

GEMMIZA 7: A NEW EGYPTIAN LONG SPIKE WHEAT CULTIVAR.

Shehab El-Din T.*; M. El-Monofy; M.Mosaad; R.Mitkees; M.Mahrous; A.Hamada; A.Ageez; A.Bassiouni; M. El-Shami; M. Abdel-Aleem; M.Eid; A.Abdel-Ghani, M.Eskander ,N.Hanaa; S.Sabry, A. Abdel-Latif; M.Sharshar; Iman Sadek; M. Mostafa; A. Abo-Warda; Y. Abdel-Gwad; A. Mousa; S. Abdel-Majeed; A. Tammam; Najwa Abdel-Fattah; M. Moshref; E. El-Sayed; H. Ashoush; M. Towfeeles; Hayam Mahjoub; A. Moustafa, F. Hefnawy, H. Hendawy; S. Ali;A. Abdel-Karim; A. Khattab; M. Abdel-Fattah, A. Menshawy, H. El-Borhamy; A. Gomaa, F. El-Sayed; O. Khalil, Kadria Hegazi; A. Ali, Enayat Khanem; S. Mahmoud and S. Sherif**

* National Wheat Res. Prog., Field Crop Res. Institute, ARC, Giza, Egypt.

** Cereal Disease Res. Dept., Plant Pathology Institute, ARC, Giza Egypt.

ABSTRACT

Wheat plants having long spikes are very attractive to both breeder and producer . Thus, a considerable attention is paid in the Egyptian National Wheat Research Program (NWRP) to develop new long spike wheat cultivars. However, long spike cultivars are characterized by : long spike (50% longer than normal spike in a specific location); large number of kernels/spike (more than 100 kernels) and heavy kernels (10-15% heavier than those of normal cultivars). Sids series of long spike cultivars; sids 4 to sids 9, the result of the first attempt were susceptible to stripe rust , and have low tillering ability . As a result of the persistent effort made by (NWRP), the new long spike cultivar, Gemmiza 7, was released as a cultivar with high yielding potentiality, good tillering ability, and rust resistant.

A total of 167 experiments at different levels of grain yield evaluation were conducted at 7 different regions to represent the old and new lands of Egypt, for six successive seasons, 1994/95-1999/2000. Data revealed that Gemmiza 7 out-yielded the commercial cultivars Sakha 69, Sids 1, Gemmiza 5 and Giza 164 in many locations at different regions for at least two seasons . Moreover, Gemmiza 7 grain yield increments ranged from 2.29-116% comparing to the average grain yield of the four tested commercial cultivars . In addition, stability study indicated that Gemmiza 7 was superior at Middle and South Delta regions for six successive seasons . Likewise, rust resistance tests proved that Gemmiza 7 is resistant , and highly resistant to yellow and stem rusts, respectively.

Therefore, the new long spike wheat cultivar, Gemmiza 7 is highly recommended to be grown in the old and new lands at Delta region in general, and at Middle and South Delta in particular .

INTRODUCTION

It is well known that the main grain yield components of wheat (*Triticum aestivum* L.) are, number of fertile spikes per unit area, number of kernels per spike and kernel weight (yield triangle).

Increasing one or more of these factors with other(s) being constant, will enhance the grain yield of a specific cultivar. This was the philosophy behind the development of what is referred to as "long spike cultivars" started in CIMMYT breeding program in late seventies and early eighties. By the

time on which CIMMYT stopped its breeding program for developing long spike cultivars, the Egyptian National Wheat Research Program released series of long spike cultivars namely; Sids4, Sids 5, Sids 6, Sids 7, Sids 8, and Sids 9 (Gomaa 1999).

However, long spike cultivar could be characterized by ; spike length (usually 50% longer than normal spike in a specific environment); great number of kernels per spike (around one hundred kernels in normal conditions) and heavy kernels (about 10-15% heavier than those of normal cultivars).

Sids series of long spike cultivars released at Sids Agricultural Research Station as a result of the first attempt, are lacking some important characters such as tillering ability, resistance to rusts especially stripe rust and perfect kernel plumpness. As a matter of fact, plants having long spikes are very attractive to both breeder and producer. Therefore, a considerable attention is paid toward development of long spikes cultivars having high tillering ability, rust resistance, good quality in addition to the high yield potentiality and stability.

