	400	61	2	0
1783	1050	401	66	1	0
1786	1053	402	63	1	0
1787	1054	403	80	1	0
1788	1055	404	52	1	0
1792	1060	405	49	2	0
1795	1061	406	-	-	-
1799	1062	407	70	1	0
1800	1063	408	85	2	0
1802	1066	409	72	2	0
1806	1069	410	74	2	0
1814	1076	411	64	1	0
1821	1082	412	-	-	-
1823	1087	413	56	2	0
1832	1089	414	75	2	0
1849	1100	415	76	2	0
1853	1103	416	56	1	0
1854	1104	417	80	2	0
1855	1105	418	84	2	0
1856	1106	419	85	2	0
1859	1107	420	104	2	0
1877	1116	421	75	2	0
1879	1117	422	43	1	0
1882	1120	423	105	2	0
1883	1121	424	88	3	80
1904	1142	425	91	3	85
1913	1151	426	109	3	85
1914	1152	427	116	3	50
1925	1153	428	85	2	0

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Table 13 (cont'd.)

Pedigree No.	Entry 22 TA	Plot No	Plant height in cms	Vigor score	Bird feeding in pct.
1934	1172	429	98	2	10
1951	1209	430	87	3	0
1998	1236	431	63	1	0
2042	1280	432	-	-	-
2045	1283	433	80	2	0
2060	1498	434	72	1	0
2062	1501	435	-	-	-
2073	1516	436	-	-	-
2093	1636	437	104	2	0
2443	1681	438	-	-	-
2468	1706	439	62	2	-
2519	1753	440	-	-	-
1346	1764	441	89	2	0
1378	1776	442	-	-	-
1396	1785	443	-	-	-
1[illegible]	1790	444	-	-	-
1[illegible]	1794	445	-	-	-
[illegible]	1821	446	85	2	0
[illegible]	1824	447	92	2	0
[illegible]	1901	448	87	1	0
[illegible]	1902	449	84	2	0
[illegible]	1905	450	-	-	-
[illegible]	1907	451	-	-	-
[illegible]	1940	452	75	3	0
IS					
2021	1948	453	65	2	0
2030	1953	454	-	-	-
2036	1954	455	100	3	0
2043	1955	456	87	2	0
2046	1968	457	-	-	-
2022	1972	458	-	-	-
[illegible]	2034	459	107	2	0
[illegible]	2038	460	96	3	0
2320	2048	461	57	2	0
[illegible]	2061	462	69	1	0
[illegible]	2062	463	-	-	-
NES					
2715	2132	464	85	2	0
IS					
825	2230	465	89	3	15
857	2231	466	81	2	0
NES					
2761	2242	467	83	2	0
IS					
2021(133)	2276	468	-	-	-
2022 (302)	2277	469	73	2	0
2091	2279	470	-	-	-
2220 (261)	2280	471	-	-	-
2044(217)	2281	472	-	-	-
2079(270)	2282	473	-	-	-
NES					
2325	2306	474	-	-	-
2328	2309	475	-	-	-
2329	2310	476	-	-	-

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Table 12 (Contd.)

Pedigree NES	Origin 72 TA	Plot No	Plant height in cms	Vigor score	Bird feeding in pct
1417	1238	477	-	-	-
1433	1265	478	-	-	-
1453	1287	479	-	-	-
1504	1351	480	-	-	-
1780	1702	481	-	-	-
1797	1712	-	-	-	

TABLE 20

ETHIOPIAN AND SUDANESE NURSERY

[illegible] Agronomic Traits of the 106 sorghum entries from Ethiopia and Sudan planted in Senpa [illegible]-1973

Pedigree NES	Origin Acc.	Plot No	Days to 50% bloom	Plant height in cms	Vigor a/ score
3848	Sudan	4188	-	-	1
3849	Sudan	4189	132	48	1
3850	Sudan	4190	106	67	1
3851	Sudan	4191	-	-	1
3852	Sudan	4192	127	70	1
3853	Sudan	4193	113	50	1
3854	Ethiopia	4194	x b/	-	1
3855	Ethiopia	4195	x	-	1
3856	Ethiopia	4196	x	-	2
3857	Ethiopia	4197	x	-	1
3858	Ethiopia	4198	x	-	3
3859	Ethiopia	4199	134	96	3
3860	Ethiopia	4200	-	-	1
3861	Ethiopia	4201	132	68	2
3862	Ethiopia	4202	-	-	2
3863	Ethiopia	4203	x	-	2
3864	Ethiopia	4204	x	-	1
3865	Ethiopia	4205	-	-	2
3866	Ethiopia	4206	-	-	1
3867	Ethiopia	4207	x	-	2
3868	4208	4208	132	85	2
3869	4208	4209	127	100	1
3870	4208	4210	127	98	1
3871	4208	4211	x	-	2
3872	4208	4212	127	74	2
3873	4208	4213	x	-	1
3874	4208	4214	-	-	2
3875	4208	4215	-	-	2
3876	4208	4216	x	-	2
3877	4208	4217	-	-	2
3878	4208	4218	x	-	1
3879	4208	4219	x	-	2
3880	4208	4220	-	-	1
3881	4208	4221	-	-	1
3882	4208	4222	-	-	1
3883	4208	4223	-	-	1
3884	4208	4224	-	-	1
3885	4208	4225	-	-	2
3886	4208	4226	-	-	3
3887	Ethiopia	4227	-	-	3
3888	Ethiopia	4228	x	-	3
3889	Ethiopia	4229	-	-	2
3890	Ethiopia	4230	-	-	2
3891	Ethiopia	4231	-	-	1
3892	Ethiopia	4232	-	-	1
3893	Ethiopia	4233	-	-	2

a/ Scored 1-3: 1-least vigorous 3-most vigorous

b/ With flowers but less than 50% at frost date

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Table 20 ([illegible])

