

## **GEMMEIZA 11 – A NEW EGYPTIAN HIGH YIELDING BREAD WHEAT (*Triticum aestivum* L.) CULTIVAR**

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### **ABSTRACT**

The newly bread wheat cultivar Gemmeiza 11 has been selected from a local cross made at Gemmeiza Agricultural Research Station, Wheat Research Dept. FCRI, ARC, Egypt, using the pedigree method.

Yield evaluation was performed through 10 preliminary yield trials in 2005/2006, 65 advanced yield trials in 2006/2007 and 2007/2008 growing seasons, 66 verification yield trials in 2009/2010, 2010/2011 and 2011/2012 seasons in addition to 106 demonstration fields in 2011/2012 growing season. Results proved the superiority of the new bread wheat cultivar Gemmeiza11 compared to the commercial check cultivars Sakha 93, Sakha 94, Gemmeiza 9 and Shandaweel 1 in the most of different zones with a few exceptions. However, at the level of over all mean of the check cultivars across the locations at different climatic zones, the new cultivar mean yield exceeded significantly all the check cultivars means in both 2006/2007 and 2007/2008 growing seasons. Thus, we can highly recommend the new cultivar Gemmeiza 11 to be grown all over zones of Egypt. Moreover, the results of the verification yield trials ensure the superiority of Gemmeiza11 on the commercial wheat cultivars Sakha 93, Giza 168 and Gemmeiza 9 at North, Middle and South Delta, but at Middle Egypt its yield was less than the check cultivars Sakha 93 and Giza 168 and it was nearly equal at Upper Egypt. The obtained results of the new cultivar in the demonstration fields achieved 28.38 ard /fed in four governorates in Middle and South Delta compared to the mean of the five check cultivars which yielded 24.162 ard / fed with an increment of 4.128 ard / fed (17.46%).

## INTRODUCTION

Wheat in Egypt is considered as the main winter cereal crop .The cultivated area reached about 3 million feddens in the year of 2011/2012. Wheat is the main human staple food for urban and rural societies and a major source of straw as fodder for animal feeding.

The national wheat production is insufficient to meet our local consumption since no feasible to increase the area devoted to wheat in old lands and thinking to the solution seems to be expanding into new lands which characterized by its low fertility, and due to the shortage of available irrigation water this also a main opstical as well as many other problems.

Increasing production per unit area appears to be the mainly possible alternative of reducing the wheat production gap. The required yield increases may be achieved by introducing high-yielding cultivars and simultaneously implementing improved cultural practices. Such improved varieties must resist or tolerate the unfavorable environments and be stable in broad spectrum of environments.

Since mid-1970's, the Egyptian wheat program has applied the strategy of separating macro-environment differences such as temperature, rainfall and soil type to a closely identified sub-regions with a relatively uniform environment with their recommended cultivars. According to this strategy, five main macroclimatic zones were identified namely, North Delta, South Delta, Middle Egypt, Upper Egypt (i.e. the old land) and Out Valley (the new reclaimed area) at West Delta and New Valley. The first two zones are usually subjected to rust diseases ( stripe ,leaf and stem rusts) while, Upper Egypt is under heat stress. In addition , the main stress prevailing in the new lands may be drought , salinity and heat stresses. Meanwhile, Middle Egypt zone characterized by its high fertility . One or more of these stresses in the different zones are being considered in the National Wheat Research Program aiming to grow more than one cultivar in each region to overcome such stresses.

Current policy of the Egyptian National Wheat Program favors use of more than one cultivar in a given location therefore, more varieties with wider adaptability are thought to improve yield potentially. However, developing narrowly adapted or site specific varieties to specific zones or locations must not be ignored.

The National Wheat Research Program had released the two varieties Giza 157 and Sakha 8 in mid -1970's (Gomma *et al.*, 1979). Giza 157 was recommended for South Delta and Middle Egypt, while Sakha 8 was released for salinity affected soils .

In the early 1980's, two bread wheat varities were released, Sakha 61 for Delta region and Sakha 69 to be planted allover Egypt due to its wider adaptability (Gomma *et al.*, 1984). Moreover, five more new bread wheat cultivars were released during the nineties namely Gemmeiza 1 and Giza 165 (Abdel-Shafi *et al.*, 1991); Sids 1 (Ghanem *et al.*, 1996), Gemmeiza 3 (El-Sayed *et al.*, 1997) and Gemmeiza 5 (Mitkees *et al.*, 1998).

The Egyptian wheat breeders through their continuous efforts had released the two cultivars Sakha 93 and Giza 168 which were characterized by their high resistance to stripe rust and high yielding ability (Shehab El-Din *et al.*, 1999). In addition, the wheat cultivar Gemmeiza 9 proved its superiority as compared with the commercial wheat cultivars Sakha 93, Sids 1 and Gemmeiza 5 as well as its highly resistance to the three rust diseases (Mosaad *et al.*, 2000). In different successive series, further bread wheat cultivars were released, i.e. Gemmeiza 10 (El-Shami *et al.*, 2005), Sakha 94 (Shehab El-Din *et al.*, 2005), Sids 12 (Mahrous *et al.*, 2009) and Sids 13 (Moustafa *et al.*, 2010).

Following up grain yield of the released cultivars over the past 50 years ensure that the new cultivars always yielded more than the old ones. This genetic yield increase amounted 211% with 4.2% increase per year during the 50 years period since 1950 till the year of 2000 (Ageez *et al.*, 1999). Wheat yield have increased gradually over the past 50 years from 4.95 ard/ fed in the year 1950 to 17.8 ard/fed in the year 2000 mainly due to the continuous genetic improvement of wheat germplasm in the breeding program.

The objective of this work is to assess grain yield and stability parameters for the new bread wheat cultivar Gemmeiza 11 compared to the superior Egyptian commercial wheat cultivars in five agro-climatic zones of the old lands as well as the new reclaimed areas.

## MATERIALS AND METHODS

The newly bread wheat cultivar Gemmeiza 11 has been selected from a local cross made by wheat breeders at Gemmeiza Agricultural Research Station, Wheat Research Dept. ARC., using the pedigree method. The pedigree and selection history of this cross is:

Bow"s"/ Kvz // 7C / Seri 82 /3/ Giza 168 / Sakha 61  
CGM 7892 – 2GM-1GM-2GM-OGM

Gemmeiza 11 was advanced to Gemmeiza wheat screening nursery in 2004/2005 growing season. Afterwards, Gemmeiza 11 was tested in 10 preliminary yield trials in 2005/2006 season in the National Wheat Research Program compared with the commercial wheat cultivars dominated through this period. In 2006/2007 and 2007/2008 growing seasons, Gemmeiza 11 was evaluated in the advanced yield trials where 65 advanced yield trials were conducted at North Delta ,South Delta, Middle Egypt, Upper Egypt and Out Valley .

