

## **Giza 8: A NEW PEANUT VARIETY**

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### **ABSTRACT**

*Twelve field trials were carried out in 12 locations during 2001 through 2003 seasons to study yield potentiality, pod and seed characters of some local genotypes and new accessions of peanut: *Arachis hypogaea* L. compared with the commercial variety Giza/4. Preliminary (A) and advanced (B) trials were carried out in three research stations that represent different ecological locations, viz Nubaria (Western Delta), Ismailia (Eastern Delta) and South Tahrir. Results indicated that N.A 623 overyielded Giza/4 in the preliminary trials by 3.73 ardab/feddan (21.09%) and in advanced trials by 4.14 ardab/feddan (23.35%). On the basis of these results, verification trials were carried out in farmer's fields in 3 governorates: Nubaria (W.Delta), Sharkia (E.Delta) and Sohag (Upper Egypt) in 2 locations per each governorate. Yield over locations and governorates showed that ZM2447 introduced from USA (N.A. 623) overyielded Giza/4 by 1.53 ardab/feddan (7.61%). At the general overall mean of trials, yield increase over the check variety was 3.13 ardab/feddan (16.9%). Besides N.A. 623 had heavier pods and higher shelling percentage. Association between yield and its components revealed that pod weight and yield/plant were positively correlated with yield of pods/feddan. The selected accession (623) is 20 days earlier than Giza/4. It is to be propagated, registered and released to growers under the name: Giza/8.*

Key words: *Peanut, Arachis hypogaea, New variety, Giza/8, Heritability*

### **INTRODUCTION**

Peanut (*Arachis hypogaea* L.) is a main summer oil crop grown in sandy soils. Besides it is an important cash crop for the growers due to high yielding potentiality in such soils. Area under peanut crop increased from 29338 feddans in 1990 with a mean yield of 11.25 ardab/feddan, to 149127 feddans in 2005 with a mean yield of 18.67 ardab/feddan.

Releasing new high yielding varieties is the main target for the breeders, achieved either by crossing and selection in segregating generations or via selection of high yielding entries from well adapted new accessions under local conditions. In addition, good quality characters, especially pod and seed characters that fulfilling export needs, are also a plus in selecting the most superior entry over a range of environmental conditions that represent the peanut growing areas in Egypt.

Gregory (1962) followed selection method in advanced generations as a method for releasing new varieties. El-Ahmer, and El-Mandoh, (1983) reported the results of 17 yield trials carried out in 4 successive seasons. By selection in advanced generations, they developed the new variety Giza/5 which overyielded the commercial Giza/4 in yield of unshelled nuts by 30.71%. El-Mandoh *et al* (1996) developed the new variety Giza/7 by selection in segregating generations of hybrid progeny lines. This variety overyielded the check variety by 11.05, 8.23 and 14.94% in preliminary (A), advanced (B) and verification trials (D).

El-Ahmer *et al* (1995) studied the relative contribution of yield attributes to the potential yield/plant in 121 peanut genotypes from wide geographical and ecological regions. They reported positive and significant correlation coefficients between pod number/plant, pod weight, seed weight and yield/plant. The relative contribution of yield/plant, no of pods/plant and pod weight to the final yield per unit area was 76.94%. Environmental conditions might change the magnitude of the relationship between these characters and yield/plant. Yadav *et al* (1998) reported high heritability values for yield characters, and high genetic advance for yield/plant, pod and kernel weight. Ayub-Khan *et al* (2000) reported that the highest heritability value was observed for 100 kernel weight which was highly correlated with pod yield. Kernel weight had the highest direct effect on pod yield followed by seeds/pod and sound mature kernel (SMK%). Nazaar-Ali *et al.* (2000), in Pakistan reported high genotypic and phenotypic variance for seed weight. Medium to high heritability estimates were reported for all traits (0.55 – 0.92). High heritability with high genetic advance was reported for seed weight which may indicate the role of additive gene effects, suggesting the potential for further improvement through mass selection. Besides, pod yield was positively and significantly correlated with seed weight and oil content.

## MATERIALS AND METHODS

Twelve field trials were carried out during 2001–2003 seasons to study yield potentiality and quality characters of some promising local peanut genotypes and new accession, compared with the commercial variety Giza/4. Trials were carried out in three stages: preliminary, advanced and verification trials with different plot sizes in different ecological regions to study the effect of the previously environmental conditions on the behaviour and the productivity attributes of the tested entries. Preliminary trials (2001) and advanced trials (2002) were carried out each at 3 different

locations: Eastern Delta (Ismailia Agric. Res. Station), Western Delta (Nubaria Agric. Res. Station) and South Tahrir region.

On farm (verification trials) were carried out in 2003 season at farmer's field in 3 Governorates: Behera, Nubaria (West Delta), Sharkia (East Delta) and Suhag (Upper Egypt) at 2 locations for each. Cultural practices were carried out in all trials as recommendation packages. Sowing was carried out in ridges 60 cm apart and 20 cm between hills. NPK was added at 30/30/24 kg/feddan. P was added during soil preparation. N and K were splitted in 3 equal ammounts added at sowing, 30 and 45 days from sowing. Growth characters were recorded during the season. At harvest, 10 guarded plants were taken randomly from the second row in each plot to study yield and quality characters (pod and seed characters). 100 pods were taken randomly from the second row to study quality characters (100-pod weight (g), 100-seed weight (g) and shelling percentage. Harvest area in these trials were 12 m<sup>2</sup>, 21.m<sup>2</sup> and 1/12 fed (350 m<sup>2</sup>) for preliminary, advanced and verification trials, respectively.

**Table 1. The name and origin of the tested entries.**

| No. | Accession Number |     | Accession Name |          | Origin          |
|-----|------------------|-----|----------------|----------|-----------------|
| 1   | Local            | 179 | Local          | 179      | Egypt           |
| 2   | Local            | 382 | Local          | 382      | Egypt           |
| 3   | New Accession    | 330 | Go             | 119 – 20 | USA             |
| 4   | New Accession    | 338 | NCAC           | 664      | ICRISAT (India) |
| 5   | New Accession    | 356 | ICGM           | 337      | Malawi          |
| 6   | New Accession    | 437 | ICGV           | 87158    | India           |
| 7   | New Accession    | 509 | Local Mixture  |          | Tanzania        |
| 8   | New Accession    | 518 | NC             | 7486     | USA             |
| 9   | New Accession    | 623 | ZM             | 2447     | USA             |

**Table 2. Entries included in the preliminary trials**

|   |               |     |    |                |     |
|---|---------------|-----|----|----------------|-----|
| 1 | Local         | 179 | 6  | New Accession  | 437 |
| 2 | Local         | 382 | 7  | New Accession  | 509 |
| 3 | New Accession | 330 | 8  | New Accession  | 518 |
| 4 | New Accession | 338 | 9  | New Accession  | 623 |
| 5 | New Accession | 356 | 10 | Giza/4 (check) |     |

**Table 3. Entries included in the advanced trials**

|   |               |     |   |                 |     |
|---|---------------|-----|---|-----------------|-----|
| 1 | Local         | 179 | 4 | New Accession   | 518 |
| 2 | Local         | 382 | 5 | New Accession   | 623 |
| 3 | New Accession | 509 | 6 | Giza /4 (check) |     |

### Studied characters

a- Vegetative characters.