Pedigree NES	Origin Acc.	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
3894	Ethiopia	4234	-	-	2
3895	Ethiopia	4235	x	-	2
3896	Ethiopia	4236	-	-	2
3897	Ethiopia	4237	134	100	2
3898	Ethiopia	4238	-	-	1
3899	Ethiopia	4239	x	-	2
3900	Ethiopia	4240	-	-	1
3901	Ethiopia	4241	x	-	1
3902	Ethiopia	4242	-	-	1
3903	Ethiopia	4243	132	129	2
3904	Ethiopia	4244	-	-	3
3905	Ethiopia	4245	-	-	2
3906	Ethiopia	4246	-	-	3
3907	Ethiopia	4247	-	-	2
3908	Ethiopia	4248	-	-	1
3909	Ethiopia	4249	-	-	2
3910	Ethiopia	4250	x	-	3
3911	Ethiopia	4251	-	-	1
3912	Ethiopia	4252	-	-	1
3913	Ethiopia	4253	-	-	1
3914	Ethiopia	4254	-	-	1
3915	Ethiopia	4255	-	-	1
3916	Ethiopia	4256	-	-	1
3917	Ethiopia	4257	x	-	1
3918	Ethiopia	4258	x	-	2
3919	Ethiopia	4259	-	-	1
3920	Ethiopia	4260	-	-	1
3921	Ethiopia	4261	x	-	1
3922	Ethiopia	4262	134	76	1
3923	Ethiopia	4263	134	75	1
3924	Ethiopia	4264	-	-	1
3925	Ethiopia	4265	-	-	1
3926	Ethiopia	4266	123	130	2
3927	Ethiopia	4267	123	86	2
3928	Ethiopia	4268	134	102	2
3929	Ethiopia	4269	127	125	2
3930	Ethiopia	4270	127	129	2
3931	Ethiopia	4271	123	77	1
3932	Ethiopia	4272	134	122	2
3933	Ethiopia	4273	132	120	2
3934	Ethiopia	4274	134	72	1
3935	Ethiopia	4275	-	-	1
3936	Ethiopia	4276	x	-	1
3937	Ethiopia	4277	134	70	1
3938	Ethiopia	4278	x	-	1
3939	Ethiopia	4279	x	-	2
3940	Ethiopia	4280	x	-	3
3941	Ethiopia	4281	x	-	3
3942	Ethiopia	4282	134	174	3
3943	Ethiopia	4283	x	-	3
3944	Ethiopia	4284	-	-	2
3945	Ethiopia	4285	-	-	2
3946	Ethiopia	4286	-	-	2

Table 20 (Cont'd)

Pedigree NES	Origin Acc.	Plot No	Days to 50% bloom	Plant height in cms	Vigor score
3947	Ethiopia	4287	-	-	1
3948	Ethiopia	4288	-	-	1
3949	Ethiopia	4289	x	-	1
3950	Ethiopia	4290	-	-	1
3951	Ethiopia	4291	x	-	2
3952	Ethiopia	4292	-	-	2
3953	Ethiopia	4293	-	-	1
IS					
16188	Yemen	4294	-	-	-
16189		4295	-	-	-
16190	Yemen	4296	-	-	-
16191	Yemen	4297	-	-	-
16192	Yemen	4298	-	-	-
16193	Yemen	4299	-	-	-

TABLE 21

SANAA SELECTIONS FROM ALAD NURSERIES

Table 21 Peformance of Sanaa Selections from 1973 ALAD Nurseries

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
201	4	132	58	-
202	28	132	66	411
203	30	142	50	126
204	31	153	63	37
205	50	128	58	1331
206	110	128	75	2117
207	324	135	65	1223
208	324	140	58	197
209	311	138	50	383
210	452	134	65	914
211	518	134	62	1000
212	626	140	60	309
213	628	133	70	763
214	628	133	51	154
215	628	133	82	1257
216	633	136	63	591
217	634	140	77	51
218	641	132	59	1480
219	643	135	64	357
220	645	132	38	1006
221	647	134	68	503
222	648	134	52	594
223	650	134	52	480
224	650	132	56	649
225	660	132	72	414
226	661	134	52	451
227	675	131	54	643
228	679	131	64	643
229	688	131	60	1271
230	691	134	44	903
231	692	131	52	1186
232	692	131	62	691
233	692	131	65	914
234	694	132	66	649
235	695	136	62	597
236	702	138	65	243
237	703	128	60	100
238	705	127	78	1460
239	708	132	58	800
240	712	138	59	377
241	726	137	58	420
242	726	137	60	394
243	734	138	42	94

Table 21

(Contd.)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
244	746	138	42	194
245	751	132	66	1043
246	758	134	50	109
247	760	132	65	1100
248	762	132	67	740
249	767	132	72	300
250	777	132	82	1520
251	807	134	66	377
252	821	134	63	220
253	823	148	40	29
254	826	134	55	83
255	829	148	52	1349
256	829	137	44	174
257	829	148	46	140
258	829	137	62	354
259	837	134	52	143
260	843	131	84	1211
261	845	140	50	334
262	851	134	60	77
263	853	138	56	411
264	854	148	66	63
265	858	135	76	229
266	872	135	147	1608
267	875	148	55	94
268	879	148	52	117
269	917	138	65	226
270	919	148	45	163
271	944	134	73	400
272	949	134	58	254
273	956	134	78	726
274	957	148	72	343
275	968	134	51	271
276	984	134	70	454
277	1015	127	68	920
278	1023	127	82	494
279	1025	128	87	574
280	1043	128	57	946
281	1070	135	60	163
282	1072	135	74	886
283	1077	135	70	814
284	1079	132	78	1014
285	1148	127	57	1231