The experimental plot area was 6 rows, 4 m long and 20 cm apart (4.8 m<sup>2</sup>) in the screening and preliminary yield trials and the harvested area was (3.2 m<sup>2</sup>) after removing the two outer rows to eliminate the border effect. Meanwhile, the plot area was 10.5 m<sup>2</sup> in the advanced yield trials. The Randomized Complete Block Design (RCBD) with 4 replicates was used according to Steel and Torrie (1980) in both preliminary and advanced yield trials. Moreover, stability parameters for grain yield of the advanced yield

trials were calculated according to Eberhart and Russell (1966). The recommended cultural practices for each region were applied in all experiments.

Also, taking other type for evaluating the new released cultivar on the farmer's levels, 61 verification yield trials including Gemmeiza 11 and 3 dominated wheat cultivars as a checks were carried out in old lands of Delta region and Middle Egypt as well as in the new lands in the three successive seasons 2009/2010, 2010/2011 and 2011/2012 with the cooperation of the Experimental Research Section. The area of each experimental plot was (150 m<sup>2</sup>) for each cultivar planted with the conventional method usually used by the farmers (broadcasting). At harvesting time, four randomly selected samples 4 m<sup>2</sup> area from each cultivar were harvested and grain yield was weighted and adjusted to ard /fed.

Taking in consideration the demonstration fields conducted through the co-operation among National Wheat Research Program, Academic Science Research and Technology as well as the Extension Services, where 108 demonstration fields were carried out in the old lands of Delta region in 2011/2012 season including the new released cultivar Gemmeiza 11 along with 5 dominated wheat cultivars. The area of each selected field was at least 1 fed. The demonstration plots were planted in hills 10 cm apart on raised beds and the width of beds was 120 cm. compared to the conventional method usually used by the farmers (flat planting). At harvesting time, 4 randomly selected samples (4 m<sup>2</sup>) from each tested cultivar were harvested in and out the demonstration fields and threshed. The grain yield of each sample was weighted and adjusted to ard/fed.

## **RESULTS AND DISCUSSION**

### **1- Preliminary yield trials:-**

The results in Table (1-a) showed that the grain yield (ard/fad) of the new bread wheat cultivar Gemmeiza 11 exceeded the yield of the check cultivar Sakha93 at EL-Gemmeiza, Etai EL-Barood and Kafr-EL-Hamam locations as well as the mean of the cultivar Giza 168 over the checks mean in Delta region . Grain yield of the cultivar Gemmeiza 11 exceeded the yield of all check cultivars at Middle Egypt, i.e. Sids and Mallawy (Table 1-b). Meanwhile, at El-Nubaria, the cultivar Gemmeiza 11 out- yielded all check cultivars except the cultivar Gemmeiza 9. At the same time, grain yield of Gemmeiza 11 exceeded the yield of the check cultivars and the checks mean at EL-Matanaa and Kom-Ombo locations in Upper Egypt (Table 1-c). At level of over all Egypt (Table 1-d), the new cultivar proved its superiority over all the check cultivars at Middle and Upper Egypt while, at the new lands in Out Valley, Gemmeiza11 exceeded Sakha 93, Sakha 94 and Giza 168 while, Gemmeiza 9 was the best yielder in Out Valley and may be considered as a drought tolerance variety.

**Table (1-a): Grain yield (ard. /fed.) of the preliminary yield trials for Gemmeiza 11 and four bread wheat cultivars in Delta Region in 2005/2006 season.**

Cultivars	Locations				Mean
	Sakha	El-Gemmeiza	Etai El-Barood	Kafr El-Hamam	
Sakha 93	23.95	19.75	22.53	18.03	21.08
Sakha 94	24.85	20.17	29.75	24.35	24.78
Giza 168	22.88	21.74	26.58	21.96	23.29
Gemmeiza 9	23.36	21.66	26.80	23.80	23.90
Checks mean	23.76	20.83	26.42	22.04	23.26
Gemmeiza 11	22.05	21.33	29.31	21.20	23.47
L.S.D 5%	1.73	2.16	2.73	3.62	2.66
C.V %	5.52	7.85	7.73	12.08	8.56

**Table (1-b): Grain yield (ard. /fed.) of the preliminary yield trials for Gemmeiza 11 and four bread wheat cultivars in Middle Egypt and Out Valley in 2005/2006 season.**

Cultivars	Locations			Out Valley	Mean
	Sids	Mallawy	Mean Middle Egypt	El-Nubaria	
Sakha 93	23.84	18.54	21.19	15.89	19.87
Sakha 94	22.75	21.23	21.99	17.75	20.95
Giza 168	23.30	19.75	21.53	17.68	20.57
Gemmeiza 9	22.86	18.97	20.91	20.96	20.93
Checks mean	23.19	19.64	21.41	18.07	20.58
Gemmeiza 11	<b>25.09</b>	<b>23.35</b>	<b>24.22</b>	<b>18.77</b>	<b>22.86</b>
L.S.D 5%	2.87	3.20	3.04	2.57	
C.V %	9.22	12.25	10.62	11.12	

**Table (1-c): Grain yield (ard / fed.) of the preliminary yield trials for Gemmeiza 11 and four bread wheat cultivars in Upper Egypt in 2005/2006 season.**

Cultivars	Locations			Mean
	Shandaweel 1	El-Matanaa	Kom- Ombo	
Sakha 93	18.46	17.44	22.27	19.39
Sakha 94	23.61	16.05	23.92	21.20
Giza 168	22.37	18.68	22.67	21.24
Gemmeiza 9	20.85	14.85	20.76	18.82
Checks mean	21.32	16.76	22.41	20.16
Gemmeiza 11	21.65	19.08	23.94	21.55
L.S.D 5%	2.53	2.77	3.62	4.19
C.V %	8.75	25.70	13.34	16.03

**Table (1-d): Grain yield (ard / fed.) of the preliminary yield trials for Gemmeiza 11 and four bread wheat cultivars in over all Egypt in 2005/2006 season.**

Cultivars	Locations				Mean
	Delta	Middle Egypt	Upper Egypt	Out Valley	
<b>Sakha 93</b>	21.08	21.19	19.39	15.89	19.39
<b>Sakha 94</b>	24.78	21.99	21.20	17.75	21.43
<b>Giza 168</b>	23.29	21.53	21.24	17.68	20.94
<b>Gemmeiza 9</b>	23.90	20.91	18.82	20.96	21.15
<b>Checks mean</b>	23.26	21.41	20.16	18.07	20.73
<b>Gemmeiza 11</b>	<b>23.47</b>	<b>24.22</b>	<b>21.55</b>	<b>18.77</b>	<b>22.00</b>
<b>L.S.D 5%</b>	2.66	3.04	4.19	2.57	0.95
<b>C.V %</b>	8.56	10.62	16.03	11.12	9.83

## 2-Adanced yield trials:

The average grain yield of Gemmeiza 11 compared to the commercial cultivars, Sakha 93 , Sakha 94 , Gemmeiza 9 and Giza 168 in 65 advanced yield trials conducted at different five main macroclimatic zones in 2006/2007 and 2007/2008 growing seasons are shown in Tables 2 and 3 ,respectively . The yield of Gemmeiza 11 surpassed the yield of checks mean of the cultivars Gemmeiza 9 and Giza 168 and the cultivar means over 6 locations means at North Delta in 2006 / 2007 season (Table 2-a). The average increase of Gemmeiza 11 in North Delta was 5.5% above the mean of all check cultivars.