- 1- Stem length (cm)                      2- No. of branches/plant.

**B- Yield characters.**

- 1- Pod yield / plant (g).  
2- Yield of unshelled pods/feddan (ardab)

**c- Pod & seed characters.**

- 1- 100-pod weight (g) .              2- 100 – seed weight (g).  
3- Shelling percentage: (seed weight g/pod weight g) x 100

Simple analysis of variance of data was done separately for each environment according to Snedecor and Cochran (1980). The combined analysis of locations was made according to the technique outlined by Steel & Torrie (1967). Correlation studies were practiced according to Johnson *et al* (1995).

## RESULTS AND DISCUSSION

### Preliminary trials

#### Vegetative characters

Analysis of variance for each environment and combined analysis over environments for stem length (cm) and number of branches/plant revealed a significant effect of environmental conditions on both characters; (Table 4) The highest values of stem length over entries was recorded at Ismailia (E<sub>1</sub>) (35.65 cm), whereas the greatest number of branches/plant (4.60) was recorded at South Tahrir (E<sub>2</sub>) (Table 5). With respect to entries over environments the new accession 623 had the longest stem (37.91 cm) whereas the greatest number of branches/plant (4.53) was recorded for the new accession 509. Genotype mean squares as well as environment x genotype effects were also highly significant for both characters (Table 4).

Statistical values, i.e. range, mean and coefficients of variability revealed very small variability (Table 6) for both characters: (7.45 – 8.98) and (6.76 – 8.82). Broad sense heritability values for both characters were high (Table 7), except for stem length in one environment.

Table 4. Mean squares from ordinary and combined analysis in the three locations for vegetative, yield and quality characters (preliminary trials -2001).

| S.V.        | df. |      | Stem length (cm)        |        |        |        | No. of branches /plant |        |       |        |
|-------------|-----|------|-------------------------|--------|--------|--------|------------------------|--------|-------|--------|
|             | Sin | Com. | E1                      | E2     | E3     | Com.   | E1                     | E2     | E3    | Com.   |
| Environment | ... | 2    | ...                     | ...    | ...    | 4.1**  | ...                    | ...    | ...   | 6.3**  |
| Reps        | 3   | 9    | 2.15                    | 11.2   | 7.93   | 7.87   | 0.03                   | 0.08   | 0.17  | 0.09   |
| Genotypes   | 9   | 9    | 113**                   | 129**  | 16.2*  | 159*   | 0.5**                  | 0.5**  | 0.5** | 0.6**  |
| E x G       | ... | 18   | ...                     | ...    | ...    | 49.3** | ...                    | ...    | ...   | 0.45** |
| Error       | 27  | 81   | 8.43                    | 9.07   | 6.88   | 8.17   | 0.07                   | 0.12   | 0.11  | 0.10   |
| L.S.D. 0.05 | ... | ...  | 5.80                    | 4.37   | 3.80   | ...    | 0.39                   | 0.50   | 0.50  | ...    |
|             |     |      | 100-pod weight (g)      |        |        |        | 100-seed weight (g)    |        |       |        |
| Environment | ... | 2    | ...                     | ...    | ...    | 47*    | ...                    | ...    | ...   | 1015*  |
| Reps        | 3   | 9    | 11.3                    | 7.83   | 12.9   |        | 270                    | 855    | 116   | 414    |
| Genotypes   | 9   | 9    | 243**                   | 61.5** | 96**   | 216**  | 431**                  | 5724** | 592** | 7265** |
| E x G       | ... | 18   | ...                     | ...    | ...    | 92.4** | ...                    | ...    | ...   | 1678** |
| Error       | 27  | 81   | 10.2                    | 18.7   | 18.2   | 15.7   | 603                    | 375    | 177   | 385    |
| L.S.D. 0.05 | ... | ...  | 4.62                    | 6.26   | 6.19   |        | 35.6                   | 28.1   | 19.3  |        |
|             |     |      | Pod yield per plant (g) |        |        |        | Shelling percentage    |        |       |        |
| Environment | ... | 2    | ...                     | ...    | ...    | 46.5** | ...                    | ...    | ...   | 685**  |
| Reps        | 3   | 9    | 11.3                    | 7.83   | 12.9   | 10.7   | 12.2                   | 7.96   | 20.6  | 13.6   |
| Genotypes   | 9   | 9    | 243**                   | 62**   | 96**   | 216**  | 61**                   | 127**  | 36**  | 92**   |
| E x G       | ... | 18   | ...                     | ...    | ...    | 92**   | ...                    | ...    | ...   | 66**   |
| Error       | 27  | 81   | 10.2                    | 18.7   | 18.2   | 15.7   | 18.7                   | 21.1   | 3.1   | 17.6   |
| L.S.D. 0.05 | ... | ...  | 4.62                    | 6.26   | 6.19   |        | 6.27                   | 6.65   | 26    |        |
|             |     |      | Yield / feddan (ardab)  |        |        |        |                        |        |       |        |
| S.V.        | df. |      | Yield / feddan (ardab)  |        |        |        |                        |        |       |        |
|             | Sin | Com. | E1                      | E2     | E3     | Com.   |                        |        |       |        |
| Environment | ... | 2    | ...                     | ...    | ...    | 490**  |                        |        |       |        |
| Reps        | 3   | 9    | 16**                    | 5.87   | 17**   | 12.8   |                        |        |       |        |
| Genotypes   | 9   | 9    | 22**                    | 39**   | 12.3** | 38.9   |                        |        |       |        |
| E x G       | ... | 18   | ...                     | ...    | ...    | 17.0   |                        |        |       |        |
| Error       | 27  | 81   | 2.54                    | 5.72   | 2.42   | 3.50   |                        |        |       |        |
| L.S.D. 0.05 | ... | ...  | 3.31                    | 3.47   | 2.17   |        |                        |        |       |        |

E1 : Ismailia, E2 : South Tahrir E3 : Nubaria com = combined analysis

\*, \*\* are significant at 0.05 and 0.01 probability, respectively.