Table 21

(Contd.)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
244	746	138	42	194
245	751	132	66	1043
246	758	134	50	109
247	760	132	65	1100
248	762	132	67	740
249	767	132	72	300
250	777	132	82	1520
251	807	134	66	377
252	821	134	63	220
253	823	148	40	29
254	826	134	55	83
255	829	148	52	1349
256	829	137	44	174
257	829	148	46	140
258	829	137	62	354
259	837	134	52	143
260	843	131	84	1211
261	845	140	50	334
262	851	134	60	77
263	853	138	56	411
264	854	148	66	63
265	858	135	76	229
266	872	135	147	1608
267	875	148	55	94
268	879	148	52	117
269	917	138	65	226
270	919	148	45	163
271	944	134	73	400
272	949	134	58	254
273	956	134	78	726
274	957	148	72	343
275	968	134	51	271
276	984	134	70	454
277	1015	127	68	920
278	1023	127	82	494
279	1025	128	87	574
280	1043	128	57	946
281	1070	135	60	163
282	1072	135	74	886
283	1077	135	70	814
284	1079	132	78	1014
285	1148	127	57	1231

Table 21(Contd)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
286	1162	140	47	23
287	1180	138	66	163
288	1182	147	64	1351
289	1208	132	54	1243
290	1208	132	66	543
291	1235	132	46	126
292	1235	134	67	529
293	1238	132	56	60
294	1248	132	92	1677
295	1251	-	-	-
296	1280	-	-	-
297	1282	148	40	34
298	1283	148	64	31
299	1286	140	50	106
300	1290	NF*	35	26
301	1294	137	70	191
302	1299	137	64	66
303	1308	NF*	56	26
304	1335	NF*	62	34
305	1349	-	-	-
306	1359	-	-	-
307	1379	131	67	37
308	1381	134	56	83
309	1381	137	77	189
310	1385	137	60	554
311	1385	137	67	240
312	1393	-	-	-
313	1404	-	-	-
314	1421	114	66	963
315	1429	137	45	54
316	1437	137	56	371
317	1443	-	-	-
318	1450	-	-	-
319	1465	137	42	271
320	1480	132	54	837
321	1481	132	77	957
322	1483	-	-	-
323	1484	132	57	869
324	1491	127	97	1226
325	1500	128	102	1706
326	1530	134	99	1734
327	1566	-	-	-
328	1570	127	91	1291
329	1573	111	88	1594
330	1596	134	74	514
331	1611	NF*	62	103

* No Flowers at Frost Date

Table 21 (Contd)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
332	1616	127	90	169
333	1617	127	111	1386
334	1617	NF*	67	31
335	1619	-	-	-
336	1620	131	46	614
337	1626	134	60	191
338	1630	121	75	531
339	1631	121	107	628
340	1681	121	66	886
341	1683	132	64	283
342	1698	131	87	1380
343	1742	131	67	1340
344	1747	137	87	317
345	1760	137	72	991
346	1764	138	52	486
347	1765	138	57	171
348	1774	134	58	363
349	1779	134	62	400
350	1780	134	72	523
351	1785	131	57	911
352	1789	131	66	729
353	1790	134	77	1126
354	1801	134	58	854
355	1815	131	82	823
356	2083	131	86	523
357	2141	131	80	1586
358	2142	131	92	1403
359	2273	132	57	863
360	2397	140	52	63
361	2423	140	62	249
362	2528	132	74	500
363	2653	134	84	-
364	2688	127	120	-
365	2771	134	82	1029
366	3307	137	110	783
367	3311	137	112	528
368	3324	138	120	354
369	3329	131	125	1589
370	3349	132	107	1357
371	3363	132	111	1214
372	3366	131	77	1063
373	3474	131	67	657
374	3478	132	107	997
375	3564	141	110	526
376	3577	134	87	900

* No Flowers at Frost Date

Table 21 (Contd)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
377	3585	163	62	49
378	3592	132	77	174
379	3637	132	140	788
380	3649	132	102	671
381	3666	132	102	869
382	3684	132	102	966
383	ETH			
	3859	NF*	-	-
384	3861	NF*	-	-
385	3868	NF*	-	-
386	3872	138	109	1166
387	3897	158	120	368
388	3903	NF*	-	-
389	3926	132	145	980
390	3927	132	73	591
391	3928	138	107	360
392	3929	NF*	-	-
393	3930	156	135	411
394	3932	NF*	-	-
395	3933	138	144	403
396	3942	NF*	-	-
397	IS			
	83	134	106	137
398	209	134	62	383
399	209	137	60	309
400	314	112	67	1337
401	410	132	72	1391
402	509	127	122	3320
403	517	140	70	2240
404	825	140	77	860
405	825	138	60	2157
406	828	132	102	1671
409	857	136	67	-
408	877	131	104	1083
409	921	132	98	83
410	2046	134	56	411
411	2197	135	119	2288
412	2227	138	62	651
413	2232	138	80	346
414	2744	122	94	1003
415	2828	127	100	2680
416	3138	141	97	786
417	3404	137	86	1137
418	3406	132	76	1169
419	3924	138	76	-

Table 21 (Contd)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
377	3585	163	62	49
378	3592	132	77	174
379	3637	132	140	788
380	3649	132	102	671
381	3666	132	102	869
382	3684	132	102	966
383	ETH			
	3859	NF*	-	-
384	3861	NF*	-	-
385	3868	NF*	-	-
386	3872	138	109	1166
387	3897	158	120	368
388	3903	NF*	-	-
389	3926	132	145	980
390	3927	132	73	591
391	3928	138	107	360
392	3929	NF*	-	-
393	3930	156	135	411
394	3932	NF*	-	-
395	3933	138	144	403
396	3942	NF*	-	-
397	IS			
	83	134	106	137
398	209	134	62	383
399	209	137	60	309
400	314	112	67	1337
401	410	132	72	1391
402	509	127	122	3320
403	517	140	70	2240
404	825	140	77	860
405	825	138	60	2157
406	828	132	102	1671
409	857	136	67	-
408	877	131	104	1083
409	921	132	98	83
410	2046	134	56	411
411	2197	135	119	2288
412	2227	138	62	651
413	2232	138	80	346
414	2744	122	94	1003
415	2828	127	100	2680
416	3138	141	97	786
417	3404	137	86	1137
418	3406	132	76	1169
419	3924	138	76	-

Table 21 (Contd)