Data in Table (2-b) showed that the newly bread wheat cultivar had significantly exceeded the checks mean at South Delta in all locations with an average increase of 11 % and exceeded all check cultivars at EL-Gemmeiza, Sharqia 2, Monufia and Qalyobia governorates. Meanwhile, grain yield of the newly released cultivar yielded almost the same as the checks mean cultivars at Middle Egypt (Table 2-c) while, surpassed the yield of the check means at the locations of Upper Egypt especially at Kom- Ombo (Table 2-d).

The data presented in Table (2-e) showed the superiority of the new released cultivar Gemmeiza 11 at Sakha, Gemmeiza and Sids locations in the advanced yield trials in the case of drilling sowing with an increase of 9.2 % when compared with the mean of all tested locations. The Out Valley results of the advanced yield trials in 2006/2007 season illustrated in Table (2-f) revealed that Gemmeiza11 had significantly exceeded all the check cultivars only at EL-Ismailia location and Gemmeiza 9 at Asyut and Toshkey. Meanwhile, Gemmeiza 11 grain yield was not significantly differed from the commercial checks at EL-Nubaria and EL-Eoinaat locations .The average increase of the new cultivar means over all locations at Out Valley was only 1%.The results of the advanced yield trials over all Egypt in 2006/2007 season cleared that the new cultivar had significantly out-yielded the check cultivars Gemmeiza 9 and Giza 168 at North and South Delta and Upper Egypt as well as Sakha 93 and Sakha 94 at South Delta and Gemmeiza 9 in Out Valley. The average increase in grain yield of Gemmeiza 11 above all the means of the check cultivars at over all Egypt was 5.9 % ( Table 2-j).

**Table (2-a): Grain yield (ard / fed.) of the advanced yield trials ( D-BW)for Gemmeiza 11 and four bread wheat cultivars in North Delta in 2006/2007 season.**

Cultivars	Locations							Mean
	El-Serw	Sakha	Tag El-Ezz	Dakahlia -1	Dakahlia -2	Etai El-Barood	Beheira	
Sakha 93	13.72	26.66	22.67	17.67	20.19	21.04	24.64	20.94
Sakha 94	16.36	27.05	21.40	17.00	20.36	24.87	21.97	21.29
Gemmeiza 9	13.34	25.58	19.40	12.00	20.96	24.54	18.57	19.20
Giza 168	15.76	27.43	19.27	14.67	17.35	23.90	23.67	20.29
Checks mean	14.80	26.68	20.69	15.34	19.72	23.59	22.21	20.43
Gemmeiza 11	17.53	28.00	19.67	15.67	22.61	24.00	23.34	21.55
L.S.D 5%	3.85	1.86	3.52	2.63	3.39	2.31	0.99	1.04
C.V %	16.74	4.7	12.35	12.66	12.24	6.68	3.11	9.56

**Table (2-b): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in South Delta in 2006/2007 season.**

Cultivars	Locations							Mean
	Gemmeiza	Sers El-Liaan	Kafr El-Hamam	Sharkia - 1	Sharkia - 2	Monufia	Qaluobia	
Sakha 93	25.50	26.80	22.80	16.85	21.03	21.60	23.87	22.64
Sakha 94	27.04	21.47	22.01	19.92	24.17	26.07	23.17	23.41
Gemmeiza9	24.94	20.04	25.48	19.86	18.46	26.60	28.14	23.36
Giza 168	27.30	22.84	21.81	17.70	23.65	27.94	26.40	23.95
Checks mean	26.20	22.79	23.03	18.58	21.83	25.55	25.40	23.34
Gemmeiza 11	27.57	26.37	24.16	18.43	26.91	28.60	29.40	25.92
L.S.D 5%	-	3.11	2.71	1.96	2.64	4.07	-	1.22
C.V %	5.07	8.79	8.16	7.47	8.09	11.06	14.60	9.67

**Table (2-c):Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in Middle Egypt in 2006/ 2007 season.**

Cultivars	Locations					Mean
	Giza	Fayoum	Sids	Mallawy	Menia	
Sakha 93	26.74	26.34	30.20	21.88	23.10	25.65
Sakha 94	29.75	27.00	28.67	19.50	21.35	25.26
Gemmeiza 9	26.88	27.34	28.57	19.66	23.10	25.11
Giza 168	29.19	28.47	28.64	19.58	24.50	26.08
Checks mean	28.14	27.29	29.02	20.16	23.01	25.52
Gemmeiza 11	23.45	30.47	29.87	20.97	21.00	25.15
L.S.D 5%	2.27	-	-	2.69	2.91	1.13
C.V %	6.01	7.82	4.76	9.15	9.53	7.31

**Table (2-d): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in Upper Egypt in 2006/2007 season.**

Cultivars	Locations			Mean
	Shandaweel 1	El-Matanaa	Kom-Ombo	
Sakha 93	20.84	23.47	14.65	19.65
Sakha 94	22.70	23.60	19.71	22.01
Gemmeiza 9	17.71	23.27	17.05	19.34
Giza 168	19.17	24.27	17.16	20.20
Checks mean	20.11	23.65	17.14	20.3
Gemmeiza 11	20.87	24.74	23.44	23.02
L.S.D 5%	2.02	-	3.24	1.62
C.V %	6.89	9.03	11.86	9.37

**Table (2- e): Grain yield (ard / fed.) of the advanced yield trials (D-BW)– Drill for Gemmeiza11 and four bread wheat cultivars in 2006/2007 season.**

Cultivar	Locations					Mean
	Sakha	Gemmeiza	Bahteem	Sids	Shandaweel	
Sakha 93	28.38	28.34	12.14	31.37	24.86	25.02
Sakha 94	28.69	28.34	12.60	28.87	32.88	26.28
Gemmeiza 9	26.47	24.47	13.54	29.34	28.18	24.40
Giza 168	29.68	27.64	14.04	27.37	28.32	25.42
Checks mean	28.31	27.20	13.08	29.24	28.56	25.28
Gemmeiza 11	30.47	30.70	13.67	31.27	31.95	27.61
L.S.D 5%	1.68	1.96	1.24	2.32	2.88	0.91
C.V %	4.07	4.77	6.67	5.29	6.47	5.58

**Table (2-f): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in out Vally in 2006/2007 season.**

Cultivar	Locations						Mean
	Nubaria	Ismailia	Assuit	New Valley	Toshkey	Eoinaat	
Sakha 93	26.65	7.27	14.87	14.67	17.32	15.07	15.97
Sakha 94	27.84	9.28	14.54	17.24	14.17	14.87	16.32
Gemmeiza 9	26.50	7.76	11.67	16.04	12.69	11.44	14.35
Giza 168	26.46	10.18	14.47	14.80	15.96	13.30	15.86
Checks mean	26.86	8.62	13.89	15.69	15.04	13.67	15.63
Gemmeiza 11	25.19	11.34	15.07	14.70	15.66	12.77	15.79
L.S.D 5%	-	0.55	1.79	1.79	2.55	-	0.90
C.V %	8.16	3.79	8.64	8.00	12.14	4.19	9.95