Gemmiza 7, developed at El-Gemmiza Agricultural Research Station, is a result of the successful breeding program for developing high yielding and rust resistant long spike cultivars in the second phase. However, further attempts is still undertaking in the Egyptian National Wheat Research Program aiming to develop cultivars that reach satisfactory levels of stable yield potentiality, and high quality. Furthermore, developing long spike cultivars resistant to the three rusts in general and to stripe rust in particular, is the main target of wheat breeding program conducted at Sakha Agricultural Research Station because resistance to diseases is a very essential requirement for licensing the cultivars released by the Egyptian Agricultural Research Center (Shehab El-Din and Abdel-Latif, 1996).

Following the concept of separating macro-environment into different micro-environments introduced by Comstock and Moll (1963), the Egyptian National Wheat Research Program identified seven different regions (agroclimatic zones). These regions are North-, Middle-, South-, Eastern- and western-Delta as well as Middle- and Upper- Egypt. The first three zones are usually subjected to sever waves of rust diseases causal agents and have some soil salinity problems . Meanwhile , Eastern and Western Delta have drought and soil low fertility stresses. Moreover, heat stress is the main obstacle for wheat production in Upper Egypt . On the other hand, Middle Egypt suffers no stress except for mild aphid infestation in some seasons. Therefore, the best strategy to overcome such stresses, is to grow more than two cultivars in each region.

To Apply such strategy and starting from late seventies , 21 bread and 5 durum wheat cultivars were released (Gomaa et. al., a and b 1979; Gomaa et. al., a and b 1984; Gomaa et. al., 1990 ; Abd El-Shafi et. al., 1991; Ghanem et. al., 1994; Ghanem et. al., a and b, 1996 El-Sayed et. al., 1997; Mitkees et. al., 1998; and Shehab El-Din et. al. 1999)

In continuation of releasing high yielding long spike wheat cultivars, resistant to rust diseases and stable for specific or wide environment, Gemmiza 7 the result of the second phase, is introduced in this paper.

MATERIALS AND METHODS

Following the principles of pedigree method, the promising cultivar, Gemmiza 7 has been selected from a local cross made between the two parents CMH 74 A. 630/SX, the long spike donor and the Mexican line, SERI 82/AGENT at Gemmiza Agricultural Research Station, Egypt. However, the cross number and pedigree for Gemmiza 7 is :

CMH 74A. 630/SX//SERI 82/AGENT

CGM 4611-2GM-3GM-1GM-OGM

The following characters, for the new released long spike cultivar Gemmiza 7, are studied :

I- Crop Yield Evaluation and Stability Study:

The new promising line Gemmiza 7 was tested for three successive seasons (from 1994/95 to 1996/97) in three screening yield trials carried out at El- Gemmiza Agriculture Research Station. Since it proved its superiority over the local check Sakha 69, nine more preliminary yield trials were conducted at five different locations namely; Sakha (Kafr El-Sheik), El-Serw (Damait), El-Gemmiza (El-Gharbia), Zarzarah (El-Behaira) and Sersellayan (Menofeia), to represent Delta Region in 1997/98 season. The statistical design used in these experiments was RCBD with four replicates and the plot size was 6 rows; 2.5m long and 20 cm apart. Moreover, Gemmiza 7, the new long spike cultivar, has been tested for yielding ability with the commercial checks Sakha 69, Giza 164, Sids 1 and Gemmiza 5 during the two growing seasons 1998/99 and 1999/2000, at the advanced yield trials. However, comparison as well as stability studies, using the average of these checks, were made to test its yield potentiality and stability.

In the advanced trials, all promising lines and commercial cultivars were tested in large-sized plot (3x3.5m) experiments. However, to represent all regions, 56 trials were conducted all over the country. Some of these experiments were carried out at research stations, and others at farmers' fields using the randomized complete block design in all experiments according to Steel and Torrie (1980). Moreover, the recommended cultural practices were applied on these experiments.