Plot No.	Pedigree NES	Days to 50% bloom	Plant height in cms	Grain yield kg/ha
420	8712	128	87	1366
421	9243	132	105	926
422	9618	127	76	-
423	9619	140	64	508
424	9620	132	82	1646
425	9955	132	86	823
426	9958	132	85	2006
427	10262	140	70	480

TABLE 22

PERFORMANCE OF 654 ENTRIES

SANAA 1974

Table 22 Performance of 654 Entries from Selections Planted in Sanaa - 1974

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score*	Plant height in cms
428	2	1001-1	130	3	68
429	2	1001-2	-	2	-
430	4	1004	131	2	54
431	15	1005	114	2	40
432	31	1006	133	2	50
433	67	1007	128	2	55
434	50	1010	117	2	65
435	50	1011	111	2	67
436	50	1014-1	111	2	64
437	50	1014-2	128	1	54
438	110	1016	105	1	54
439	110	1017	105	2	50
440	27	1018	105	2	55
441	166	1022	105	1	55
	NES				
442	8355	1023	117	1	54
443	311	1024	124	2	48
444	452	1027	131	2	57
445	493	1028	131	1	48
446	493	1029	105	2	43
447	314	1031	105	2	70
448	518	1034	105	3	50
449	633	1045	131	2	55
450	633	1046	131	1	60
451	633	1048	131	2	54
452	641	1051	117	2	65
453	647	1056-1	131	3	52
454	647	1056-2	131	2	55
455	648	1058	131	2	55
456	650	1062	131	3	70
457	655	1063	131	2	40
458	660	1067	131	2	60
459	675	1071	120	3	65
460	676	1072	120	3	55
461	698	1097	-	-	-
462	710	1105	133	2	50
463	726	1110	133	2	62
464	726	1111	125	2	48
465	726	1112	131	2	55
466	728	1114	131	1	43
467	746	1121	122	2	60
468	753	1124	122	2	65
469	758	1121	122	2	63
470	758	1129-1	122	2	65
471	758	1122-2	122	3	55
472	758	1130	122	3	60

* Score 1-3; 1 = least vigorous 3 = most vigorous

Table 22 (Contd)

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score*	Plant height in cms
473	758	1130-1	122	2	54
474	758	1130-2	122	3	60
475	762	1132	122	3	50
476	767	1133	122	2	75
477	788	1138	122	2	40
478	805	1139	131	2	74
479	821	1144-1	-	-	-
480	821	1144-2	122	2	55
481	822	1148-1	131	2	54
482	822	1148-2	-	-	-
483	825	1151	126	3	54
484	822	1160	122	3	50
485	845	1165	122	1	60
486	853	1666	-	2	-
487	854	1170	-	2	-
488	854	1174	122	2	60
489	857	1178	122	2	70
490	858	1180	122	3	70
491	858	1181-1	122	1	84
492	944	1204	133	3	40
493	944	1205	122	1	55
494	954	1212	133	2	60
495	957	1217	133	3	45
496	1007	1230	-	2	-
497	1008	1232	122	3	75
498	1017	1232	122	2	40
499	1035	1245cb	136	2	65
500	1037	1246	-	2	-
501	1037	1247	-	-	-
502	1042	1249	-	-	-
503	1042	1250-1	-	-	-
504	1042	1250-2	-	-	-
505	1046	1255-1	122	1	95
506	1046	1255-2	-	-	-
507	1047	1258	111	1	55
508	1070	1259	128	2	40
509	1071	1260	-	-	-
510	1072	1261	131	2	68
511	1074	1262c8	131	1	45
512	1177	1263c8	117	1	60
513	1079	1265	117	1	70
514	1146	1273-1	117	1	80
515	1145	1273-2	122	3	120
516	1145	1274	122	2	100
517	1146	11275	128	2	50
518	-	-	-	-	-

Table 22 (Contd.)

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
519	1152	1277	148	2	60
520	1156	1280	122	2	50
521	1156	1281	122	3	80
522	1159	1282	128	2	54
523	-	-	-	-	-
524	1180	1223	-	1	-
525	1182	1295	122	1	60
526	1198	1301	-	-	-
527	1198	1302	122	2	65
528	1205	1305	-	1	-
529	1208	1307	131	3	70
530	1208	1309	131	2	60
531	1215	1312	-	-	-
532	1215	1313	-	2	-
533	1221	1317	128	1	65
534	-	-	-	-	-
535	1235	1322	-	-	-
536	1235	1323	-	-	-
537	1238	1325	-	-	-
538	1240	1326	-	-	-
539	1241	1327	131	1	-
540	1241	1328	-	-	-
541	1246	1329	-	-	-
542	1251	1332	123	1	100
543	1253	1333	-	-	-
544	1280	1336	132	1	45
545	1280	1337	-	-	-
546	1290	1341	-	2	70
547	1351	1349	117	2	90
548	1371	1353	-	-	-
549	1385	1365	117	2	65
550	1393	1367	118	2	50
551	1393	1368	117	3	65
552	1399	1369	115	2	50
553	1402	13722	-	-	-
554	1404	1373	115	1	80
555	1406	1375	115	2	65
556	1409	1380	115	2	70
557	1411	1381	115	3	95
558	1422	1385	114	2	50
559	1422	1386-1	115	2	74
560	1422	1386-2	115	2	90
561	1424	1387	116	2	66
562	1424	1388	129	2	65
563	1425	1389	129	1	65
564	1426	1393	-	-	-
565	1426	1394	123	3	70
566	1429	1394	-	-	-

Table 22 (Contd.)