**Table (2-j): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in over all Egypt in 2006/2007 season**

Cultivar	Locations						Mean
	N. Delta	S. Delta	M. Egypt	U. Egypt	Out Valley	Drill	
Sakha 93	20.94	22.64	25.65	19.65	15.97	25.02	21.65
Sakha 94	21.29	23.41	25.26	22.01	16.32	26.28	22.43
Gemmeiza 9	19.20	23.36	25.11	19.34	14.35	24.40	20.96
Giza 168	20.29	23.95	26.08	20.20	15.86	25.42	21.97
Checks mean	20.43	23.34	25.53	20.30	15.63	25.28	21.75
Gemmeiza 11	21.55	25.92	25.15	23.02	15.79	27.61	23.03
L.S.D 5%	1.04	1.22	1.13	1.62	0.90	0.91	0.46
C.V %	9.56	9.67	7.31	9.37	9.95	5.58	8.61



The advanced yield trials carried out at North Delta in 2007/2008 growing season (Table 3-a), showed that the mean grain yield of the new wheat cultivar Gemmeiza 11 was 20.86 ard. /fed. ensuring equal potentiality with the dominating wheat cultivars i.e. Sakha 93, Gemmeiza 9 and Giza 168 at North Delta region. In addition, the yield of the new cultivar surpassed significantly the mean yield of the check cultivars at South Delta region with a value of 8.9 % (Table 3-b).

Furthermore, the new cultivar scored the highest value for yield at El-Faiyum, Sids and Mallawy locations being 34.13, 27.40 and 26.06 ard/fad., respectively (Table 3-c) with a mean yield increment of 11.2 % over all the checks cultivar means at Middle Egypt region. Regarding Upper Egypt (Table 3-d), the new cultivar Gemmeiza 11 yielded the same as the check cultivars at Shandaweel location while, surpassed all of them at El-Matanaa and exceeded only Gemmeiza 9 at Kom -Ombo location. The increase in mean grain yield of the new cultivar reached about 6.2 % over the checks mean at Upper Egypt. In respect to the new lands( Table 3-f), Gemmeiza 11 grain yield significantly surpassed Gemmeiza 9 in 4 locations, Sakha 93 and Giza 168 in 3 locations and Shandaweel 1 at Nubaria and New Valley locations . The mean yield increment of the new cultivar at Out Valley was 20.3 % above the mean of all the check cultivars.

The grain yield (ard. /fed.) of the advanced yield trials sown using drilling method for Gemmeiza 11 and four bread wheat cultivars in 2007/2008 growing season are presented in Table (3-e). The new cultivar proved its superiority above the check cultivars Sakha 93, Shandaweel 1, Gemmeiza 9 and Giza 168 at Sakha, Gemmeiza and Sids locations. The average yield increment of Gemmeiza 11 was 1.42 ard/fed. (6.05%) when compared with the means of all check cultivars across all tested locations. The new cultivar out-yielded the mean of all the check cultivars in 32 advanced yield trials at over all Egypt in 2007/2008 season by 9.6 % (Table 3- j). These results indicate that the maximum grain yield potentiality is expected to be obtained from the new cultivar Gemmeiza 11 when will be grown in South Delta, Middle Egypt and Out Valley.

**Table (3-a): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza11 and four bread wheat cultivars in North Delta in 2007/2008 season.**

Cultivars	Locations						Mean
	El-Serw	Dakahlia -1	Dakahlia -2	Sakha	Etai El-Barood	Beheira	
Sakha 93	14.45	16.87	19.07	23.29	23.47	26.60	20.63
Shandaweel 1	13.39	19.47	22.67	20.30	24.54	29.00	21.56
Gemmeiza 9	13.34	17.60	20.34	20.84	24.74	21.34	19.70
Giza 168	12.96	17.27	21.00	21.01	22.80	25.07	20.02
Checks mean	13.54	17.80	20.77	21.36	23.89	25.50	20.48
Gemmeiza 11	14.21	18.94	23.07	22.73	23.84	22.34	20.86
L.S.D 5%	1.80	1.56	1.35	2.18	1.59	1.95	0.70
C.V %	9.51	6.32	4.74	6.99	4.62	5.57	6.11

**Table (3-b): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in South Delta in 2007/2008 season.**

Cultivars	Locations								Mean
	Gemmeiza	Sers El-Liaan	Tag El-Ezz	Kafr-El-Hamam	Sharkia - 1	Sharkia - 2	Monufia	Qaluobia	
Sakha 93	24.58	26.17	16.90	20.05	21.64	16.54	23.60	28.67	22.27
Shandaweel 1	24.73	28.70	21.76	16.47	18.20	22.07	22.60	33.07	23.45
Gemmeiza 9	24.26	21.94	19.06	18.98	20.17	19.27	24.80	26.54	21.88
Giza 168	24.29	26.37	20.10	20.65	21.40	19.14	24.20	27.94	23.01
Checks mean	24.47	25.80	19.46	19.04	20.35	19.26	23.80	29.06	22.65
Gemmeiza 11	26.78	29.60	22.71	21.07	21.20	18.54	28.14	29.34	24.67
L.S.D 5%	1.45	4.04	1.52	1.82	n.s	2.53	n.s	n.s	1.06
C.V %	4.03	10.49	5.73	6.92	8.11	8.51	14.41	9.73	9.51

**Table (3-c): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in Middle Egypt in 2007/2008 season.**

Cultivars	Locations					Mean
	Giza	Fayoum	Sids	Mallawy	Menia	
Sakha 93	25.00	31.85	26.07	20.58	20.33	24.77
Shandaweel 1	25.67	32.38	26.00	20.32	15.41	23.96
Gemmeiza 9	25.00	33.95	22.40	19.78	19.62	24.15
Giza 168	26.34	30.80	22.14	21.60	22.76	24.73
Checks mean	25.50	32.25	24.15	20.57	19.53	24.40
Gemmeiza 11	25.34	34.13	27.40	26.06	22.75	27.13
L.S.D 5%	2.07	4.40	1.43	2.37	1.30	1.12
C.V %	5.61	9.50	3.87	7.22	4.39	7.03

**Table (3-d): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in Upper Egypt in 2007/2008 season.**

Cultivars	Locations			Mean
	Shandaweel 1	El-Matanaa	Kom- Ombo	
Sakha 93	17.19	22.74	20.66	20.19
Shandaweel 1	18.57	26.74	21.75	22.35
Gemmeiza 9	17.50	19.94	15.83	17.76
Giza 168	17.57	23.67	18.68	19.97
Checks mean	17.71	23.27	19.23	20.07
Gemmeiza 11	17.87	27.67	18.41	21.32
L.S.D 5%	2.73	3.81	3.56	1.91
C.V %	10.16	11.00	13.30	11.55

