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# EVALUATION OF YIELD AND ITS COMPONENTS OF SOME EGYPTIAN WHEAT CULTIVARS

**Eman Naif**

Department of Crop Science, Faculty of Agriculture, Damanhour University, El-Beheira, Egypt. eman.naif@agr.dmu.edu.eg

## Abstract

**The field experiment was conducted to evaluate the yield and yield components of four Egyptian wheat cultivars, namely Gemmeiza11, Giza 168, Sids 12, and Bani Sweif 5. The field experiment was laid out in RCBD design with three replications during the two growing seasons (2019/2020 and 2020/2021) at Abu El Matamir region, Beheira Governorate, Egypt. The current study screened the four Egyptian wheat cultivars for 11 traits, including the number of days to anthesis, number of days to physiological maturity, grain fill duration, plant height, number of spikes, number of grains per spike, grain weight, grain yield, straw yield, biological yield, and harvest index. For the number of days to anthesis, the highest genotype was Giza 168 in both seasons, while the lowest genotype was Sids 12 in 2019/2020 season and Bani Sweif 5 in 2020/2021 season. As regard days to maturity, the earliest genotype was Sids 12, whereas Gemmeiza 11 was the latest genotype in both seasons. The results also showed that Gemmeiza 11 had the highest value of grain fill duration in both seasons, while Giza 168 and Sids 12 had the lowest value in 2019/2020 and 2020/2021 seasons, respectively. For plant height, Gemmeiza 11 was the tallest genotype in both seasons, while the shortest genotype was Bani Sweif 5. Concerning the number of spikes /m$^2$, the highest genotype was Bani Sweif 5 in both seasons. Concerning the number of grains/spike, the highest genotype was Sids 12 in both**

**seasons. For grain weight and harvest index, the highest genotype was Gemmeiza 11, in both seasons. Concerning grain yield, straw yield, and biological yield, the highest genotype was Gemmeiza11 in 2019/2020 season and Bani Sweif 5 in 2020/2021 season.**

Keywords: Wheat, cultivars, yield and its components, Evaluation.

## INTRODUCTION

Wheat (*Triticum aestivum* L.) is the most widely significant and produced cereal crop that gives people and animals many important minerals. Wheat is well known as a stable crop that meets the food requirements of the worldwide human population; it is simple to process, store, transport, refine, and consume as raw food (Shewry, 2009). Wheat is the most important vital and strategic crop in Egypt. Egyptian wheat production is insufficient to meet demand. To close the gap, we must boost the potential of wheat cultivars and expand wheat-producing areas.

The primary goal of any breeding program around the world is to create high-yielding wheat cultivars (Ehdaie and Waines, 1989). The vegetative period of development influences the final grain yield in available leaf area, tillering, and the number of spikelets formed (Rawson 1970). Mohsen *et al*. (2013) showed that wheat cultivars had significant impacts on all parameters (number of grains per spike, seed yield, biomass yield, and harvest index), excluding thousand-grain weight. Shamsi *et al.* (2010) found that there were considerable differences in grain yield, yield components, and several morphological traits among the studied cultivars. Muhammad *et al* (2015) investigated six wheat genotypes and discovered genotype differences in days to booting, heading, anthesis, and maturity, germination count $m^{-2}$, number of tillers $m^{-2}$, plant height, number of grains spike$^{-1}$, thousand grains weight, and grain yield. Muhammad *et al* (2009) evaluated three wheat cultivars, they discovered that sowing dates and varieties both had a substantial impact on the number of fertile tillers $m^{-2}$, plant height, number of spikelets per spike, 1000-grain weight, and grain yield**.** Plant height, number of tillers/$m^2$, number of spikes/$m^2$, 1000-grain weight, and straw yield/fed all appeared to be positively significantly correlated with grain yield/fed (EL-Bana 2000). The cultivar "Sids1" recorded the highest values for plant height, spike length, number of grains/spike, grain yield/spike, 1000-grain weight, number of spikes/m2, grain yield and straw yields/fed, ash and bran percentages (Toaima *et al*. 2000). El-Hag (2006) discovered that the Gemmeiza 10 cultivar outperformed the other cultivars in terms of days to 50% heading and days to maturity, however, the cultivar "Sakha 94" had the maximum values for each of plant height, number of spikes/$m^2$, and grain and straw yield /fed. The results of wheat genotypes showed significant differences ($P<0.5$) for growth performance and yield components (Suleiman *et al*. 2014). There was a substantial difference between genotypes for the number of tillers/plant, grains/spike, 1000-grain weight, days to maturity, and grain yield (Khan 2004). Abdulkerim *et al.* (2015) studied four varieties of bread wheat and discovered that the main effects of variety affected days to 50% heading, days to 90% maturity, plant height, spike length, hectoliter weight, and harvest index highly substantially ($p < 0.01$). The main objective of this paper was to define the effect of genotypes on the yield and yield components of some Egyptian wheat cultivars.