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
567	1429	1398	121	2	70
568	1437	1406	-	-	-
569	1443	1409	-	-	-
570	1444	1411	128	2	45
571	1447	1414	117	2	95
572	1447	1415-1	-	-	-
573	1447	1415-2	-	-	-
574	1448	1416-1	-	-	-
575	1448	1416-2	-	-	-
576	1454	1419	118	2	70
577	1459	1423	124	2	40
578	1467	1426	124	1	70
579	1468	1427	124	2	50
580	1469	1429	-	1	-
581	1469	1430	123	2	50
582	1472	1432	-	-	-
583	1480	1434	123	2	90
584	1480	1475	123	2	80
585	1481	1436-1	-	2	-
586	1481	1436-2	123	1	55
587	1481	1437	120	2	75
588	1483	1438	120	1	50
589	1483	1439	119	2	70
590	1484	1440	123	1	45
591	1484	1441	120	1	60
592	1484	1442-1	117	2	75
593	1484	1442-2	117	1	-
594	1490	1444	117	3	77
595	1490	1445	117	2	85
596	1498 DP	1446	121	3	95
597	1500	1449-1	124	1	45
598	1500	1449-2	-	-	-
599	1500	1453	126	1	60
600	1503	1455	123	1	-
601	1503	1458	123	2	48
602	1512	1462	123	2	58
603	1520	1466	124	1	60
604	1523	1469	123	2	50
605	1522	1471	-	-	-
606	1529	1777	117	2	58
607	1530	1475	123	2	85
608	1531	1477	123	2	83
609	1533	1479	-	1	-
610	1537	1485	-	-	-
611	1541	1486	-	-	-
612	1542	1487	128	2	65
613	1543	1488	-	-	-

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
614	1550	1422	-	-	-
615	1550	1493	118	-	70
616	1550	1494	123	2	60
617	1559	1495	123	2	50
618	1563	1496	-	2	-
619	1564	1500	-	-	-
620	1564	1501	-	-	-
621	1565	1503	-	-	-
622	1582	1514	-	-	-
623	1583	1515	123	2	80
624	1586	1516	123	1	70
625	1525	1518	-	2	-
626	1619	1531	-	2	-
627	1617	1532	123	2	40
628	1619	1533	-	-	-
629	1626	1536	126	2	110
630	1629	1537	120	2	65
631	1631	1539	118	-	80
632	1631	1540	-	-	-
633	1631	1541	-	-	-
634	1634	1544	-	-	-
635	1662	1550	-	-	-
636	1668	1551	123	3	80
637	1684	1556	126	3	85
638	1686	1557-1	-	-	-
639	1686	1557-2	128	2	75
640	1704	1562	128	2	110
641	1704	1563	-	-	-
642	1704	1564	123	2	105
643	1779	1582	-	-	-
644	1833	1591	-	-	-
645	1836	1592	124	-	50
646	1910	1604	-	-	-
647	2012	1619	-	2	-
648	2014	1620	122	2	70
649	2029	1622	-	-	-
650	2029	1623	130	2	90
651	2031	1625	-	2	-
652	2045	1627	124	2	-
653	2073	1636-1	124	2	80
654	2073	1636-2	123	2	75
655	2079	1639	124	2	60
656	2082	1540	123	1	60
657	2083	1641	-	-	-
658	2142	1653	120	1	65
659	2152	1655	117	1	75
660	2163	1659	-	-	-

Table 22 (Contd.)

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
661	2167	1660	118	1	60
662	2199	1669	123	2	70
663	2237	1676	122	1	55
664	2237	1677	123	1	50
665	2261	1681	121	3	50
666	2264	1684-1	121	2	50
667	2264	1684-2	-	-	-
668	2342	1706	-	-	-
669	2362	1708	125	2	9
670	2362	1709	-	-	-
671	2365	1711-1	120	2	120
672	2365	1711-2	123	2	95
673	2365	1715	123	2	100
674	2400	1718	-	-	-
675	2459	1722	-	-	-
676	2404	1723-1	-	-	-
677	2464	1723-2	-	-	-
678	2464	1724	-	-	-
679	2464	1725-1	-	-	-
680	2464	1725-2	-	-	-
681	2468	1726	128	2	50
682	2472	1728	-	-	-
683	2484	1729	-	-	-
684	2485	1730	126	2	60
685	2488	1731	-	-	-
686	2493	1732	-	-	-
687	2494	1733	123	1	65
688	2523	1739	123	2	75
689	2524	1741	123	2	85
690	2525	1742	128	2	50
691	2570	1753	121	2	80
692	2639	1762	118	2	90
693	2650	1767	-	-	-
694	2661	1771	123	3	130
695	2761	1783	123	2	65
696	2045	1785	-	1	-
697	8305	1788	-	-	-
698	531	1789	-	1	-
699	825	1790	-	-	-
700	834	1791	-	-	-
701	2713	1800	-	2	-
702	2725	1809-1	-	2	-
703	2735	1809-2	-	2	-
704	2735	1810	-	-	-
705	2735	1812	119	1	100
706	3404	1840	123	2	70
707	2524	1845	126	2	75

Table 22 (Contd.)

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
708	9926	1864	124	2	75
709	2831	1873	124	2	70
710	2950	1886	126	2	70
711	2953	1887	120	1	35
712	2960	1892	123	3	89
713	2987	1894	123	3	70
714	3057	1900	-	2	-
715	3061	1202	-	-	-
	IS				
716	83	1910	117	1	85
717	83	1911	117	2	40
718	106	1918	121	2	95
719	127	1929	117	1	85
720	142	1939	117	-	90
721	7267	2038	117	1	85
722	8111	2043-1	128	-	80
723	8111	2043-2	119	3	110
724	2170	2087	128	2	60
725	2282	2092	120	2	112
726	10291	2121	126	3	120
727	10366	2123	-	-	-
728	10720	2138	116	1	90
729	12205	2159	116	-	90
730	12266	2160	-	-	-
731	12486	2163	-	-	-
732	52	2170	128	-	90
733	53	2142	128	2	45
734	76	2180	125	2	65
735	50	2183	-	-	-
	IS				
736	9627	2190	-	-	-
737	9627	2192	-	-	-
738	262	2194-1	126	-	65
739	262	2194-2	128	-	50.
740	236	2195	130	2	55
741	236	2196	130	2	55
742	269	2202	130	-	40
743	324	2204	130	-	45
744	324	2206	126	2	95
745	339	2208	128	3	50
746	440	2209-1	128	3	55
747	440	2209-2	126	3	70
748	440	2209-3	128	1	60
749	630	2216	120	2	80
750	628	2218	128	2	40
751	635	2221	-	1	-
752	635	2222	128	-	65

Table 22 (Contd.)