**Table (3-e): Grain yield (ard / fed.) of the advanced yield trials (D-BW) – Drill for Gemmeiza 11 and four bread wheat cultivars in 2007/2008 season.**

Cultivar	Locations					Mean
	Sakha	Gemmeiza	Giza	Sids	Shandaweel 1	
Sakha 93	23.96	27.01	18.25	30.97	18.13	23.66
Shandaweel 1	23.54	27.36	17.69	29.87	22.50	24.19
Gemmeiza 9	21.37	27.44	23.94	25.40	18.17	23.26
Giza 168	23.32	28.68	16.53	27.47	18.26	22.85
Checks mean	23.05	27.62	19.10	28.43	19.27	23.49
Gemmeiza 11	24.96	29.16	17.00	32.40	21.02	24.91
L.S.D 5%	2.31	n.s	2.79	2.18	2.46	1.04
C.V %	6.71	5.40	9.96	5.08	8.45	6.85

**Table (3-f): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza 11 and four bread wheat cultivars in Out Valley in 2007/2008 season.**

Cultivar	Locations					Mean
	Ismailia	Nubaria	Assuit	New Valley	Abo Semble	
Sakha 93	10.98	21.67	11.44	20.00	7.30	14.28
Shandaweel 1	17.84	18.27	13.47	18.67	7.24	15.10
Gemmeiza 9	9.94	17.87	9.40	18.20	6.57	12.40
Giza 168	19.14	23.67	12.40	13.94	8.25	15.48
Checks mean	14.48	20.37	11.68	17.70	7.34	14.31
Gemmeiza 11	18.12	26.27	14.60	20.10	6.99	17.22
L.S.D 5%	1.02	2.71	2.06	1.78	0.95	0.79
C.V %	4.29	8.70	10.57	6.62	9.45	8.20

**Table (3-j): Grain yield (ard / fed.) of the advanced yield trials (D-BW) for Gemmeiza11 and four bread wheat cultivars in over all Egypt in 2007/2008 season.**

Cultivar	Locations						Mean
	North Delta	South Delta	Middle Egypt	Upper Egypt	Out Valley	Drill	
Sakha 93	20.63	22.27	24.77	20.19	14.28	23.66	20.97
Shandaweel 1	21.65	23.45	23.96	22.35	15.10	24.19	21.78
Gemmeiza 9	19.70	21.88	24.15	17.76	12.40	23.26	19.86
Giza 168	20.02	23.01	24.73	19.97	15.48	22.85	21.01
Checks mean	20.50	22.65	24.40	20.07	14.32	23.49	20.90
Gemmeiza 11	20.86	24.67	27.13	21.32	17.22	24.91	22.90
L.S.D 5%	0.7	1.06	1.12	1.91	0.79	1.04	0.43
C.V %	6.11	9.51	7.03	11.55	8.20	6.85	8.24

### 3-Verification yield trials

Results in Table (4) show the average grain yield estimated for 66 On- Farm yield trials for Gemmeiza 11 and some other commercial cultivars which were carried out at 16 Governorates representing the old and new lands in 2009/2010, 11 Governorates in 2010/2011 and 13 Governorates in 2011/2012.

The results proved that the new wheat cultivar Gemmeiza 11 surpassed the commercial cultivars at the Governorates representing North, Middle and South Delta and the new lands in 2009/2010 growing season. Meanwhile, the yield potentiality of the new cultivar was almost the same as the local checks at Upper Egypt and was less than Sakha 93 and Giza168 at Middle Egypt (Table 4-a).The grain yield of the new released cultivar exceeded the check wheat cultivars at Middle Delta and was equal at South Delta in 2010/2011 growing season (Table 4-b).Meanwhile, in 2011/2012 season, the yield of Gemmeiza 11 surpassed Giza 168 at all tested zones (Table 4-c). On the other hand, the grand mean yield of the new released cultivar Gemmeiza 11 exceeded the grand mean yield of Sakha 93 and Giza 168 by 8.2% and 3.8% respectively, through the three successive growing seasons, at over all Delta regions, Middle and Upper Egypt and New Lands while, yielded the same as the check cultivar Gemmeiza 9 (Table 4-d).

The results cleared the high yielding abilities of the new bread wheat cultivar Gemmeiza 11 and its high yielding adaptability at North, Middle and South Delta as well as at the new lands. Meanwhile, the grain yield of Gemmeiza 11 was less than the commercial wheat cultivars Sakha 93 and Giza 168 at Middle Egypt and was equal at Upper Egypt.

**Table (4-a): Grain yield (ard / fed.) of verification yield trials of the newly released cultivar Gemmeiza 11 in 2009 /2010 season.**

Zones	Governorates	No. of trials	Gemmeiza11	Checks		
				Sakha 93	Giza 168	Gemmeiza 9
North Delta	Damietta	1	20.76	21.70	21.00	20.03
	Kafr El –Sheikh	1	23.17	18.22	21.84	19.74
	Alexandria	1	18.69	20.90	19.47	20.90
Mean		-	20.87	20.27	20.77	20.22
Middle Delta	Sharkia	2	19.95	16.40	17.24	14.98
	Dakahlia	2	12.59	13.34	12.39	13.05
	Gharbia	2	21.70	21.00	20.30	18.2
Mean		-	18.08	16.91	16.64	15.41
South Delta	Monufia	1	27.44	26.46	25.20	25.76
	Qalyubia	2	26.87	23.88	21.11	23.27
	Giza	1	23.24	23.80	29.40	24.64
Mean		-	25.85	24.71	25.24	24.56
Middle Egypt	Faiyum	2	17.85	22.02	21.51	-
	Beni-Suef	2	18.90	19.25	19.95	-
Mean		-	18.38	20.64	20.73	
Upper Egypt	Assuit	2	18.48	18.46	18.20	-
	Sohag	1	17.64	18.48	21.56	-
	Aswan	1	18.40	18.30	16.94	-
Mean		-	18.17	18.41	18.90	
New Land	Port Said	1	15.50	09.02	10.12	13.20
	Suez	1	18.20	18.20	15.96	18.48
Mean		-	16.85	13.61	13.04	15.84
Zones mean		23	19.70	19.09	19.22	19.01

**Table (4-b): Grain yield (ard / fed.) of verification yield trials of the newly released cultivar Gemmeiza 11 in 2010 /2011 season.**