## MATERIALS AND METHODS

### Experimental and plant materials

The present investigation was conducted at Abu El Matamir region, Beheira Governorate, Egypt. The field experiment was carried out in the two successive winter seasons of 2019 / 2020 and 2020 / 2021. The sowing date was November 23rd in both seasons. The experiments included four Egyptian wheat cultivars; namely, Gemmeiza 11, Giza 168, Sids 12, and Bani Sweif 5. All other cultural practices were applied as recommended for the experimentation site. A mono–superphosphate (15.5 % $P_2O_5$), potassium sulfate (48 % $K_2O$), and ammonium sulfate (20.5 % N) fertilizers were applied as recommended in both seasons at the rate of 22.5 kg $P_2O_5$ / fed, 24 kg $K_2O$ / fed and 100 kg N/fed, respectively. The experimental design was a randomized complete block with three replications in the two seasons of the study. Each plot consisted of six rows, 2 m long, 30 cm apart, with a seeding rate of 65 kg/fed.

**Studied traits**

Number of days to anthesis (DA)

Anthesis date was recorded as the number of days from seeding to 50% anthesis on a plot basis.

Number of days to maturity (DM)

The maturity date was calculated as the number of days between sowing and the physiological yellow stage of maturity. The absence of green color in all spike components was regarded as a trustworthy indicator of physiological maturity (Donnelly, 1983).

Grain fill duration (GFD)

Grain fill duration was recorded as the number of days from anthesis to physiological maturity.

Plant height (PH, cm)

Plant height was measured on a random sample of five plants of each plot as the length from the soil surface to the tip of the spike at harvest time.

For yield and its complements, the following attributes were recorded at harvest time.

Number of spikes /$m^2$ (NS/$m^2$) The number of spikes /$m^2$ (tillering capacity) was measured at harvest as the number of spikes per meter of a guarded row for each plot and was expressed as the number of spikes per square meter.

Number of grains/spike (NG/S)

A random sample of ten spikes was collected from each plot and the mean number of grains per spike for each plot was counted.

Grain weight (GW, mg)

Grain weight was reported as the mean of two hundred-grain samples. Samples were randomly collected from each plot at harvest and grain weight was expressed as mg/grain.

Grain yield (GY, ton/ha)

The grain yield was determined from the central four rows of each plot and expressed as tons /ha. Straw yield (ton/ha). Biological yield (ton/ha) = (grain yield+ Straw yield). Harvest index = (grain yield/ biological yield) × 100.

**Statistical analysis**

Data were statistically analyzed using the analysis of variance (ANOVA) procedures using SAS GLM procedure (SAS version 9.1, SAS Institute, 2004, Cary, NC, USA), following the procedures of the randomized complete block design (RCBD) with three replications as specified by Gomez and Gomez (1984). Duncan's Multiple Range Test was used to compare the samples' means (Steel and Torrie, 1980). Homogeneity of variance, in the two seasons, was tested following Bartlett's test (Bartlett, 1937). The combined analysis of variance was performed among the two seasons with homogeneous variance according to Cochran and Cox (1957).