Plot No.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
753	636	2223	128	-	65
754	636	2224	117	-	60
755	649	2228	120	-	60
756	649	2229	128	-	50
757	702	2230	123	-	65
758	702	2231	127	-	55
759	738	2233	121	-	65
760	777	2234-1	-	-	-
761	777	2234-2	128	-	40
762	786	2234	122	-	80
763	802	2240	124	-	70
764	830	2243	128	-	50
765	833	2247	-	-	-
766	871	2255	120	-	65
767	875	2257	120	-	50
768	910	2258	118	-	80
769	925	2264	118	-	55
770	920	2266	123	-	90
771	926	2267	117	1	-
772	931	2271	123	3	55
773	987	2281	-	2	55
774	988	2283	-	-	-
775	1015	2291	125	2	-
776	1063	2398	125	2	70
777	1104	2303	-	-	80
778	1199	2311	128	2	-
779	1199	2312	126	2	40
780	1200	2313	126	2	45
781	1222	2315	122	2	60
782	1261	2319	122	1	75
783	1288	2323	-	-	65
784	1418	2344	123	-	-
785	1439	2347	-	-	-
786	1460	2350	123	1	60
787	1519	2361	-	-	-
788	1536	2364	-	-	-
789	1536	2365	-	-	-
790	1539	2367	-	-	-
791	1557	2375	-	-	-
792	1568	2376	-	1	-
793	1594	2387	128	2	60
794	696	2399	128	2	54
795	1699	2400-1	123	3	85
796	1699	2400-2	-	-	-
797	199	2401-1	-	-	-
798	1699	2401-2	-	2	-
799	1713	2402	-	-	

Table 22 (Contd.)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
800	1721	2404	-	2	-
801	1760	2412	127	2	50
802	1762	2413	127	2	60
803	1773	2416	127	3	05
804	1774	2418	-	2	-
805	1776	2423	126	3	-
806	1777	2425	-	-	-
807	1777	2426	-	-	-
808	1787	2436-1	-	1	-
809	1787	2436-2	-	2	-
810	1790	2438	-	-	-
811	1828	2441	-	-	-
812	1854	2445	-	-	-
813	1998	2452	-	-	-
814	1999	2453	-	-	-
815	2000	2955	-	-	-
816	2005	2456	123	2	90
817	2025	2457	-	-	-
818	2092	2461	128	2	50
819	2176	2474	-	-	-
820	2180	2476	-	-	-
821	2233	2485	-	2	80
822	2377	2504	121	3	60
823	2426	2514	130	2	-
824	2431	2518	-	-	-
825	2435	2522	-	-	-
826	2442	2522	-	2	-
827	2449	2536	-	-	-
828	2451	2537	-	-	-
829	2458	2544	-	-	-
830	2462	2547	-	-	-
831	2469	2549	-	-	-
832	2647	2555	128	-	75
833	2721	2577	-	-	-
834	2898 IS	2590	-	-	-
835	2227	2596	131	2	50
836	2046	2619-1	128	2	100
837	2046	2619-2	-	-	-
838	9174	2624	-	-	-
839	3019	2633-1	127	2	80
840	3019	2633-2	131	2	55
841	148	2637	120	2	80
842	158	2647	133	3	60
843	158	2648	133	2	60
844	174	2663	133	2	80
845	180	2665	133	3	100

Table (Contd.)

Plot No	Pedigree NES IS	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
846	181	2666	133	2	120
847	211	2672	133	3	75
848	[illegible]	2684	131	3	60
849	415	2687	133	2	70
850	824	2695	124	3	75
851	2852	2713	128	2	80
852	4989	2716	-	-	-
853	5314	2718	129	2	70
854	8190	2720	128	-	55
855	8687	2722	128	-	60
856	9348	2724	131	-	90
857	2571	2726	128	-	110
858	9571	2727	133	-	100
859	9618	2731	133	-	70
860	9620	2733	-	-	-
861	9627	2735	133	-	80
862	10306	2745	128	-	100
863	10316	2747	-	-	-
864	10378	2763	-	-	-
865	10489	2801	-	-	-
866	10526	2824	-	-	-
867	28	2875	-	2	-
868	28	2876	131	2	70
869	681	2895	123	3	85
870	683	2897	123	3	50
871	766	2899	122	1	90
872	796	2904	117	1	50
873	849	2908-1	-	-	-
874	849	2908-2	-	-	-
875	852	2910	-	-	-
876	889	2916	124	13	105
877	935	2919	-	-	-
878	1075	2932	133	2	40
879	1077	2934	125	2	60
880	1081	2337	-	-	-
881	1084	2940	-	2	-
882	1088	2945	124	-	55
883	1249	2956	120	-	70
884	1257	2957	131	2	90
885	1285	2963	-	2	1
886	1471	2974	131	1	50
887	1491	2976	123	2	130
888	1689	2989	-	1	-
889	1690	2990	122	2	78
890	1691	2991	120	2	115
891	1691	2991	-	-	-