Concerning the demonstration fields, 99 experiments were conducted at Delta region and in some new lands out valley in 1998/1999 and 1999/2000 seasons. The area of each selected field was at least 3 Faddans. One of them was cultivated to Sakha 69 as a check and the rest of the area was grown with Gemmiza 7. At harvesting time, five randomly selected samples (4m² each) from each faddan were harvested and threshed. The clean kernels were weighed and adjusted to Ardab/Fad. to indicate the grain yield of each field.

Considering the environmental differences among the seven regions, analysis of variance and stability studies, were calculated at regional level and the average of the used checks was used in the comparisons. (Joppa et al., 1971 and Mitkees et al. 1989). Moreover, results of demonstration fields conducted through National Wheat Research Program in cooperation with extension agents, were exploited in the study.

II. Rust Diseases Reaction:

II.1 Seedling Tests

The new promising cultivar Gemmiza 7, was tested against the prevalent virulent pathotypes of leaf and stem rusts during 1998/2000 wheat growing seasons. The pathotypes used were isolates number 57, 77, and 184 of leaf rust and 11, 14, 15, 17, 19 and 39 of stem rust. Moreover, seedling tests for stripe rust resistance were made in the greenhouse at Sakha Research Station using a mixture of urediniospores collected from the pathotypes attacked wheat last season. Sowing, inoculation with urediniospores of the different isolates, incubation and recording the infection types were carried out at Cereal Diseases Research Department, Plant Pathology Research Institution at Giza according to the scales of Johnston and Browder (1966), and Roelfs and Martens (1988).

II.2 Adult Tests

Leaf and stem rust disease incidences were recorded at 4 locations; Sakha, Zarzora, El-Gemmiza, and Sids stations under artificial inoculation of mixed isolates from each pathogen. For stripe rust, the cultivar was subjected to natural infection under field conditions. The average of rust disease severities were calculated and compared with those of Sakha 69, Giza 164, Sids 1 and Gemmeiza 5 wheat cultivars.

Disease severity, expressed as the % coverage of leaves with rust pustules and plant reaction, for the five infection types 0; = immune, R= resistant, MR = moderately resistant, MS = moderately susceptible and S = susceptible, were scored according to stakman et al (1962). Moreover,

Average Coefficient of Infection (ACI) was calculated using the scale of Saari and Wilcoxson(1974) in which 0; = 0, R = 0.2, MR = 0.4, M (Mixed reaction) = 0.6, MS = 0.8, and S = 1.0.

RESULTS AND DISCUSSION

I- Crop Yield Evaluation and Stability:-

Table 1 shows the average grain yields of the new cultivar Gemmiza 7 comparing to those of the widely distributed commercial cultivar Sakha 69 in the screening yield trials for three successive seasons; 1994/1995 to 1996/97. The obtained data indicate the superiority of Gemmiza 7 over Sakha 69 in all seasons. However, the increments were very encouraging and ranged from 60 to 116 %.

Table 1: Screening yield trials for Gemmeiza 7 at Gemmeiza Station from 1994/1995 to 1996/1997 seasons.

Cultivars	94/95	95/96	96/97
Sakha 69	16.00	13.39	18.42
Gemmeiza 7	28.98	28.98	29.61
Significance	**	**	**

Therefore, in 1997/98 wheat growing season, to evaluate Gemmiza 7 grain yield, nine more preliminary yield trials (4 at North Delta and 5 at

Middle and South Delta) to represent the Delta regions, were conducted. Results presented in Table (2) revealed that Gemmiza 7 out-yielded Sakha 69 in seven out of nine experiments. However, the percentage increases ranged from 7 – 66 with an average of 20.82%.

Table 2: Preliminary grain yield trials for Gemmiza 7 at Delta region in 1997/1998 .