Table 5. Mean performance in the three locations for vegetative, yield and quality characters (preliminary trials-2001).

| Genotypes    | Stem length (cm)    |       |       |       | No. of branches/plant |       |       |       |
|--------------|---------------------|-------|-------|-------|-----------------------|-------|-------|-------|
|              | E1                  | E2    | E3    | com   | E1                    | E2    | E3    | com   |
| 1- L 179     | 38.00               | 36.90 | 32.38 | 35.67 | 4.50                  | 4.85  | 3.60  | 4.32  |
| 2- L 382     | 33.45               | 31.20 | 29.70 | 31.43 | 4.00                  | 4.73  | 3.53  | 4.08  |
| 3- N.A. 330  | 32.65               | 20.85 | 28.55 | 27.35 | 4.25                  | 4.00  | 3.65  | 3.97  |
| 4- N.A. 338  | 41.00               | 29.95 | 27.50 | 32.82 | 3.55                  | 4.68  | 3.58  | 3.93  |
| 5- N.A. 356  | 28.25               | 27.30 | 28.30 | 27.95 | 4.40                  | 4.53  | 4.13  | 4.35  |
| 6- N.A. 437  | 38.95               | 38.98 | 26.43 | 34.12 | 3.40                  | 5.00  | 3.55  | 3.98  |
| 7- N.A. 509  | 38.00               | 35.25 | 29.85 | 34.37 | 4.20                  | 5.05  | 4.35  | 4.53  |
| 8- N.A. 518  | 37.80               | 34.85 | 28.83 | 33.83 | 4.05                  | 4.65  | 3.95  | 4.22  |
| 9- N.A. 623  | 43.08               | 38.05 | 32.60 | 37.91 | 4.10                  | 4.30  | 4.45  | 4.28  |
| Giza/4 check | 26.45               | 28.75 | 27.75 | 27.65 | 3.80                  | 4.20  | 3.55  | 3.85  |
| Mean         | 35.65               | 32.21 | 29.19 | 32.32 | 4.03                  | 4.60  | 3.83  | 4.15  |
|              | 100-pod weight (g)  |       |       |       | 100-seed weight (g)   |       |       |       |
| 1- L 179     | 195.3               | 141.5 | 189.0 | 175.3 | 80.5                  | 84.75 | 63.75 | 76.17 |
| 2- L 382     | 163.9               | 136.4 | 182.3 | 160.9 | 83.75                 | 85.25 | 62.75 | 77.25 |
| 3- N.A. 330  | 187.0               | 234.1 | 195.5 | 205.5 | 71.50                 | 76.00 | 71.75 | 73.08 |
| 4- N.A. 338  | 201.3               | 184.5 | 201.2 | 195.8 | 73.50                 | 92.00 | 61.00 | 75.50 |
| 5- N.A. 356  | 245.9               | 234.0 | 216.2 | 232.0 | 70.00                 | 89.25 | 75.00 | 78.08 |
| 6- N.A. 437  | 138.6               | 165.1 | 173.7 | 159.1 | 74.00                 | 88.00 | 76.50 | 79.50 |
| 7- N.A. 509  | 176.1               | 143.8 | 198.6 | 172.8 | 84.75                 | 69.75 | 76.50 | 77.00 |
| 8- N.A. 518  | 134.9               | 141.9 | 183.5 | 153.4 | 82.50                 | 85.25 | 75.00 | 80.92 |
| 9- N.A. 623  | 202.9               | 207.0 | 188.9 | 199.6 | 82.25                 | 83.75 | 82.50 | 82.83 |
| Giza/4 check | 195.1               | 180.7 | 182.4 | 186.1 | 65.50                 | 81.25 | 62.25 | 69.67 |
| Mean         | 184.1               | 177.0 | 191.1 | 184.1 | 76.83                 | 83.53 | 70.65 | 77.00 |
|              | Pod yield/plant (g) |       |       |       | Shelling percentage   |       |       |       |
| 1- L 179     | 38.25               | 35.25 | 46.25 | 39.92 | 73.00                 | 69.25 | 65.75 | 69.33 |
| 2- L 382     | 34.50               | 35.75 | 38.75 | 36.33 | 70.50                 | 64.25 | 62.50 | 65.75 |
| 3- N.A. 330  | 39.75               | 36.25 | 36.75 | 37.58 | 69.75                 | 60.50 | 65.00 | 65.08 |
| 4- N.A. 338  | 42.25               | 38.50 | 41.25 | 40.67 | 71.00                 | 55.75 | 60.70 | 62.50 |
| 5- N.A. 356  | 37.50               | 45.00 | 38.50 | 40.33 | 78.25                 | 62.00 | 65.70 | 68.67 |
| 6- N.A. 437  | 36.50               | 44.00 | 37.00 | 39.17 | 75.25                 | 57.00 | 66.75 | 66.50 |
| 7- N.A. 509  | 37.25               | 40.50 | 38.00 | 38.58 | 67.50                 | 70.25 | 63.50 | 67.08 |
| 8- N.A. 518  | 32.25               | 38.00 | 44.50 | 38.25 | 64.25                 | 67.25 | 63.50 | 65.00 |
| 9- N.A. 623  | 60.25               | 42.75 | 51.75 | 51.58 | 73.00                 | 72.50 | 71.00 | 72.17 |
| Giza/4 check | 43.50               | 33.75 | 38.50 | 38.58 | 72.00                 | 61.00 | 64.58 | 65.75 |
| Mean         | 40.20               | 38.98 | 41.13 | 40.10 | 71.45                 | 64.03 | 61.25 | 66.68 |

| Genotypes    | Yield/feddan (ardab) |       |       |       |
|--------------|----------------------|-------|-------|-------|
|              | E1                   | E2    | E3    | Comb  |
| 1- L 179     | 14.40                | 22.10 | 15.18 | 17.23 |
| 2- L 382     | 14.40                | 18.68 | 13.65 | 15.58 |
| 3- N.A. 330  | 17.28                | 18.40 | 12.70 | 16.13 |
| 4- N.A. 338  | 15.93                | 23.62 | 14.83 | 18.13 |
| 5- N.A. 356  | 19.18                | 21.03 | 12.13 | 17.44 |
| 6- N.A. 437  | 19.50                | 17.70 | 11.67 | 16.29 |
| 7- N.A. 509  | 14.70                | 19.70 | 12.95 | 15.78 |
| 8- N.A. 518  | 15.78                | 16.45 | 13.55 | 15.26 |
| 9- N.A. 623  | 20.75                | 25.75 | 17.73 | 21.41 |
| Giza/4 check | 15.08                | 24.33 | 13.65 | 17.68 |
| Mean         | 16.70                | 20.78 | 13.80 | 17.09 |

E1 : Ismailia,

E2 : South Tahrir and

E3 : Nubaria

## **Yield characters**

Significant and highly significant mean squares were detected for locations effect on pod yield/plant (g) and yield/ardab per feddan (Table 4). Genotype mean squares were highly significant for pod yield/plant (g), whereas for pod yield/feddan, it was insignificant, in combined analysis while a highly significant effect was detected for the three environments separately in single analysis (Table 4).