Zones	Governorates	No. of trials	Gemmeiza11	Checks		
				Sakha93	Giza 168	Gemmeiza9
North Delta	Damietta	1	12.41	8.79	13.56	14.00
	Kafr El –Sheikh	2	19.34	17.80	19.28	18.20
	Beheira	2	21.84	20.02	21.20	19.95
Mean		-	17.86	15.54	18.01	17.38
Middle Delta	Sharkia	2	17.10	16.05	17.76	14.0
	Dakahlia	2	20.04	18.31	14.20	20.98
	Gharbia	2	28.00	22.80	23.40	22.40
Mean		-	21.71	19.05	18.45	19.13
South Delta	Monufia	2	22.50	23.20	19.76	23.19
	Qalyubia	2	27.88	24.11	26.57	24.91
	Giza	2	22.10	25.20	25.90	25.90
Mean		-	24.16	24.17	24.08	24.67
New Land	Port Said	1	18.14	18.84	17.81	24.35
	El-Bostan	2	17.96	12.07	13.67	16.21
Mean		-	18.05	15.46	15.74	20.28
Zones mean		20	20.45	18.56	19.07	20.37

**Table (4-c): Grain yield (ard / fed) of verification yield trials of the newly released cultivar Gemmeiza 11 in 2011 /2012 season.**

Zones	Governorates	No. of trials	Gemmeiz11	Checks	
				Giza 168	Gemmeiza9
North Delta	Damietta	1	12.32	10.80	11.20
	Kafr El -Sheikh	4	19.71	22.38	19.33
	Beheira	2	24.86	20.86	21.28
	Alexandria	2	22.40	22.26	22.68
Mean		-	19.82	19.07	18.62
Middle Delta	Dakahlia	2	25.65	21.75	23.80
	Gharbia	2	28.00	22.23	30.00
Mean		-	26.83	21.99	26.90
South Delta	Monufia	3	23.80	24.12	20.81
	Qalyobia	2	32.02	24.98	28.51
	Giza	1	31.50	29.00	27.30
Mean		-	29.11	26.03	25.54
New Land	Port Said	1	21.77	17.86	22.93
	Ismailia	1	25.90	21.01	24.50
	Suez	1	20.16	17.64	17.92
	El-Bostan	1	16.80	17.72	14.92
Mean		-	21.16	18.56	20.07
Zones mean		23	24.23	21.41	22.78

**Table (4-d): Average grain yield Ard/fed. of the newly released wheat cultivar Gemmeiza11 over all 66 verification yield trials in three growing seasons of 2009/2010, 2010/2011 and 2011/2012.**

Zones	No. of trials	No. of years	Gemmeiza11	Checks		
				Sakha 93	Giza 168	Gemmeiza 9
North Delta	17	3	19.52	17.91	19.28	18.74
Middle Delta	16	3	22.21	17.98	19.03	20.48
South Delta	16	3	26.37	24.44	25.12	24.92
Middle Egypt	4	1	18.38	20.64	20.73	-
Upper Egypt	4	1	18.17	18.41	18.90	-
New lands	9	3	18.69	14.54	15.78	18.73
Grand mean	66		20.55	18.99	19.8	20.72

#### 4- Demonstration fields

Data in Table (5) show the average grain yield estimated for Gemmeiza 11 and the commercial wheat cultivars in 106 demonstration fields sown at 9 districts in 4 Governorates at Delta Region in 2011-2012 seasons. The results proved the superiority of the new cultivar Gemmeiza 11 over all the commercial wheat cultivars in the demonstration fields with an average of (24.87 ard/fad.) while, the neighboring fields recorded (21.04 ard/fed.) with 18.2 % increment.

The results also proved the superiority of the new wheat cultivar Gemmeiza 11 at Delta region and the importance of planting on 120 cm width raised beds used in the demonstration fields compared to flat planting in the farmers' fields.



**5-Stability parameters for grain yield:**

Stability parameters for grain yield of the advanced yield trials in 2007/2008 growing season was calculated according to Eberhart and Russell(1966).The stable cultivar was defined as one which had a high average performance over a wide range of environments, a regression coefficient of 1.0 and no deviation from regression mean square. The results in Table 6 revealed that the new cultivar Gemmeiza 11 had better stability parameters at South Delta, Middle Egypt, Out Valley and at all over Egypt. Therefore, it could be recommended for planting in those environments.

**Table (6): Grain yield stability parameters for Gemmeiza 11 along with the dominating wheat cultivars in 2007/2008 season.**

Region	Cultivar	Grain yield (ard/fed)	Stability parameters	
			b	S <sup>2</sup> d
North Delta	Sakha 93	20.86	1.03	0.82
	Shandweel 1	21.56	1.12	3.32
	Gemmeiza 9	19.70	0.85	1.05
	Giza 168	20.02	0.98	0.30
	Checks mean	20.48		
	Gemmeiza 11	20.86	0.78	1.54
South Delta	L.S.D.0.05	1.80		
	Sakha 93	22.27	1.05	0.07
	Shandweel 1	23.45	1.24	29.36
	Gemmeiza 9	21.88	0.68	13.03
	Giza 168	23.01	0.80	16.51
	Checks mean	22.65		
	Gemmeiza 11	24.67	1.0	1.31
	L.S.D.0.05	1.45		
Middle Egypt	Sakha 93	24.77	1.05	0.43
	Shandweel 1	23.96	1.44	0.66
	Gemmeiza 9	24.15	1.32	0.68
	Giza 168	24.73	0.78	1.96
	Checks mean	24.40		
	Gemmeiza 11	27.13	0.95	0.15
	L.S.D.0.05	2.07		

**Table (6) cont.**

Region	Cultivar	Grain yield (ard/fed)	Stability parameters	
			b	S <sup>2</sup> d
Upper Egypt	Sakha 93	20.19	0.69	0.76
	Shandweel 1	23.35	1.20	0.55
	Gemmeiza 9	17.76	0.60	-2.54
	Giza 168	19.97	1.11	-2.27
	Checks mean	20.07		
	Gemmeiza 11	21.32	1.75	- 4.40
Out Valley	L.S.D.0.05	2.73		
	Sakha 93	14.28	1.00	5.64
	Shandweel 1	15.10	0.83	1.29
	Gemmeiza 9	12.40	0.84	4.56
	Giza 168	15.48	0.93	6.57
	Checks mean	14.31		
	Gemmeiza 11	17.22	1.26	0.17
Over all Egypt	L.S.D.0.05	1.02		
	Sakha 93	20.97	1.06	0.49
	Shandweel 1	21.78	1.02	4.48
	Gemmeiza 9	19.86	0.92	6.25
	Giza 168	21.01	0.92	1.54
	Checks mean	20.90		
	Gemmeiza 11	22.90	1.06	1.50
L.S.D.0.05	0.70			

**6-Rust Disease Reaction:**

Data in Table 7 showed the average response of the bread wheat cultivar Gemmeiza 11 and four bread wheat cultivars to leaf and stem rust disease at Gemmeiza, Sakha and Nubaria Res. Stations in 2007/2008. The data revealed that Gemmeiza 11 was completely resistant to leaf rust at Gemmeiza Station and moderate susceptible at Sakha and Nubaria Stations (20Ms-30Ms). However, it was completely resistant to stem rust disease at the three stations. In the same time, the other cultivars showed different reactions to leaf and stem rust ranged from resistant to susceptible responses.