Locations	Check	Gemmeiza 7	Significance
North Delta			
Sakha, 98	15.75	14.00	NS +
El-Serw	14.17	15.88	*
Sakha, sd	10.79	13.59	**
Sakha, sr	11.37	12.16	NS
South Delta			
Gemmeiza	15.85	22.13	**
Zarzourah	16.81	15.51	**
Seresellian	15.75	20.00	**
Gemmeiza sd	14.31	19.84	**
Gemmeiza sr	12.69	21.01	**
Average	14.17	17.12	

NS = insignificant * = significant at level 0.05 ** = significant at level 0.01

Table 3: Advanced grain yield trials for Gemmiza 7 at Delta Region in 1998/1999 and 1999/2000.

Locations	1998/1999			Locations	1999/2000		
	Check	Gem.7	Sig		Check	Gem.7	Sig.
<u>North Delta</u>				<u>North Delta</u>			
Sakha	22.95	20.87	*	Sakha	21.64	24.50	**
K.Sheikh	25.84	27.40	NS	Demiat	21.24	21.74	NS
Demiat	26.79	25.67	**	Dakhlia	20.91	22.34	NS
Dakhlia	25.42	27.50	*	k. Sheikh	18.41	18.94	NS
Dakhlia	21.77	21.00	NS				
<u>MiddleDelta</u>				<u>MiddeDelta</u>			
Gemmeiza				Gemmiza	24.28	29.42	**
Beheria	24.13	29.52	**	Beheira	21.47	19.87	NS
Sharkia	21.63	26.77	**	Gharbia	19.22	25.27	**
Zarzora	29.72	29.00	NS	Zarzora	16.21	19.34	**
Sersellian	23.93	26.84	**	Sersellian	17.85	18.62	NS
Menoufia	22.24	26.37	**	Menoufia	22.00	24.60	**
Gharbia	26.01	26.67	NS	Sharkia	26.19	28.80	**
Gharbia	21.28	29.41	**				
<u>South Delta</u>				<u>South Delta</u>			
Giza				Giza	20.65	21.93	NS
Average	23.79	25.83	NS	Average	20.84	22.95	

NS = insignificant * = significant at level 0.05 ** = significant at level 0.01

In addition, Tables 3 and 4 clarify the average grain yield of Gemmiza 7 comparing to the average grain yield of the commercial cultivars, Sakha 69, Sids 1, Giza 164 and Gemmiza 5 in 56 experiments carried out all over the country in 1998/99 and 1999/2000 wheat growing seasons. Data of Table 3 proved that Gemmiza 7 surpassed the average of the checks at kafr El-Sheik and Dakahlia in 1998/99, and at Sakha, Demiat, Dakalia and Kafr El-Shiekh in 1999/2000 seasons. However, the average increase could

not reach significance except for Dakahlia and Sakha in the first and Second Season, respectively. Except for Sharkia in the first season, Gemmiza 7 proved its superiority in all experiments conducted at Middle and South Delta in the two Seasons.

On other hand, Gemmiza 7 grain yield was equal to or even lower than the average grain yield of the commercial cultivar in all advanced experiments conducted at Middle and Upper Egypt except for those of El-Menia in both seasons (Table 4).

Table 4: Preliminary grain yield trails for gemmiza 7 at Middle and Upper Egypt as well as new lands in 1998/1999 and 1999/2000.

Locations	1998/1999			Locations	1999/2000		
	Check	Gem.7	Sig.		Check	Gem.7	Sig.
<u>MiddleEgypt</u>				MiddleEgypt			
Sids	24.56	22.24	NS	Sids	21.36	24.54	**
B. Sueif	20.13	19.77	NS	Mallawy	23.55	21.54	**
Fayoum	26.67	26.67	NS	Menia	18.87	20.77	NS
Mallawy	22.74	19.47	**	Fayoum	27.30	25.56	NS
Menia	24.50	26.19	*				
Upper Egypt				Upper Egypt			
Shandaweel	19.46	20.73	NS	Shandaweel 1	16.29	16.53	NS
Sohag	25.27	23.27	NS	Shandaweel 2	17.90	15.58	NS
Matana	25.56	25.87	NS	Sohag	25.25	26.54	NS
Qena	19.01	16.47	NS	Matanaa	21.04	17.47	**
K.Ombo	14.74	13.83	NS	Qena	22.88	20.34	NS
New Land				K. Ombo	25.10	21.97	**
				New Land			
Assuit	12.19	7.79	**	Assuit	8.22	7.17	NS
N.Valley	13.30	13.68	NS	N.Valley	15.19	13.9	NS
Nobaria	21.47	19.63	NS	Khataraa	16.22	19.28	*
Khattara	16.48	15.64	NS	Noubaria	14.95	18.67	**
Esmalia	5.99	8.76	**	Esmalia	5.11	6.44	**
				S.Sainai	4.96	8.78	NS
Average	19.47	18.67		Average	17.76	17.82	