Considering genotypes mean performance for these characters in the three environments, the new accession 623 had the highest pod yield/plant giving 60.25, 42.75 and 51.75 g, respectively, with a general mean of 51.53 g, whereas for Giza/4 it was 43.50, 33.75 and 38.50 g respectively with a general mean of 38.58 g (Table 5).

The superior accession 623 also gave the highest yield of pods/feddan. Yield of this accession was 20.75, 25.75 and 17.73 ardab/feddan, with a general mean of 21.41 ardab/feddan, compared with 15.08, 24.33 and 13.65 ardab/feddan for Giza/4 respectively in the three environments with a general mean of 17.68 ardab/feddan (Table 5). Yield increase of the superior accession over Giza/4 was 5.67, 1.42 and 4.08 ardab/feddan in the three environments, respectively.

Environment x genotype interaction was highly significant for pod yield/plant (Table 4). This means that the tested genotypes reacted differently with environments. Coefficient of variation for yield characters was rather low. It ranged from 7.93-11.09 and from 9.55 – 11.51, for yield/plant and per feddan, respectively (Table 6).

In spite of environmental effects and environment x genotypes interaction, results of (Table 7) showed high heritability values for yield/plant: (69.62 – 95.82) and pod yield/feddan (81.82 – 88.43).

## **Pod and seed characters**

Environmental conditions exhibited a significant effect on pod and seed characters, i.e. 100-pod weight (g), 100-seed weight (g) and shelling percentage (Table 4). Results also showed highly significant differences among genotypes in pod and seed characters (Table 4). Mean performance of genotypes in the 3 environments showed that N.A 356, 330 and 623 had the heaviest pod weight: (232.0, 205.5 and 199.6 g), respectively. The heaviest 100-seed weight was obtained from the accessions 518 and 623 (80.92 and 82.83 g) whereas for Giza/4, it was 77.00 g. The superior accession 623 had the highest shelling percentage (72.17%) compared with

**Table 6. Mean, range and coefficient of variation for vegetative, yield and quality characters (preliminary trials-2001).**

| Characters            | Environment  | Mean  | Range       | C.V.% |
|-----------------------|--------------|-------|-------------|-------|
| Stem length (cm)      | Ismailia     | 35.65 | 26.45-43.08 | 8.17  |
|                       | South Tahrir | 32.21 | 20.85-38.98 | 7.45  |
|                       | Nubaria      | 29.19 | 26.32-32.60 | 8.98  |
| No. of branches/plant | Ismailia     | 4.03  | 3.40-4.50   | 6.76  |
|                       | South Tahrir | 4.60  | 4.00-5.05   | 7.45  |
|                       | Nubaria      | 3.83  | 3.53-4.45   | 8.82  |
| 100-pod weight (g)    | Ismailia     | 184.1 | 134.9-245.9 | 13.34 |
|                       | South Tahrir | 177.0 | 136.4-234.1 | 10.95 |
|                       | Nubaria      | 191.1 | 173.7-216.2 | 6.96  |
| 100-seed weight (g)   | Ismailia     | 76.83 | 63.50-84.75 | 6.99  |
|                       | South Tahrir | 83.53 | 69.75-92.00 | 6.86  |
|                       | Nubaria      | 70.65 | 61.00-82.50 | 8.16  |
| Pod yield/plant (g)   | Ismailia     | 40.20 | 32.50-60.25 | 7.93  |
|                       | South Tahrir | 38.98 | 33.75-45.00 | 11.09 |
|                       | Nubaria      | 41.13 | 36.75-51.75 | 10.38 |
| Shelling percentage   | Ismailia     | 71.45 | 64.25-78.25 | 6.05  |
|                       | South Tahrir | 64.03 | 55.75-72.50 | 7.17  |
|                       | Nubaria      | 64.58 | 60.75-71.00 | 5.61  |
| Yield/feddan (ardab)  | Ismailia     | 16.70 | 14.40-20.75 | 9.55  |
|                       | South Tahrir | 20.78 | 16.45-25.76 | 11.51 |
|                       | Nubaria      | 13.80 | 11.67-17.73 | 10.84 |

**Table 7. Genetic components for vegetative, yield and quality characters (preliminary trials-2001) .**

| Characters            | Environment  | Ph. C.v. | G.c.y. | h <sup>2</sup> |
|-----------------------|--------------|----------|--------|----------------|
| Stem length (cm)      | Ismailia     | 14.91    | 14.34  | 92.53          |
|                       | South Tahrir | 17.60    | 16.97  | 92.94          |
|                       | Nubaria      | 6.89     | 5.22   | 57.50          |
| No. of branches/plant | Ismailia     | 8.77     | 8.12   | 85.60          |
|                       | South Tahrir | 7.47     | 6.45   | 74.58          |
|                       | Nubaria      | 8.97     | 8.22   | 83.90          |
| 100-pod weight (g)    | Ismailia     | 17.75    | 16.77  | 88.50          |
|                       | South Tahrir | 21.37    | 20.66  | 93.44          |
|                       | Nubaria      | 6.37     | 5.33   | 70.07          |
| 100-seed weight (g)   | Ismailia     | 8.78     | 8.03   | 84.07          |
|                       | South Tahrir | 7.82     | 7.02   | 80.74          |
|                       | Nubaria      | 10.85    | 10.05  | 85.85          |
| Pod yield/plant (g)   | Ismailia     | 19.39    | 18.88  | 95.82          |
|                       | South Tahrir | 10.06    | 8.39   | 69.62          |
|                       | Nubaria      | 11.91    | 10.72  | 80.99          |
| Shelling percentage   | Ismailia     | 5.46     | 4.55   | 69.27          |
|                       | South Tahrir | 8.79     | 8.03   | 83.36          |
|                       | Nubaria      | 4.65     | 3.71   | 63.57          |
| Yield/feddan (ardab)  | Ismailia     | 14.03    | 13.19  | 88.43          |
|                       | South Tahrir | 14.94    | 13.78  | 85.15          |
|                       | Nubaria      | 12.72    | 11.50  | 81.82          |



66.68% for Giza/4. In other word, it exceeding all the tested genotypes and the check cultivar. These results indicated that Accession 623 is characterized by larger pods, heavier seeds as well as higher shelling percentage (Table 5).

A highly significant interaction effect of G x E was also reported for these characters, indicating the impact of environmental conditions on the behavior of genotypes (Table 4). From these results it can be concluded that N.A. 623 proved its superiority over all the tested genotypes and the check cultivar in pod and seed characters and pod yield/feddab (ardab).