Pearson's correlation coefficients between different traits were determined using RStudio Version 3.2.1 (R Development Core Team 2008).

## RESULTS AND DISCUSSION

### Analysis of variance and genetic variation among wheat genotypes

### Number of days to anthesis and maturity

The results of the analysis of variance (ANOVA) showed that were highly significant differences among genotypes for the number of days to anthesis and the number of days to maturity in both seasons (Table 1). Bartlett's test for homogeneity of variance showed non-homogeneous variance over years for the number of days to anthesis, while showed homogeneous variance over years for the number of days to maturity (DM). Regarding the combined analysis (Table 2), it is valuable to note that the effects of years and genotypes were significant at 0.01 level (Table 2).

Results in Table 3 present the means comparison of DA for the four wheat genotypes in the first and the second seasons, respectively. The highest genotype for the number of days to anthesis was Giza 168 where it recorded 82.67 and 88.66 days in the first and the second seasons, respectively (Table 3). On the other hand, the lowest genotype was Sids 12 in the first season, whereas Bani Sweif 5 was the lowest genotype in the second season, which recorded 75.33 and 86.66 days, respectively, (Table 3). The variation in the number of days to anthesis among wheat cultivars was recorded by EL-Hag (2006). For DM, the earliest genotype in maturity was Sids 12 in the two growing seasons, where it recorded 117.67 and 122 days in the first and the second seasons, respectively. In contrast, Gemmeiza 11 was the latest-maturing genotype in the two seasons, where it recorded 126.67 and 131 days in the first and the second seasons, respectively. In this respect, EL-Hag (2006) found variation among some wheat cultivars in the number of days to physiological maturity.

## Grain fill duration (GFD)

The analysis of variance (Table 1) showed significant differences in GFD among the genotypes in the first season, however, those differences were highly significant among the genotypes in GFD in the second season. In addition, Bartlett's test for homogeneity of variance showed homogeneous variance over years in GFD. The combined analysis for a such trait (Table 2) indicated that the effects of years and genotypes were significant ($p < 0.01$). The findings exhibited in Table 3 showed that the highest genotype for GFD was Gemmeiza 11 in both seasons of the study, which recorded 46.66 and 47.33 days in the first and second seasons, respectively. On the other hand, the lowest genotype was Giza 168 in the first season, while Sids 12 was the lowest genotype in the second season, which recorded 41.0 and 41.66 days, respectively. Similar results were obtained by Saadalla (1993), Neog *et al.* (2001), and Hoffmann (2008), where they detected different responses of the GFD of cultivars, resulting in different numbers of GFD among different cultivars.

## Plant height (PH, cm)

The results of ANOVA (Table 1) showed highly significant differences ($p < 0.01$) in PH among the genotypes in the first season, whereas those differences were only significant ($p < 0.05$) in the second season. Bartlett's test for homogeneity of variance showed non-homogeneous variance over years for plant height. Genotypic means of PH for four wheat genotypes in the first and the second seasons (Table 3) showed that Gemmeiza 11 was the tallest genotype for PH in both seasons of study, where it recorded 102.33 and 100.33 cm in the first and the second seasons, respectively. On the other hand, the shortest genotype was Bani Sweif 5 in the two seasons, where it recorded 84.66 and 93.33 cm in the first and the second seasons, respectively. Similar genotypic differences, in PH, were obtained by Kimurto *et al*. (2003), Mahboob *et al.* (2009), and Johari-Pireivatlou and Habib (2011).

**J. Agric. & Env. Sci. (Damanhour University) 2022, 21 (3): 58-79**
**Print: ISSN 1687-1464 Online: 2735-5098**

**Table 1. Analysis variance for 11 studied traits of four wheat genotypes in 2019/2020 and 2020/2021 seasons.**

| S.O.V. | DF | No. days to anthesis | | No. days to Maturity | | Grain fill duration | | Plant height | | No. spikes/m$^2$ | | No. grains/spike | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 |
| Rep. | 2 | 1.58 | 0.083 | 0.25 | 0.083 | 2.58 | 0.75 | 18.083 | 1.58 | 3880.33 | 118.08 | 12.58 | 4.08 |
| Gen. | 3 | 54.56** | 35.63** | 47.33** | 41.42** | 16.55* | 29.64** | 171.64** | 35.42* | 51346.30** | 58655.42** | 950.66** | 380.08** |
| Err. | 6 | 0.47 | 0.97 | 1.58 | 1.42 | 3.47 | 1.64 | 1.97 | 6.58 | 1502.55 | 619.42 | 33.916 | 6.42 |