**Table (7-a): Mean average of leaf and stem rust disease severity at adult stage for the new bread wheat cultivar Gemmeiza 11 and four wheat cultivars at Gemmeiza, Sakha and Nubaria Res. Stations in 2007/08 season.**

Cultivar	Leaf Rust			Stem Rust		
	Gemmeiza	Sakha	Nubaria	Gemmeiza	Sakha	Nubaria
Gemmeiza 11	0	20MS	30 MS/S	0	0	0
Sakha 93	80s	60S	50 S	0	0	20S
Gemmeiza 9	0	0	5 MS/S	0	0	10S
Giza 168	0	0	20 MR/MS	0	0	10S
Shandaweel 1	0	0	10 Mr	0	0	0

**Table (7-b): Mean of average coefficient of leaf and stem rust diseases infection at adult stage for the new bread wheat cultivar Gemmeiza 11 and four wheat cultivars at Gemmeiza, Sakha and Nubaria Res. Stations in 2007/08 season.**

Cultivar	Leaf Rust			Stem Rust		
	Gemmeiza	Sakha	Nubaria	Gemmeiza	Sakha	Nubaria
Gemmeiza 11	0	16.00	24	0	0	0
Sakha 93	80	60	50	0	0	20
Gemmeiza 9	0	0	4.5	0	0	10
Giza 168	0	0	12	0	0	10
Shandaweel 1	0	0	4.00	0	0	0

**7- Distinctness Uniformity and Stability tests (DUS):**

This test was carried out by the Central Administration of Seed Certification (CASC) for two successive seasons according to the International Union for the Protection of new Varieties of plants (UPOV). This test should be done before releasing the variety. Results of these tests are recorded in Table 8 showing some morphological characteristics of the new bread wheat cultivar Gemmeiza 11.



**Table 8: Some morphological characteristics of the new released wheat cultivar Gemmeiza 11 according to the International Union for the Protection of new Varieties of plants (UPOV)**

No.	Characteristics	Description
1	Pigmentation of coleoptile	Very weak (1)
2	Anthocyanin coloration of first leaf	Very weak (1)
3	Plant growth habit	Erect (1)
4	Flag leaf rolling	Medium (5)
5	Time of ear emergence(first spike on 50% of ears)	Early (3)
6	Glaucosity of flag leaf sheath	Medium (5)
7	Glaucosity of flag leaf blade	Medium (5)
8	Ear: anthocyanin pigmentation	—
9	Hairiness of upper most node	Weak (2)
10	Glaucosity of ear neck	Strong (7)
11	Glaucosity of ear	Medium (5)
12	Plant height (stem, ear and awns)	Long (7)
13	Awns distribution on the spike	—
14	Awns length compared to ear	Medium (5)
15	Shape of lower glume	Elevated (7)
16	Shoulder shape of glume	—
17	Width of glume shoulder	Medium (5)
18	Length of glume beak	Medium (5)
19	Shape of glume beak	Medium (5)
20	Hairiness of glume	—
21	Thickness of parenchyma wall	Medium (5)
22	Awns color	White (1)
23	Ear length (ear and awns)	Long (7)
24	Ear: hair density at the lower edge of the rachis	Weak (3)
25	Color of ear	White (1)
26	Shape of ear	Tapering (1)
27	Density of ear	Lax (1)
28	Grain shape	Elliptical (2)
29	Grain color	White (1)
30	Length of grain brush hairs	Short (3)
31	Seasonal type	Spring type (3)

#### **8-Some technological and quality characters:**

Some technological and quality characters which are presented in Table 9 were carried out by Field Crops Technology Research Department, Food Technology Research Institute, ARC. The results showed that the cultivar Gemmeiza11 had the lowest hectoliter value being 80.3 while the other five cultivars were higher in hectoliter weight and ranged from 81.0 to 83.8. This parameter is important for millers as it is positively correlated with the extraction rate (flour recovery). The extraction rate % for Gemmeiza 11 was more than Gemmeiza 9 and Giza 168 and was equal to Sakha 94 cultivar.

Protein content is an important parameter for making different products of wheat flour. Protein content % estimates of the new bread wheat cultivar Gemmeiza 11 along with the check cultivars Sandawell 1, Gemmeiza 9 and Giza 168 showed a high protein content > 12% which are suitable for making good quality bread.

Gluten percentage of the six bread wheat cultivars which are presented in Table (9) showed that the gluten% of Gemmeiza 9 was the highest (30.8%) followed by Giza 168 (28.8%), Sandaweel 1(26.9%), Sakha 94 (26.5%) and Gemmeiza 11 (24.3%) while Sakha 93 had the lowest value being (21.8%). Similar rank was detected for dry gluten percentages where Gemmeiza 9, Sandaweel 1, Giza 168 and Gemmeiza 11 showed values of 10.3% , 9.7%, 9.1% and 9% respectively. Meanwhile, the two cultivars Sakha 93 and Sakha 94 recorded the lowest values of dry gluten being 7.2 and 8.5%.

**Table (9): Some technological and quality characters of the new bread wheat cultivar Gemmeiza 11 and five commercial wheat cultivars.**

Cultivar	Hectoliter weight Kg.	Protein%	Ash%	Extraction Rate%	Gluten%	
					Wet	Dry
<b>Sakha93</b>	82.1	10.0	1.8	70.0	21.8	7.2
<b>Sakha94</b>	82.7	11.5	1.5	69.0	26.9	8.5
<b>Shandaweel 1</b>	83.8	12.5	1.9	71.3	26.5	9.7
<b>Gemmeiza9</b>	81.0	12.6	1.7	68.5	30.8	10.3
<b>Giza168</b>	82.1	12.0	1.8	68.3	28.8	9.1
<b>Checks mean</b>	82.3	11.7	1.7	69.4	26.9	8.96
<b>Gemmeiza 11</b>	80.3	12.2	1.7	69.0	24.3	9.0

**9- Seed multiplication of the new cultivar Gemmeiza 11:**

In 2011 / 2012 growing seasons, Wheat Research Department produced a quantity of 671.6 ard. of the foundation seeds from the new cultivar and have been distributed either to the Central Administration of Seed Production or to the private seed companies to produced Register seeds.

Seeds of Gemmeiza 11 will be available for planting in farmers fields in 2013/ 2014 growing season. Foundation seeds will be maintained and distributed by Wheat Research Department, FCRI, ARC.Egypt.

It could be concluded that the new wheat cultivar Gemmeiza 11 can be grown at Delta region, Middle Egypt and Out Valley and can share the cultivar Shandaweel 1 at Upper Egypt to induce wide genetic variation which ensure higher degree of yield stability over any environmental fluctuations in the future.