### Correlation studies

Data obtained showed a highly positive association between pod yield/plant and pod yield/feddab in one location only (Table 8).

**Table 8. Correlation coefficients between yield and quality characters (preliminary trials-2001).**

| Characters               | Environment | 100-pod weight (g) | 100-seed weight (g) | Shelling % | Yield/ Plot (kg) | Yield/ feddan (ardab) |
|--------------------------|-------------|--------------------|---------------------|------------|------------------|-----------------------|
| Weight of pods/plant (g) | Ismailia    | 0.42               | -0.04               | 0.26       | 0.54             | 0.54                  |
|                          | S.Tahrir    | 0.35               | 0.23                | 0.01       | -0.06            | -0.00                 |
|                          | Nubaria     | -0.10              | 0.25                | 0.55       | 0.90             | 0.90                  |
| 100-pod weight (g)       | Ismailia    |                    | -0.42               | 0.60       | 0.23             | 0.22                  |
|                          | S. Tahrir   |                    | 0.09                | -0.30      | 0.30             | 0.31                  |
|                          | Nubaria     |                    | 0.07                | -0.05      | -0.07            | -0.00                 |
| 100-seed weight (g)      | Ismailia    |                    |                     | -0.50      | -0.21            | -0.20                 |
|                          | S.Tahrir    |                    |                     | -0.45      | 0.16             | 0.16                  |
|                          | Nubaria     |                    |                     | -0.75      | 0.02             | 0.02                  |
| Shelling %               | Ismailia    |                    |                     |            | 0.55             | 0.55                  |
|                          | S. Tahrir   |                    |                     |            | 0.11             | 0.14                  |
|                          | Nubaria     |                    |                     |            | 0.38             | 0.32                  |

### Advanced trials

#### Vegetative characters

Combined analysis revealed a highly significant effect for environmental conditions on stem length and number of branches/plant. (Table 9). Genotype mean squares as well as environment x genotype interaction were also highly significant (Table 9). Environmental conditions at Nubaria were less favorable for plant growth compared with the two others. Considering genotypes, the longest stem was exhibited for the superior accession 623 (36.34 cm) whereas the highest number of branches/plant (4.692) was recorded for Local 179 (Table 10). Coefficient of variability for both characters was rather low (4.97-6.80) and 3.57 – 6.25) (Table 11).

Table 9. Mean squares from ordinary and combined analysis in the three locations for vegetative, yield and quality characters (advanced trials-2002).

| S.V.        | df. |      | Stem length (cm)       |        |        |         | No. of branches/plant |       |        |        |
|-------------|-----|------|------------------------|--------|--------|---------|-----------------------|-------|--------|--------|
|             | Sin | Com. | E1                     | E2     | E3     | Com.    | E1                    | E2    | E3     | Com.   |
| Environment | ... | 2    | ...                    | ...    | ...    | 625**   | ...                   | ...   | ...    | 0.35*  |
| Reps        | 3   | 9    | 21.6                   | 1.81   | 1.11   | 8.15    | 0.10                  | 0.00  | 0.12   | 0.07   |
| Genotypes   | 5   | 5    | 93.7*                  | 8.12   | 11.5*  | 29**    | 0.36*                 | 0.13* | 0.38*  | 0.47** |
| E x G       | ... | 10   | ...                    | ...    | ...    | 42**    | ...                   | ...   | ...    | 0.2**  |
| Error       | 15  | 45   | 6.73                   | 3.46   | 2.77   | 4.32    | 0.08                  | 0.06  | 0.06   | 0.05   |
| L.S.D. 0.05 | ... | ...  | 3.80                   | 2.75   | 2.46   |         | 0.44                  | 0.22  | 0.35   |        |
| S.V.        | df. |      | 100 pod weight (g)     |        |        |         | 100 seed weight (g)   |       |        |        |
|             | Sin | Com. | E1                     | E2     | E3     | Com.    | E1                    | E2    | E3     | Com.   |
| Environment | ... | 2    | ...                    | ...    | ...    | 12154** | ...                   | ...   | ...    | 120    |
| Reps        | 3   | 9    | 1049                   | 476    | 106    | 541     | 45.3                  | 102   | 7.56   | 51.7   |
| Genotypes   | 5   | 5    | 2033**                 | 1882** | 862**  | 2352**  | 127                   | 174   | 38.4** | 180**  |
| E x G       | ... | 15   | ...                    | ...    | ...    | 1212**  | ...                   | ...   | ...    | 79.1   |
| Error       | 15  | 45   | 345                    | 393    | 114    | 284     | 73.4                  | 67.3  | 8.46   | 49.7   |
| L.S.D. 0.05 | ... | ...  | 28.0                   | 29.3   | 15.8   |         | 12.9                  | 12.1  | 4.29   |        |
| S.V.        | df. |      | Pod yield / plant (g)  |        |        |         | Shelling percentage   |       |        |        |
|             | Sin | Com. | E1                     | E2     | E3     | Com.    | E1                    | E2    | E3     | Com.   |
| Environment | ... | 2    | ...                    | ...    | ...    | 77**    | ...                   | ...   | ...    | 10.3   |
| Reps        | 3   | 9    | 3.54                   | 16.9*  | 3.00   | 7.83    | 4.44                  | 10.2  | 2.00   | 5.53   |
| Genotypes   | 5   | 5    | 66.4 <sup>ij</sup>     | 55.3** | 27.1** | 110**   | 60**                  | 53**  | 22.7** | 84.4** |
| E x G       | ... | 10   | ...                    | ...    | ...    | 19.2**  | ...                   | ...   | ...    | 25.4** |
| Error       | 15  | 45   | 9.52                   | 4.18   | 3.40   | 3.38    | 5.84                  | 5.39  | 3.93   | 4.82   |
| L.S.D. 0.05 | ... | ...  | 0.39                   | 3.02   | 2.72   |         | 3.64                  | 3.43  | 26.6   |        |
| S.V.        | df. |      | Yield / feddan (ardab) |        |        |         |                       |       |        |        |
|             | Sin | Com. | E1                     | E2     | E3     | Com.    |                       |       |        |        |
| Environment | ... | 2    | ...                    | ...    | ...    | 259**   |                       |       |        |        |
| Reps        | 3   | 9    | 2.43                   | 1.81   | 2.33   | 2.19    |                       |       |        |        |
| Genotypes   | 5   | 5    | 52**                   | 40**   | 22**   | 95.2**  |                       |       |        |        |
| E x G       | ... | 10   | ...                    | ...    | ...    | 9.18*   |                       |       |        |        |
| Error       | 15  | 45   | 7.27                   | 1.03   | 3.74   | 4.01    |                       |       |        |        |
| L.S.D. 0.05 | ... | ...  | 3.98                   | 1.50   | 2.86   |         |                       |       |        |        |