| S.O.V. | DF | Grain weight | | Grain yield | | Straw yield | | Biological yield | | Harvest index | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 | 19/20 | 20/21 |
| Rep. | 2 | 1.357 | 1.07 | 0.026 | 8.71 | 4.91 | 0.29 | 4.53 | 7.96 | 6.82 | 15.57 |
| Gen. | 3 | 52.46** | 59.84** | 3.01ns | 20.33** | 9.73* | 22.64** | 24.93** | 60.45** | 0.31ns | 133.88** |
| Err. | 6 | 1.269 | 2.33 | 1.1 | 1.03 | 1.75 | 1.29 | 1.55 | 1.58 | 13.81 | 10.61 |

*, ** denote significant variation between genotypes at 0.05 and 0.01% probability level, whereas ns denotes non-significant differences among genotypes.

**J. Agric. & Env. Sci. (Damanhour University) 2022, 21 (3): 58-79**
**Print: ISSN 1687-1464 Online: 2735-5098**

**Table 2. Combined analysis of variance over seasons (2019/2020 and 2020/2021).**

| S.O.V. | DF | No. days to Maturity | Grain fill duration | No. grains/spike | Grain weight | Biological yield | Straw yield |
|---|---|---|---|---|---|---|---|
| Years (Y) | 1 | 117.04 ** | 192.67** | 864 ns | 0.54 ns | 0.4817 ns | 11.89 ns |
| Reps/years | 2 | 0.33 | 1.33 | 3998.12 | 27.02 | 29.39 | 13.59 |
| Gen. (G) | 3 | 87.37 ** | 43.39** | 101597.17 ** | 53.89 ** | 67.97** | 14.58 ns |
| Y x G | 3 | 1.375 ns | 1.89 ns | 8404.56 ** | 15.76 * | 9.96 ns | 16.06 ns |
| Err. | 12 | 1.5 | 2.89 | 1060.99 | 3.16 | 6.86 | 6.09 |

*, ** denote significant variation between genotypes at 0.05 and 0.01% probability level, whereas ns denotes non-significant differences among genotypes.

J. Agric. & Env. Sci. (Damanhour University) 2022, 21 (3): 58-79
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**Table 3. Analysis variance for 11 studied traits of four wheat genotypes in 2019/2020 and 2020/2021 season**

| Genotypes | No. days to anthesis | | No. days to Maturity | | Grain fill duration | | Plant height | |
|---|---|---|---|---|---|---|---|---|
| | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 |
| Gemmeiza 11 | 80 b | 88.33 a | 126.67 a | 131 a | 46.66 a | 47.33 a | 102.33 a | 100.33 a |
| Giza 168 | 82.67 a | 88.66 a | 123.67 b | 127 b | 41 b | 38.33 b | 97.33 b | 99.33 ab |
| Sids 12 | 75.33 d | 87 a | 117.67 c | 122 c | 44.33 ab | 41.66 c | 92 c | 94.66 bc |
| Bani Sweif 5 | 73.33 c | 86.66 a | 120 c | 125.66 b | 44.66 ab | 39 b | 84.66 d | 93.33 c |
| **Mean** | 77.83 | 87.66 | 122.002 | 126.415 | 44.163 | 41.58 | 94.08 | 96.912 |