NS = insignificant * = significant at level 0.05 ** = significant at level 0.01

Taking the new land out of valley into consideration, Gemmiza 7 grain yield as shown in Table 4 exceeded the average grain yield of checks in El-Esmalia in the first season and in El-khattara, El-Nobaria, El-Esmalia and South Saini in the second season.

Concerning the results of demonstration fields, the average grain yield for Gemmiza 7 comparing to that of Sakha 69 calculated from 99 large scaled experiments conducted at 14 governorates representing the old and new lands of Delta in 1998/99 and 1999/2000 wheat growing seasons are presented in Table 5 . Data in this table, indicate that Gemmiza 7 out-yielded Sakha 69 in both seasons in all governorates, except in Kafr El-Sheikh, Demiat and El-Menoufia in the first season only. However, percentages of the average increases in these governorates ranged from 2.79 to 19.92% in the old lands with a regional average increase equal to 10.39% .

Likewise, Gemmiza 7 surpassed Sakha 69 in all demonstration fields of the new lands in Port Said, El- Ismalia, Suez , El-Nobaria area (El-Behira) and South Saini. Moreover, the percentage of increases ranged from 2.29% at El-Nobaria to 49% at El-Esmalia.

Table 5: Demonstration field results of the newly released cultivar Gemmeiza in two Seasons 1998/99.

Governorate	No. Trials	Check	Gemmiza 7	Difference ±%
North Delta				
Alexandria	1	15.96	17.78	+11.40
K.EL-Sheikh	2	24.31	21.54	- 11.39
EL-Behira	14	19.37	19.91	+ 2.79
Demiat 1999	1	17.14	14.94	- 12.84
Demiat 2000	1	14.32	15.26	+ 6.56
Averag		17.62	17.88	+ 1.47
South Delta				
Dakhlia	4	18.29	19.97	+ 9.19
Sharkia 99	9	19.73	23.60	+19.61
Sharkia 2000	8	21.72	24.13	+11.10
Gharbia 99	8	19.28	23.12	+19.92
Gharbia 2000	7	18.40	21.11	+14.73
Menoufia 99	4	22.24	21.54	- 3.15
Menoufia 2000	6	23.41	24.19	+ 3.33
Kalubia 99	5	20.21	22.85	+13.06
Kalubia 2000	5	19.48	22.58	+15.91
Giza	3	20.87	22.13	+ 6.04
Average		20.41	22.53	+10.39
New Land				
Port said	3	22.56	23.38	+ 3.63
Ismaliaa	7	22.48	33.60	+49.47
Suez	3	18.34	22.85	+24.59
EL_Bostan	2	12.00	14.43	+20.25
Sugar beet	2	16.96	18.48	+ 8.96
Nubaria	2	15.66	16.02	+ 2.29
South Sainai	2	18.56	22.58	+21.66
Average		19.66	24.89	+26.60

The superiority of Gemmeiza 7 could be attribute to its large number of kernels per spike (about 100 kernels) and heavy kernels approximately 52 gms/ 1000 kernels) Comparing to 45 kernels and 45 gms/ 1000 kernels for Sakha 69. On the other hand, the large number of kernels / spikelets (3-6 kernels) and hence kernels / spike may cause some shattering problems if harvesting was postponed to more than two weeks after physiological maturity. Therefore, producers ought to harvest their crop at the proper date in early morning and or at evening but not at noon time . Meanwhile , threshing could be practiced any time day or night.

Grain yield Stability study for the newly released cultivar Gemmiza 7 comparing with average of local checks presented in Table 3, indicates its relevance to moderate environments. Its regression slope over environmental index did not differ from unity at the five regions. Deviation from regression (S^2d)approached zero at all regions except South Delta, indicating its good stability in that region.