E1 : Ismailia

E2 : South Tahrir

E3 : Nubaria

**Table 10. Mean performance in the three locations for vegetative, yield and quality characters (advanced trials-2002).**

| Genotypes    | Stem length (cm)     |       |       |       | No. of branches/plant |       |       |       |
|--------------|----------------------|-------|-------|-------|-----------------------|-------|-------|-------|
|              | E1                   | E2    | E3    | comb  | E1                    | E2    | E3    | comb  |
| 1- L 382     | 31.20                | 34.55 | 30.40 | 32.50 | 4.175                 | 4.000 | 4.200 | 4.125 |
| 2- L 179     | 37.58                | 38.00 | 29.85 | 35.14 | 4.850                 | 4.500 | 4.725 | 4.692 |
| 3- N.A. 509  | 35.25                | 38.00 | 30.95 | 34.73 | 4.650                 | 4.200 | 4.025 | 4.292 |
| 4- N.A. 518  | 37.60                | 37.80 | 28.50 | 34.60 | 4.650                 | 4.050 | 4.300 | 4.333 |
| 5- N.A. 623  | 43.15                | 38.35 | 27.53 | 36.34 | 4.150                 | 4.275 | 4.700 | 4.375 |
| Giza/4 check | 44.05                | 37.90 | 26.68 | 36.21 | 4.250                 | 4.250 | 4.075 | 4.192 |
| Mean         | 38.14                | 37.43 | 28.97 | 34.85 | 4.454                 | 4.212 | 4.337 | 4.335 |
|              | 100-pod weight (g)   |       |       |       | 100-seed weight (g)   |       |       |       |
| 1- L 382     | 123.7                | 164.5 | 190.4 | 159.5 | 85.25                 | 85.25 | 81.25 | 83.92 |
| 2- L 179     | 144.9                | 202.6 | 183.7 | 177.4 | 84.75                 | 84.75 | 76.50 | 82.00 |
| 3- N.A. 509  | 136.8                | 172.0 | 215.9 | 174.9 | 76.00                 | 69.75 | 83.50 | 76.42 |
| 4- N.A. 518  | 153.5                | 143.6 | 173.8 | 157.0 | 85.25                 | 85.25 | 82.75 | 84.42 |
| 5- N.A. 623  | 190.3                | 195.1 | 201.7 | 195.7 | 92.00                 | 87.25 | 84.50 | 87.92 |
| Giza/4 check | 145.6                | 181.7 | 197.0 | 174.8 | 90.50                 | 86.25 | 78.50 | 85.08 |
| Mean         | 149.2                | 176.7 | 193.7 | 173.2 | 85.63                 | 83.08 | 81.17 | 83.29 |
|              | Pod yield/plant (g)  |       |       |       | Shelling percentage   |       |       |       |
| 1- L 382     | 33.58                | 36.50 | 41.25 | 37.11 | 64.25                 | 70.25 | 64.75 | 66.42 |
| 2- L 179     | 39.63                | 40.00 | 39.25 | 39.63 | 69.25                 | 73.00 | 69.00 | 70.42 |
| 3- N.A. 509  | 39.43                | 37.25 | 44.25 | 40.31 | 70.25                 | 67.50 | 70.75 | 69.50 |
| 4- N.A. 518  | 35.60                | 37.50 | 39.75 | 37.62 | 67.25                 | 64.25 | 69.50 | 67.00 |
| 5- N.A. 623  | 45.45                | 46.25 | 44.00 | 45.23 | 74.50                 | 74.00 | 70.50 | 73.00 |
| Giza/4 check | 39.28                | 42.00 | 45.50 | 42.25 | 64.50                 | 68.25 | 66.50 | 66.42 |
| Mean         | 38.83                | 39.92 | 42.22 | 40.63 | 68.33                 | 69.54 | 68.50 | 68.69 |
|              | Yield/ferdan (ardab) |       |       |       |                       |       |       |       |
| Genotypes    | E1                   | E2    | E3    | Comb  |                       |       |       |       |
| 1- L 382     | 18.68                | 12.83 | 11.56 | 14.35 |                       |       |       |       |
| 2- L 179     | 22.10                | 15.60 | 14.58 | 17.43 |                       |       |       |       |
| 3- N.A. 509  | 19.70                | 14.70 | 12.60 | 15.67 |                       |       |       |       |
| 4- N.A. 518  | 16.45                | 15.78 | 11.13 | 14.45 |                       |       |       |       |
| 5- N.A. 623  | 29.83                | 22.00 | 17.33 | 21.87 |                       |       |       |       |
| Giza/4 check | 23.88                | 14.65 | 14.65 | 17.73 |                       |       |       |       |
| Mean         | 21.18                | 15.92 | 13.64 | 16.92 |                       |       |       |       |

## Yield characters

Highly significant effect of environmental conditions was indicated for pod yield/plant (g) and pod yield/feddab (ardab) (Table 9). Mean squares showed highly significant differences among genotypes in yield characters and also a significant effect of environment x genotype (Table 9). Environmental conditions had a clear effect on pod yield/feddab (ardab). Ismailia ranked first, followed by South Tahrir and Nubaria. Pod yield/feddab for the same locations were 21.18, 15.92 and 13.64 ardab/feddab, respectively.

Considering genotypes, the superior accession 623 ranked first for the 3 characters, giving 21.87 ardab/feddab as a general overall mean of locations compared with 17.73 ardab/feddab for Giza/4 (Table 10).

From these results, it is clear that superior accession 623 was higher than the check cultivar by 4.14 ardab/feddab as an overall mean of locations. Mean, range and coefficient of variation for pod yield/feddab was rather high (Table 11). High heritability values were reported for this character in the 3 locations. (Table 12).