| Genotypes | No. spikes/m$^2$ | | No. grains/spike | | Grain weight | | Grain yield | |
|---|---|---|---|---|---|---|---|---|
| | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 |
| Gemmeiza 11 | 620.33 c | 708.66 c | 51 c | 52.66 c | 51.56 a | 50.066 a | 10.83 a | 11.84 a |
| Giza 168 | 733.66 b | 772.33 b | 56.33 bc | 52.33 c | 46.5 c | 43.66 b | 8.83 a | 8.426 b |
| Sids 12 | 692 bc | 602.66 d | 91 a | 75.66 a | 48.83 b | 41.66 bc | 9.14 a | 8.3 b |
| Bani Sweif 5 | 926.33 a | 936.66 a | 63 b | 65.66 b | 41.7 d | 39.8 c | 10.56 a | 13.566 a |
| **Mean** | 743.08 | 755.077 | 65.332 | 61.577 | 47.147 | 43.796 | 9.84 | 10.533 |

| Genotypes | Straw yield | | Biological yield | | Harvest index | |
|---|---|---|---|---|---|---|
| | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 | 2019/2020 | 2020/2021 |
| **Gemmeiza 11** | 18.41 a | 13.68 b | 29.5 a | 26.63 b | 36.7 a | 48.63 a |
| **Giza 168** | 14.83 b | 17.17 a | 23.66 b | 25.59 b | 37.4 a | 32.84 b |

**J. Agric. & Env. Sci. (Damanhour University) 2022, 21 (3): 58-79**
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| | | | | | | |
|---|---|---|---|---|---|---|
| **Sids 12** | 15.69 ab | 13.97 b | 24.83 b | 22.27c | 36.83 a | 37.32 b |
| **Bani Sweif 5** | 18.23 a | 19.43 a | 28.8 a | 33 a | 36.75 a | 40.94 b |
| **Mean** | 16.79 | 16.062 | 26.697 | 26.872 | 36.92 | 39.932 |

Means followed by the same letter (s) are not significantly different according to Duncan,s Multiple Range Test.

**Number of spikes/m$^2$ (NS/m$^2$)**

The analysis of variance in Table 1 showed highly significant differences ($p < 0.01$) among genotypes for NS/m$^2$ in both seasons. Bartlett's test for homogeneity of variance showed non-homogeneous variance over years for the number of spikes/m$^2$. Regarding the combined analysis (Table 2), it is valuable to note that the effect of genotypes and the interaction between years x genotypes were significant at 0.01 level. For means comparison in NS/m$^2$ among the four genotypes, the highest value was observed for Bani Sweif 5 in the two seasons, where it recorded 926.33 and 936.66 spikes/m$^2$ in the first and the second seasons, respectively (Table 3). On the other hand, the lowest genotype for the number of spikes/m$^2$ was Gemmeiza 11 in the first season, whereas Sids 12 was the lowest genotype in the second season, which recorded 620.33 and 602.66 spikes/m$^2$, respectively, (Table 3). Similar genotypic differences, in NS/m$^2$, were obtained by Johari-Pireivatlou and Habib (2011) and Keyvan *et al*. (2011).

**Number of grains/spike (NG/S)**

Table 1 further shows highly significant differences among genotypes for the number of grains/spike in both seasons. Bartlett's test for homogeneity of variance showed homogeneous variance over years. Regarding the combined analysis, it was noted that the effect of genotypes and the interaction between years x genotypes were highly significant ($p < 0.01$), whereas the effect of years, was not significant (Table 2)

The highest genotype for the number of grains/spike was Sids 12, where it recorded 91 and 75.66 grains/spike in the first and the second seasons, respectively, (Table 9). On the other hand, the lowest genotype for grains/spike, was Gemmeiza 11, in the first season, while Giza 168 was the lowest genotype in the second season, which recorded 51 and 52.33

grains/spike respectively, (Table 9). Similar genotypic differences, in NG/S, were obtained by Ameer *et al.* (2009) and Keyvan *et al*. (2011).