Table 6: Results of grain yield stability study for Gemmeiza 7 comparing to the average of local checks from 1995/96 to 1999/2000

Region/Cultivars	Average A/F+	Regression Parameters			
		b	Sb	Sd	Cd %
<u>North Delta</u>					
Local checks	19.89	1.084	0.0760	0.6190	94
Gemmeiza 7	20.39	1.041	0.0950	1.5350	91
<u>South Delta</u>					
Local Checks	19.42	1.062	0.2090	12.2887	58
Gemmeiza 7	25.08	1.005	0.1330	4.7166	75
<u>Middle Egypt</u>					
Local checks	22.54	0.856	0.1510	1.5788	78
Gemmeiza 7	22.50	0.790	0.1260	0.8625	81
<u>Upper Egypt</u>					
Local checks	21.14	0.950	0.0720	-0.2271	95
Gemmeiza 7	19.89	1.008	0.1020	-0.6401	92
<u>New Land</u>					
Local checks	12.19	1.011	1.0110	0.5224	96
Gemmeiza 7	12.71	0.926	0.9260	1.9690	90

A/F= Ardb/Fadan

Moreover, this estimate was very far below that for the local checks indicating that Gemmeiza 7 grain yield stability is better than those of the other local checks at South Delta.

II- Rust Diseases Reaction:

Data in Table 7 show the reaction of the new cultivar Gemmeiza 7 to the three rusts, stripe (YR) leaf (LR) and stem (SR) at Seedling stage in the two seasons. These data indicate that Gemmeiza 7 was resistant to the tested yellow rust pathotypes with infection type 1 in both season. Moreover, it was highly resistant with 0 infection type to isolates number 11, 14, 15, 17, 19 and 21 of stem rust causal agent in the two seasons. On the other hand, it was susceptible to leaf rust pathotypes number 57, 77 and 184 used in the seedling tested under the greenhouse conditions. In addition, the adult stage tests for Gemmeiza 7 under the field conditions are presented in Table 8. The calculated average Coefficient of Infection (AC1) for YR, LR and SR were 1,5 and 0 in the first season and 1,50 and 0 in the second one, sequently. These data proved that Gemmeiza 7 is resistant to stripe rust, susceptible to leaf rust and highly resistant to stem rust under field conditions.

Table (7): Seedling reaction of Gemmeiza 7 and local checks against mixtures of the identified stripe, leaf and stem rust pathotypes.

Cultivar	Seedling reaction / Season					
	1998/99			1999/2000		
	YR *	LR	SR	YR	LR	SR
Sakha 69	4	2	2	4	2	0
Giza 164	4	3	3	4	3	0
Sids 1	0	3	0	0	1	0
Gemmeiza 5	2	4	0	3	4	0
Gemmeiza 7	1	4	0	1	4	0

* YR = Strip Rust ; LR = Leaf Rust and SR = Stem Rust.

Table (8): Mean Average Coefficient of Infection (AC1) of Gemmiza 7 and local checks, during the two successive wheat growing seasons 1998/1999 and 1999/2000 at the adult stage.

Cultivar	Adult reaction / Season					
	1998/99			1999/2000		
	YR *	LR	SR	YR	LR	SR
Sakha 69	47.5	29.4	5.0	50.0	20.0	0
Giza 164	37.5	27.4	5.0	60.0	10.0	0
Sids 1	0.0	43.0	1.8	0.0	50.0	0
Gemmiza 5	4.8	30.0	1.8	2.5	40.0	0
Gemmiza	1.0	5.0	0.0	1.0	50.0	0

* YR = Strip Rust ; LR = Leaf Rust and SR = Stem Rust.

In conclusion , the newly released cultivar Gemmiza 7 could be grown successfully and replace the widely distributed cultivar Sakha 69 in the old lands of Delta region as well as in the new lands of Eastern and western Delta due to its higher yield potentiality and rust resistance levels.

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جميزة 7 : صنف قمح مصري جديد طويل السنبلية .