Table 11. Mean, range and coefficient of variation for vegetative, yield and quality characters (advanced trials-2002).

| Characters            | Environment  | Mean  | Range       | C.V. % |
|-----------------------|--------------|-------|-------------|--------|
| Stem length (cm)      | Ismailia     | 38.14 | 31.20-44.05 | 6.80   |
|                       | South Tahrir | 37.43 | 34.55-38.35 | 4.97   |
|                       | Nubaria      | 28.97 | 26.68-30.95 | 5.74   |
| No. of branches/plant | Ismailia     | 4.45  | 4.15-4.85   | 6.52   |
|                       | South Tahrir | 4.21  | 4.00-4.50   | 3.57   |
|                       | Nubaria      | 4.34  | 4.03-4.73   | 5.45   |
| 100-pod weight (g)    | Ismailia     | 149.2 | 123.7-190.3 | 12.45  |
|                       | South Tahrir | 176.7 | 143.6-202.6 | 11.22  |
|                       | Nubaria      | 193.7 | 173.8-215.9 | 5.52   |
| 100-seed weight (g)   | Ismailia     | 85.63 | 76.00-92.00 | 10.0   |
|                       | South Tahrir | 83.08 | 69.75-87.25 | 9.87   |
|                       | Nubaria      | 81.17 | 76.50-84.50 | 3.58   |
| Pod yield/plant (g)   | Ismailia     | 38.83 | 33.58-45.45 | 4.13   |
|                       | South Tahrir | 39.92 | 36.50-46.25 | 5.12   |
|                       | Nubaria      | 42.33 | 39.25-45.50 | 4.36   |
| Shelling percentage   | Ismailia     | 68.33 | 64.25-74.50 | 3.54   |
|                       | South Tahrir | 69.54 | 64.25-74.00 | 3.34   |
|                       | Nubaria      | 68.50 | 64.75-70.75 | 2.63   |
| Yield/feddab (ardab)  | Ismailia     | 21.18 | 16.45-26.30 | 12.73  |
|                       | South Tahrir | 15.92 | 12.83-22.00 | 6.36   |
|                       | Nubaria      | 13.64 | 11.13-17.33 | 14.18  |

**Table 12. Genetic components for vegetative, yield and quality characters (advanced trials-2002).**

| Characters            | Environment  | Ph. C.v. | G.c.v. | h <sup>2</sup> |
|-----------------------|--------------|----------|--------|----------------|
| Stem length (cm)      | Ismailia     | 12.69    | 12.23  | 92.82          |
|                       | South Tahrir | 3.81     | 2.88   | 57.44          |
|                       | Nubaria      | 5.86     | 5.11   | 69.10          |
| No. of branches/plant | Ismailia     | 6.74     | 5.90   | 76.67          |
|                       | South Tahrir | 4.25     | 3.83   | 81.25          |
|                       | Nubaria      | 7.07     | 6.52   | 85.11          |
| 100-pod weight (g)    | Ismailia     | 15.11    | 13.77  | 83.05          |
|                       | South Tahrir | 12.27    | 10.92  | 79.12          |
|                       | Nubaria      | 7.57     | 7.05   | 86.74          |
| 100-seed weight (g)   | Ismailia     | 6.567    | 4.25   | 41.95          |
|                       | South Tahrir | 7.94     | 6.21   | 61.29          |
|                       | Nubaria      | 3.82     | 3.37   | 77.69          |
| Pod yield/plant (g)   | Ismailia     | 10.49    | 10.29  | 96.20          |
|                       | South Tahrir | 9.31     | 8.95   | 92.44          |
|                       | Nubaria      | 6.15     | 5.75   | 87.44          |
| Shelling percentage   | Ismailia     | 5.67     | 5.39   | 90.25          |
|                       | South Tahrir | 5.23     | 4.96   | 89.82          |
|                       | Nubaria      | 3.48     | 3.22   | 85.76          |
| Yield/feddān (ardab)  | Ismailia     | 17.04    | 15.81  | 86.04          |
|                       | South Tahrir | 19.76    | 19.50  | 97.74          |
|                       | Nubaria      | 17.09    | 15.55  | 82.80          |

#### Pod and seed characters:

Environmental conditions had a significant effect on pod and seed characters. Mean squares revealed highly significant differences among genotypes in pod weight, seed weight and shelling percentage (Table 9). Pod and seed characters showed that the highest value of 100-pod weight (g) was obtained under Nubaria conditions, followed by South Tahrir (Table 10).

Considering genotypes, the superior accession 623 gave the highest value of 100- pod weight in the 3 locations, exceeding all the other tested genotypes and Giza/4 , giving 190.3, 195.1 and 201.7 g, compared with 149.2, 176.7 and 193.7 g for Giza/4. The new accession 623 gave also the highest 100-seed weight (g) in the 3 locations, exceeding the tested genotypes and the check cultivar having 92.00 , 87.25 and 84.50 g in the 3 locations, compared with 85.63, 83.08 and 81.17 g. For Giza/4. The highest shelling percentage was also obtained for the accession 623 in the three locations: 74.50%, 74.00% and 70.50% (Table 10). 100-pod weight showed a high coefficient of variation in the first two locations (12.45) and 11.22%). Genotype x environment interaction was significant for pod characters (100-pod weight and shelling percentage), whereas genotype x environment interaction had no significant effect on 100-seed weight.

## Correlation studies

Results obtained in Table (13) revealed that pod yield/plant was significantly and positively correlated with pod yield/feddan: 0.86, 0.85 at Ismailia and South Tahrir, respectively. 100-pod weight was the main character affecting pod yield/plant and significantly correlated with it over locations (0.83, 0.65 and 0.80). This character can be used as an indicator for yield potentiality of a genotype in early generations in breeding programs. These findings are in agreement with those reported by El-Ahmer, and El-Mandoh, (1990), El-Ahmer *et al* (1995) and Nazaar-Ali *et al* (2000).

Table 13: Correlation coefficients between yield and quality characters (advanced trials-2002).

| characters           | Environment | 100-pod weight (g) | 100-seed weight (g) | Shelling % | Yeild/feddan (ardab) |
|----------------------|-------------|--------------------|---------------------|------------|----------------------|
| Weight of pods/plant | Ismailia    | 0.83 *             | 0.36                | 0.84 *     | 0.86 *               |
|                      | S.Tahrir    | 0.65 *             | 0.46                | 0.62       | 0.85 *               |
|                      | Nubaria     | 0.80 *             | 0.29                | 0.04       | 0.44                 |
| 100-pod weight (g)   | Ismailia    |                    | 0.59                | 0.78       | 0.64                 |
|                      | S. Tahrir   |                    | 0.14                | 0.87 *     | 0.42                 |
|                      | Nubaria     |                    | 0.37                | 0.27       | 0.33                 |
| 100-seed weight (g)  | Ismailia    |                    |                     | 0.03       | 0.61                 |
|                      | S.Tahrir    |                    |                     | 0.31       | 0.29                 |
|                      | Nubaria     |                    |                     | 0.44       | -0.04                |
| Shelling %           | Ismailia    |                    |                     |            | 0.50                 |
|                      | S. Tahrir   |                    |                     |            | 0.50                 |
|                      | Nubaria     |                    |                     |            | 0.32                 |
| Yield/plot (Kg)      | Ismailia    |                    |                     |            | 1.00 *               |
|                      | S.Tahrir    |                    |                     |            | 1.00 *               |
|                      | Nubaria     |                    |                     |            | 1.00 *               |

## Verification trials

These trials were carried out to study yield potentiality of the promising Accession 623 compared with the local commercial cultivar Giza/4 under farmer's conditions. Trials were carried out in 3 differently ecological regions of the country, Nubaria location Behera Governorate (Western Delta), Sharkia Governorate (Eastern Delta) and Sohag Governorate (Upper Egypt). Trials were carried out in 2 sites for each Governorate, where the two varieties were growing by the usual cultural practices of the farmer.