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### جميزة ١١ : صنف قمح خبز جديد عالى المحصول

إيمان محمد صادق, أنور عجيز, مصطفى المنوفى , محروس أبو شريف, أسعد حمادة , أحمد موسى , رضا قمير, صبرى سليم , جمال الشعراوى , عبدالفتاح مراد , صلاح عبدالمجيد , أبوبكر أبو وردة , أحمد تمام , محمد مشرف , عز الدين عبدالرحمن السيد , حسن عشوش , مورييس توفيليس , حمدى هندواوى , هيام السيد محجوب , أحمد كمال مصطفى , هانى البرهامى , عبدالسلام المنشاوى , وفاء العوضى , نادية عبدالنور , صبحى عبدالدايم , سهير محمد حسن , عبدالله سويلم , سيد الصاوى , سعيد حماد , ماجدة عبدالرحمن , صباح أبو العلا , محمد عبدالكريم خالد , إبراهيم عبدالهادى أمين , محمد زكريا , منال عبدالصمد حسن , أحمد جادالله , ماهر عبدالمنعم المغربى , عزة محمد عبدالعال , عادل هجرس , أحمد طه مصطفى , محمود شمروخ محمود , محمد يوسف مبارك , ثناء عبدالكريم , أمجد محمد مرسى , هدى الغرباوى , مؤمن عبدالوهاب عجلان , وليد زكى اليمانى فرحات , السيد عبدالحميد , خالد الدمرداش , خالد إبراهيم جاد , شيرين ناشان , إبراهيم صبرى عبداللطيف , محمد نوبى عبدالقادر , عبدالسلام جمعه , عنايات غاتم , سيد خليل محمود , موسى جرجس , نبيل حنا , محمد على موسى , عادل جودة , مصطفى عزب مصطفى , محمد صفاء شرشر , تاج الدين شهاب الدين , مسعد عبدالعليم , سامى رضا صبرى , محمد عبدالفتاح سالم , عبدالخالق خطاب , عبداللطيف حسين , عبدربة الحاج , نجوى عبدالفتاح , فرغل حفناوى , \*إبراهيم إمبابى و \*مصطفى الشامى

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تم استنباط صنف قمح الخبز الجديد جميزة ١١ من خلال الانتخاب فى أحد الهجن المحلية بقسم بحوث القمح - محطة البحوث الزراعية بالجميزة . تم تقييم محصول الصنف الجديد فى ٧٥ تجربة حقلية مصغرة ومكبرة مقارنة بمحصول أصناف القمح التجارية السائدة خلال ثلاثة مواسم زراعية متعاقبة فى الفترة من ٢٠٠٦/٢٠٠٥ وحتى ٢٠٠٨/٢٠٠٧ . تم تقييم محصول الصنف الجديد جميزة ١١ فى ٦٦ تجربة تأكيدية خلال ثلاثة مواسم زراعية هى ٢٠٠٩/٢٠١٠ - ٢٠١٠/٢٠١١ و ٢٠١١/٢٠١٢ بالإضافة إلى ١٠٦ حقل ارشادى فى موسم ٢٠١٢/٢٠١١ .  
وقد أوضحت النتائج تفوق الصنف الجديد جميزة ١١ على أصناف القمح سخا ٩٣ - سخا ٩٤ - جميزة ٩ وشندويل ١ فى معظم المناطق الرئيسية لزراعة القمح فى مصر .  
أكدت نتائج التجارب التأكيدية أفضلية الصنف الجديد عن الأصناف الرئيسية السائدة سخا ٩٣ , جميزة ١٦٨ و جميزة ٩ فى منطقة الدلتا وكذلك فى منطقة مصر العليا .  
متوسط إنتاجية محصول الصنف الجديد جميزة ١١ فى الحقول الإرشادية المقامة فى أربعة محافظات تمثل منطقة وسط وجنوب الدلتا كانت ٢٨.٣٨ أردب/فدان مقارنة بمتوسط الأصناف التجارية السائدة والتي سجلت ٢٤.١٦٢ أردب/فدان بزيادة تقدر ب ١٧.٤٦% .  
أظهر تحليل التباين الوراثى لمحصول الحبوب أن الصنف الجديد جميزة ١١ يتميز بالثبات الوراثى فى منطقة جنوب الدلتا - مصر العليا - خارج الوادى بالإضافة الى جميع المناطق الرئيسية لإنتاج القمح فى مصر .

#### قام بتحكيم البحث

كلية الزراعة - جامعة المنصورة  
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**Table (5): Average grain yield (Ard/fad) of the new released cultivar Gemmeiza 11 and 5 commercial wheat cultivars in and out demonstration fields in 2011/2012 season.**

Governorates	Districts	Cultivars												Location number
		Gem. 11		Gem. 9		Sids 12		Giza 168		Misr 1		Misr 2		
		Demonstration field	Farmer field	Demonstration field	Farmer field	Demonstration field	Farmer field	Demonstration field	Farmer field	Demonstration field	Farmer field	Demonstration field	Farmer field	
Gharbia	Mehalla El-Kobra	30.18 (1)	19.00	25.75 (2)	22.25	24.5 (2)	21.00	24 (1)	19.00	27.8 (2)	18.5	-	-	8
	El-Santa	29.55 (1)	23.00	-	-	25.57 (2)	21.1	19.00 (1)	18.00	22.85 (2)	18.62	-	-	6
El-Sharkia	Zagazig	30.60 (1)	26.10	-	-	25.06 (8)	20.15	23.4 (4)	19.12	24.48 (8)	19.7	24.61 (3)	19.76	24
	Menya Alkamh	24.75 (1)	22	-	-	25.1 (7)	21.14	20.75 (2)	19.25	23.29 (9)	19.74	25.77 (2)	21.5	21
	Abo-Kbeer	25.30 (1)	20.65	-	-	23.35 (5)	19.01	22.12 (1)	18.1	22.14 (1)	19.10	20.06 (2)	18.82	10
	Fakous	24.30 (1)	20.30	-	-	22.64 (5)	19.57	22.52 (2)	18.93	22.32 (7)	19.25	24.83 (2)	18	17
El-Menofiya	El-Shohadaa	28.85 (1)	25	-	-	29.00 (2)	26.72	-	-	26.75 (2)	24.47	-	-	5
	Shebeen El-Kom	31.92 (1)	25	22.54 (2)	20.62	26.27 (3)	23.66	-	-	23.35 (1)	21.15	24.70 (1)	23	8
El-Dakhalia	Talkha	30.02 (1)	25.50	-	-	26.98 (2)	21.9	24.9 (1)	22	27.58 (2)	23.85	26.87 (1)	22.4	7
<b>Mean</b>		<b>28.38</b>	<b>22.95</b>	<b>24.14</b>	<b>21.43</b>	<b>25.38</b>	<b>21.58</b>	<b>22.32</b>	<b>19.2</b>	<b>24.5</b>	<b>20.48</b>	<b>24.47</b>	<b>20.58</b>	<b>106</b>

Mean of demonstration fields = 24.865 ard/fed

Mean of five check cultivars in demonstration fields = 24.162 ard/fed

Mean of farmer fields = 21.037 ard/fed

Grain yield increment = 3.828 ard/fed (18.20%)

Mean of five check cultivars out demonstration fields = 20.654 ard/fed

Average increment of Gemmeiza 11 compared to five commercial wheat cultivars in demonstration fields = 4.218 ard / fed (17.46%)