تاج الدين شهاب الدين* ، مصطفى المنوفى، موسى مسعد، رأفت ميتكيس، محروس محروس، أسعد حماده، أنور عجيز ، عبد الرحمن بسيونى ، ممدوح الشامى ، مسعد عبد العليم، محمد عيد ، عيد الغنى مصطفى، محمد أسكندر، نبيل حنا، سامى صبرى، عبد اللطيف حسين ، محمد شرشر، ايمان صادق، مصطفى مصطفى، أبو بكر أبو وردة ، يحيى عبد الجواد، على موسى، صلاح الدين عبد المجيد، أحمد تمام ، نجوى عبد الفتاح، محمد مشرف، حسن عشوش، عز الدين السيد، مورييس توفيليس، هيام محجوب، أحمد مصطفى، حمدى هنداوى، فرغل حفناوى، صلاح الدين على ، عبدالكريم عبد الكريم ، عبد الخالق خطاب، محمد عبد الفتاح، عبد السلام منشاوى، هانى البرهامى، عبد السلام جمعه ، فتحى السيد ، عمر خليل ، قدرية حجازى، عبد المعبود على، عنايات غانم، سيد محمود وصلاح الدين الشريف**.

* البرنامج القومى لبحوث القمح – معهد بحوث المحاصيل الحقلية- مركز البحوث الزراعية.
** قسم أمراض الحبوب- معهد بحوث أمراض النبات – مركز البحوث الزراعية.

نباتات القمح ذات السنابل الطويلة جذابة لكل من مربى ومنتج القمح . ولهذا قد أعطى البرنامج القومى لبحوث القمح في جمهورية مصر العربية المزيد من الاهتمام لاستنباط أصناف جديدة ذات سنابل طويلة . وتتميز الأصناف ذات السنابل الطويلة بمايلى:- طول السنبلية (50 % أطول من سنابل الأصناف العادية في أي موقع تجريبي) ، عدد أكبر من الحد بوب في السنبلية (أكثر من 100 حبه/ سنبلية في الأحوال العادية) وزن الالف حبه (حوالي 10-15% أثقل من حبوب الأصناف العادية) .

سلسلة الأصناف الطويلة المستنبطة كخطوة أولى وهى سدس 4 إلى سدس 9 كانت تنقصها بعض الصفات الهامة مثل المقاومة للأصداء وخاصة الصدأ الأصفر ، القدرة على التفريع وكنتيجة للجهود المستمرة فقد تم استنباط الصنف جميزة 7 الذي يتميز بالمحصول العالى والقدرة على التفريع والمقاومة العالية لصدأ الساق والمقاومة الجيدة للصدأ الأصفر .

تم إجراء 167 تجربة على مستويات مختلفة من تجارب تقييم المحصول على مدى ستة مواسم ابتداء من 1995/94 حتى 2000/99 في مواقع كثيرة في السبع مناطق التي تمثل جميع أراضي جمهورية مصر العربية . وقد أثبتت الغالبية العظمى من هذه التجارب تفوق الصنف جميزة 7 على الأصناف التجارية سخا 69 ، جيزة 164 ، سدس 1 وجميزة 5 . وقد تراوحت النسبة المئوية للزيادة ما بين 2.29 الى 116 % مقارنة بمتوسط محصول الأربعة أصناف. كما أوضحت دراسة ثبات الصنف على مدى ستة مواسم متتالية أنه على درجة عالية من الثبات في منطقة الدلتا عامة وفي وسط وجنوب الدلتا بصفة خاصة . كما أوضحت اختبارات مقاومة الصنف للأصداء الثلاثة مدى مقاومته للصدأ الأصفر ومقاومته العالية جداً لصدأ الساق كما أظهرت أيضاً قابليته للإصابة بدرجة متوسطة بالصدأ اليرتقالي أقل الأصداء ضرراً . ولهذا يوصى بزراعة الصنف طويل السنبلية جميزة 7 في منطقة الدلتا سواء في الأراضي القديمة أو الجديدة بصفة عامة ويوصى بزراعته بصفة خاصة في منطقتى وسط وجنوب الدلتا .