Accession 623 was superior and overyielded Giza/4 in pod yield/feddan (Table 14). Pod yield increase was (0.81 – 2.06) ardab/feddan with a general mean of 1.53 ardab/feddan. However, yield increase under the conditions of Western and Eastern Delta was 2.06 and 1.70 ardab/feddan, respectively. From this and the previous results and experience, it was decided to release the superior accession as a new variety named Giza/8.

Table 14. Mean Yield (ardab/feddan) of the superior Accession 623 compared with the commercial cultivar Giza 4 in the different locations in 2003.

| Governorates         | Accession 623 |        |       | Giza 4 |        |       | Yield increase of 623 over |
|----------------------|---------------|--------|-------|--------|--------|-------|----------------------------|
|                      | Site 1        | Site 2 | Mean  | Site 1 | Site 2 | Mean  |                            |
| Behera (West. Delta) | 20.10         | 17.43  | 18.76 | 17.70  | 15.70  | 16.70 | + 2.06                     |
| Sharkia (East Delta) | 26.22         | 25.82  | 26.02 | 24.82  | 23.83  | 24.32 | + 1.70                     |
| Sohag (Upper Egypt)  | 21.57         | 18.66  | 20.11 | 21.74  | 16.86  | 19.30 | + 0.81                     |
| Mean                 | ---           | ---    | 21.63 | ---    | ---    | 20.10 | + 1.53                     |

Considering local prices of unshelled peanut during 2004 (200 L.E./ardab), increase in net income of farmers due to introducing this variety is about (628.00 L.E) than the check variety (Table 15).

Table 15: Average pod yield (ardab/feddan) of the new variety Giza/8 compared to Giza/4 during 2001 – 2003.

| Genotypes      | Years of trials |       |       | Mean  | % yield increase over Giza/4 | Value of increase (L.E.)* |
|----------------|-----------------|-------|-------|-------|------------------------------|---------------------------|
|                | 2001            | 2002  | 2003  |       |                              |                           |
| Giza/8         | 21.41           | 21.87 | 21.63 | 21.64 | 16.97                        | 628.00                    |
| Giza/4 (check) | 17.68           | 17.73 | 20.10 | 18.50 | ---                          | -                         |

\*:According to price market of ardab in 2004 (L.E.200).

From the results of all the studied traits it could be concluded that the N.A. 623 was superior and outyielded the check variety (Giza/4) by 3.73, 4.14 and 1.53 ardab/feddan in preliminary, advanced and verification trials, respectively, with a general mean of 3.13 ardab/feddan; i.e. 16.9%.

### Variety Description of Giza/8 variety

The new released Giza/8 variety is of the spreading type, has high yielding potentiality with good pod and seed characters. It is an early ripening (maturity) variety compared with the check cultivar Giza/4, as it matures seeds after 130 days from sowing compared to 150 days for Giza/4. It is also characterized by seed dormancy after maturity.

The description of the new accession according to the Union Protection of Varieties (UPOV) could be summarized as follows:

**1- Growth period.** 130 days from emergence.

## 2- Growth characters.

- 2.1. Growth habit : semi spreading type (Decumbent – 3) .
- 2.2. Branching pattern: alternate.
- 2.3. Leaf color : light green .
- 2.4. Leaf shape : obovate .

## 3- Pod characters.

- 3.1. Pod beak: prominent.
- 3.2. Pod constriction : slight.
- 3.3. No. of seeds / pod: almost 2.
- 3.4. 100-sound pod weight : 230 gm .

## 4- Seed characters :

- 4.1. 100-mature seed weight : 110 gm .
- 4.2. Seed color : rose.

Giza/8 will be registered and seeds will be available to farmers before the growing season of 2006.

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### جيزة / ٨ : صنف جديد من الفول السوداني

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٢ محطة البحوث الزراعية بالإسماعيلية .

أجريت تجارب خلال الفترة ٢٠٠١ - ٢٠٠٣ اشتملت تجارب أولية (أ) ومتقدمة (ب) وتأكيدية بحقول الزراع (د) لتقييم الإنتاجية وصفات القرون والبذور لعدد من السلالات المحلية والمستوردات مقارنة بالصنف التجاري جيزة/٤.

أقيمت التجارب الأولية والمتقدمة عامي ٢٠٠١، ٢٠٠٢ بمحطات البحوث الزراعية في ثلاث مناطق ذات ظروف بيئية مختلفة : منطقة النوبارية (غرب الدلتا) والإسماعيلية (شرق الدلتا) ومنطقة جنوب التحرير أظهرت النتائج تفوق السلالة المستوردة ٦٢٣ على الصنف التجاري جيزة/٤ على المستوى العام للتجارب الأولية بمقدار ٣,٧٣ أردب (فدان) (٢١,٠٩%) وعلى المستوى العام للتجارب المتقدمة بمقدار ٤,١٤ أردب/فدان (٢٣,٣٥%).

وعلى ضوء هذه النتائج تم إدخال المستورد ٦٢٣ مقارنة بالصنف جيزة / ٤ فى تجارب تأكيدية (د) بحقول المزارعين فى ثلاث محافظات : النوبارية (غرب الدلتا) ، الشرقية (شرق الدلتا) وسوهاج (مصر العليا) فى موقعين بكل محافظة . وأظهرت هذه التجارب تفوق السلالة (ZM2447) المستورد ٦٢٣ بمقدار ١,٥٣ أردب / فدان (٧,٦١) % .

وعلى المستوى العام لتجارب (أ) ، (ب) ، (د) كان مقدار الزيادة فى محصول السلالة المستوردة ٦٢٣ عن الصنف التجاري ٣,١٣ أردب / فدان (١٦,٩) %.

تعيىز هذا المستورد بزيادة وزن القرون ، نسبة التصافى % عن الصنف جيزة / ٤ ، كما أظهرت الدراسات وجود ارتباط عالى وموجب بين وزن القرون مع محصول الفدان بالأردب . يتميز هذا المستورد بالتكبير فى النضج بحوالي ٢٠ يوم عن الصنف جيزة / ٤ . سيتم تسجيل هذا المستورد (٦٢٣) كصنف تجاري تحت اسم : (جيزة / ٨).

المجلة المصرية لتربية النبات: ١٠ (١): ١٣-٢٩ (٢٠٠٦)