Table 22 (Contd.)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
892	1691	2993	122	2	70
893	1797	2997	124	2	100
894	2028	3008-1	-	-	-
895	2028	3008-2	-	2	-
896	2042	3013	123	2	130
897	2084	3014	123	2	110
898	2224	3017	128	2	85
899	2345	3022	126	1	145
900	2515 IS	3035	126	-	116
901	256	3046	126	-	106
902	857	3050	127	-	120
903	315	3063	126	-	110
904	2963	3067	126	-	100
905	2983 IS	3068	128	-	105
906	460	3073	126	-	-
907	825	3074	126	-	-
908	942	3083	125	-	-
909	9561	3099	120	1	1
910	166 NES	3106	-	2	2
911	671	3111	-	2	2
912	674	3114	-	-	-
913	751	3116	128	2	65
914	817	3120	128	-	30
915	951	3126	-	-	-
916	1158	3142	-	2	-
917	1218	3147	127	1	85
918	1218	3148	121	1	75
919	1386	3159-1	-	2	-
920	1386	3159-2	130	2	55
921	1386	3160	130	2	55
922	1388	3161	122	2	70
923	1442	3167	-	-	-
924	1477	372	133	2	45
925	1585	3176	133	2	60
926	1585	3177	-	2	-
927	1589	3179	-	-	-
928	1628	3180	131	2	65
929	2002	3187	131	2	60
930	2056	3189	-	-	-
931	2250	3162	129	2	70
932	2416	3195	-	-	-
933	2416	3196-1	-	-	-
934	2416 IS	3196-2	127	2	70

Table 22 (Contd.)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
935	2948	3212	124	2	75
936	2948	3220-1	127	2	75
937	2948	3220-2	127	2	95
938	2948	3220-3	128	2	50
939	2948	3221-1	-	-	-
940	2948	3221-2	-	-	-
941	15	3223	-	-	-
942	28	3224	128	1	70
943	30	3226-1	131	-	75
944	30	3226-2	128	2	75
945	34	3227	-	2	-
946	35	3228	128	2	80
947	35	3229	138	2	80
948	820	3233	138	3	100
949	889	3235	135	2	110
950	2033	3237	138	3	90
951	10536	3243	135	2	100
952	10536	3244-1	135	1	110
953	10536	3244-2	135	1	100
	NES				
954	1092	3249	-	2	-
955	1097	3252	133	1	70
956	1098	3253	133	1	100
957	1125	3256	130	1	75
958	1292	3264	130	2	95
959	1294	3265	133	2	90
960	1312	3276	118	-	5
961	1312	3276	121	-	-
962	1321	3287	-	-	-
963	1321	3289	120	2	-
964	1334	3303	-	-	-
965	887	3318	-	-	-
966	2098	3318	-	-	-
967	2196	3320	-	-	-
968	115	3320	-	-	-
969	9890	3336	123	2	80
970	2274	3351	133	2	60
971	2456	3359	-	2	-
972	3570	3371	-	2	-
973	2217	3383	-	2	-
974	2222	3386	-	-	-
975	2223	3387	118	-	55
976	2224	3388	-	-	-
977	2228	3391	114	-	85
978	2927	3402	-	-	-
979	3403	3407	-	-	-

Table 22 (Contd.)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Vigor score	Plant height in cms
	NES				
980	3445	3572	117	1	105
981	3446	3573	117	2	130
982	3597	3724-1	133	2	105
983	3597	3724-2	-	-	-
984	3600	3727	-	-	-
985	3602	3729-1	-	1	-
986	3602	3729-2	-	1	-
987	3605	3732	-	-	-
988	3011	3733	-	2	75
989	3616	3773-1	138	1	70
990	3616	3773-2	128	2	95
991	3617	3744	132	1	90
992	3613	3745	153	2	110
993	3621	3748	130	2	90
994	3622	3749	153	2	127
995	3623	3750	130	-	150
996	3624	3751	130	-	110
997	3625	3752	126	-	140
998	3632	3759	125	-	130
999	3633	3760-1	125	-	105
1000	3633	3760-2	126	-	115
1001	3636	3763	125	-	143
1002	3637	3764	126	-	159
1003	3641	3768-1	127	-	120
1004	3641	3768-2	127	-	145
1005	3642	3769	128	-	150
1006	3643	3770	124	-	160
1007	3644	3771-1	127	-	130
1008	3644	3771-2	126	-	145
1009	3645	3772	127	-	110
1010	3649	3776-1	126	-	110
1011	3649	3776-2	126	-	110
1012	3652	3779	125	-	145
1013	3653	3780	127	-	135
1014	3654	3781-1	127	-	135
1015	3654	3781-2	126	-	125
1016	3658	3785	127	-	137
1017	3659	3786	127	-	145
1018	3660	3787	127	-	125
1019	3671	3798	126	-	125
1020	3672	3799	126	-	138
1021	3675	3802	126	-	120
1022	3676	3803-1	125	-	110
1023	3676	3803-2	125	-	115
1024	3680	3807	125	-	15
1025	3682	3809-1	125	-	110

Table 22 (Contd.)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Plant height in cms
1026	3682	3809-2	125	12
1027	3682	3809-3	128	130
1028	3685	3812	128	85
1029	3688	3815	127	115
1030	3692	3819-1	127	115
1031	3692	3819-2	130	125
1032	3693	3820	130	105
1033	3694	3821	130	130
1034	3697	3824	126	140
1035	3698	3825-1	127	100
1036	3698	3825-2	127	120
1037	3699	3826-1	127	120
1038	3699	3826-2	126	115
1039	3699	3826-3	126	135
1040	3702	3829-1	126	105
1041	3702	3829-2	126	105
1042	3703	3830-1	126	115
1043	3703	3830-2	126	110
1044	3705	3832	126	100
1045	3706	3833	128	130
1046	3707	3834-1	131	110
1047	3707	3834-2	131	20
1048	3708	3835-1	131	70
1049	3708	3835-2	131	145
1050	3709	3836	137	145
1051	3710	3837	128	90
1052	3711	3838-1	128	125
1053	3711	3838-2	128	120
1054	3715	3842-1	126	135
1055	3716	3842-2	126	140
1056	3716	3843-1	127	120
1057	3716	3843-2	127	125
1058	3716	3843	127	120
1059	3716	3844	126	130
1060	3719	3846	126	120
1061	3721	3848	126	130
1062	3723	3850-1	126	120
1063	3723	3850-2	127	125
1064	3724	3851-1	127	140
1065	3724	3851-2	127	130
1066	3725	3852	126	120
1067	3726	3853	120	150

TABLE 23

SELECTIONS FROM REGIONAL NURSERY - TERBOL 1973

Table 13 Performance of 145 Lentils from ALAR RN TR 73 Selections Planted in Spring 1974

Plot no.	Pedigree GES	Origin TR LR	Days to 50% bloom	Plant height in cms	Vigor score*
1029	50	5	120	60	1
	IS				
1030	9355	10-1	120	45	1
1031	9355	10-2	123	50	2
1032	311	11	130	75	2
1033	311	12	128	80	3
1034	513	13	128	55	1
1035	633	17	-	-	-
1036	641	19	130	8	2
1037	695	32	-	45	1
1038	698	33	131	45	1
1039	799	44	-	-	-
1040	815	45	-	-	-
1041	821	46	-	-	-
1042	853	51	-	-	-
1043	1037	55-1	NF	-	-
1044	1037	55-2	NF	-	-
1045	1283	63	-	-	-
1046	1399	67	-	-	-
1047	1683	82	130	65	2
1048	1707	84	145	60	1
1049	1836	90-1	130	60	1
1100	1836	90-2	117	50	1
1101	2718	96	-	-	-
1102	3404	103	131	65	2
1103	406	104	-	-	1
1104	3673	105	131	55	2
1105	9953	106	121	70	2
1106	9181	108	130	50	2
1107	3137	109	-	-	-
1108	3142	110	NF	-	1
1109	12	111	-	-	-
1110	52	112	-	-	-
1111	53	113	-	-	-
1112	262	119	NF	75	1
1113	269	121	NF	-	-
1114	324	122	-	-	-
1115	324	123	NF	-	1
1116	339	124	-	-	-
1117	399	126	130	70	1
1118	629	127	129	65	1
1119	629	129	125	80	1
1120	630	130	130	60	1
1121	631	132	130	75	1
1122	636	133	NF	70	1

*Scored 1-3: 1- least vigorous 3- most vigorous

BEST AVAILABLE COPY

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Table 22 (Contd.)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Plant height in cms	Vigor score
1123	637	134	NF	60	1
1124	702	136	111	65	1
1125	833	139	-	-	-
1126	839	140-1	119	8	2
1127	839	140-2	119	75	1
1128	1418	151	120	85	2
1129	1421	152-1	119	60	1
1130	1421	152-2	-	-	-
1131	1439	153	-	-	-
1132	1487	156	NF	-	2
1133	1596	160-1	129	80	3
1134	1596	160-2	129	65	2
1135	1742	162	NF	-	2
1136	1760	164	130	65	2
1137	1765	166-1	-	-	-
1138	1765	166-2	-	-	-
1139	1774	167	NF	85	3
1140	1777	169-1	NF	-	3
1141	1777	169-2	129	60	3
1142	825	181	129	70	3
1143	2227	184	129	65	2
1144	2628	192	128	90	2
1145	NES 28	197	130	60	2
1146	42	198	NF	-	1
1147	628	203	-	-	-
1148	843	209	-	-	-
1149	1023	212	132	45	2
1150	1077	213	-	-	-
1151	1689	219	120	95	2
1152	1815	221	-	-	-
1153	751	227	129	75	3
1154	1918	229	128	60	3
1155	2046	233	NF	-	1
1156	738	249	NF	-	1
1157	775	253	NF	-	1
1158	780	256	118	65	2
1159	782	258	108	65	2
1160	784	259	-	-	-
1161	827	266	-	-	-
1162	853	270-1	-	-	-
1163	853	270-2	-	-	-
1164	867	275	-	-	-
1165	989	283	NF	-	1
1166	1337	305	-	-	-
1167	1340	307	-	-	-
1168	1345	312	-	-	-
1169	1397	317	-	-	-
1170	1402	321	NF	-	1
1171	1417	326	118	80	1

Table 22 (Contd)

Plot No	Pedigree NES	Origin 73 TR	Days to 50% bloom	Plant height in cms	Vigor score
1172	1440	331	-	-	-
1173	1442	332	-	-	-
1174	1457	336	-	-	-
1175	1463	337	119	60	1
1176	1466	338	NF	-	1
1177	1470	339-1	-	-	-
1178	1470	339-2	-	-	-
1179	1478	342	-	-	-
1180	1482	343-1	-	-	-
1181	1482	343-2	NF	-	1
1182	1519	349	-	-	-
1183	1529	352	130	75	2
1184	1533	353	-	-	-
1185	1542	354	-	-	-
1186	1550	356	-	-	1
1187	1559	360	140	80	2
1188	1582	361	-	-	-
1189	1576	363-1	120	75	2
1190	1576	363-2	120	65	2
1191	1619	365	-	-	-
1192	1626	369-1	138	85	2
1193	1626	369-2	-	-	1
1194	1696	387	136	60	2
1195	1762	394	135	35	2
1196	1773	398	135	6	2
1197	1776	399	NF	-	1
1198	1814	411	-	-	-
1199	2263	435	-	-	-
1200	2398	437	-	-	-
1201	2677	463	-	-	-
	NES				
1202	2715	464	130	70	2
1203	IS 325	465	-	-	-
1204	IS 3922	469	-	-	-
1205	3796(361)	471		-	-
	NES				
1206	1415	477	121	55	2
1207	1458	479	-	-	-
1208	1504	480	120	90	1
1209	1789	481	-	-	1
	IS				
1210	158	485	NF	-	2
1211	174	488	139	85	2
1212	180	489	139	90	2
1213	407	490	NF	-	2
1214	2226	501	NF	-	1
1215	2233	504	140	60	2
1216	2234	505	140	55	1
1217	2927	506	NF	80	2
1218	10258	513	137	75	3
1219	10472	520	NF	-	2
1220	10479	521	NF	-	2

Table 23 (Contd.)

Plot no.	Pedigree NES	Origin 73 TR	Days to 50% bloom	Plant height in cms	Vigor score
1221	3727	526	NF	-	?
1222	3729	528	130	124	?
1223	3730	529	130	115	?