**Grain weight (GW, mg)**

Table 1 showed highly significant differences among genotypes for grain weight in both seasons. Bartlett's test for homogeneity of variance showed homogeneous variance over years for grain weight. Regarding the combined analysis, it was noted that the effect of genotypes and the interaction between years x genotypes were highly significant ($p < 0.01$), whereas the effect of years was not significant (Table 2). The highest genotype for GW was Gemmeiza 11 in both seasons, where it recorded 51.56 and 50.066 mg in the first and the second seasons, respectively, (Table 3). On the other hand, the lowest genotype for GW was Bani Sweif 5, where it recorded 41.7 and 39.8 mg in the first and the second seasons, respectively (Table 3). Similar genotypic differences, in GW, were obtained by Puspendu-Singha *et al*. (2006).

**Grain yield (GY, ton/ha)**

Table 1 further shows non-significant differences among genotypes for GY in the first season. However, there were highly significant differences among genotypes for GY in the second season. Bartlett's test for homogeneity of variance showed non-homogeneous variance over years. Means comparison for GY (Table 3) indicated that the highest yielding genotypes were Gemmeiza 11 and Bani Sweif 5, where they recorded 10.83 and 13.566 ton/ha in the first and second seasons, respectively. On the other hand, the lowest genotype for GY was Giza 168 in the first season, while Sids 12 was the lowest genotype in the second season, which recorded 8.83 and 8.3 ton/ha, respectively, (Table 3). Similar genotypic differences, in GY, were obtained by Naeem *et al.* (2010), Johari-Pireivatlou and Habib (2011), and Ping *et al*. (2011).

**Straw yield (ton/ha)**

The analysis of variance (Table 1) showed significant differences ($p < 0.05$) in straw yield among the genotypes in the first season and highly significant differences ($p < 0.01$) among the genotypes in the second season. Bartlett's test for homogeneity of variance showed homogeneous variance over years. Regarding the combined analysis (Table 2), it is valuable to note that the effect of years, genotypes, and the interaction between years x genotypes were not significant. Means comparison for SY (Table 3), the highest genotype for straw yield was Gemmeiza 11 in the first season, while Bani Sweif 5 was the highest genotype in the second season, which recorded 18.41 and 19.43 ton/ha, respectively, (Table 3). On the other hand, the lowest genotype for straw yield was Giza 168 in the first season, while Gemmeiza 11 was the lowest genotype in the second season, which recorded 14.83 and 13.68 ton/ha, respectively, (Table 3). The obtained results are in agreement with the results of Toaima *et al*. (2000), El-Hag (2006) and Al Tahar and Yagoub (2011).

**Biological yield (ton/ha)**

Table 1 shows highly significant differences ($p <0.01$) among genotypes for biological yield in both seasons. Bartlett's test for homogeneity of variance showed homogeneous variance over years. Regarding the combined analysis (Table 2), it was observed that the effect of genotype only was highly significant ($p <0.01$). The highest genotype for biological yield was Gemmeiza 11 in the first season, while Bani Sweif 5 was the highest genotype in the second season, which recorded 29.5 and 33 ton/ha, respectively, (Table 3). On the other hand, the lowest genotype for biological yield was Giza 168 in the first season, while Sids 12, was the lowest genotype in the second season, which recorded 23.66 and 22.27ton/ha, respectively, (Table 3). The obtained results are in agreement with the results of Abd Alrzak (2011), Mostafa *et al.* (2011), and Mohammad and Majidian (2012).

## Harvest index

Table 1 further showed that non-significant differences were observed among genotypes for harvest index in the first season, whereas highly significant differences ($p < 0.01$) were exhibited in the second season. Bartlett's test for homogeneity of variance showed non-homogeneous variance over years. The highest genotype for harvest index was Gemmeiza 11 (Table 3), where it recorded 36.7% and 48.63% in the first and the second seasons, respectively. On the other hand, the lowest genotype for harvest index was Bani Sweif 5 in the first season, while Giza 168 was the lowest genotype in the second season, which recorded 36.75% and 32.84%, respectively, (Table 3). The obtained results are in agreement with the results of Jemal Abdulkerim *et al.* (2015), Mostafa *et al*. (2011), and Wajid *et al*. (2011).

## Correlation coefficients among studied attributes

The results of the correlation coefficient analysis are presented in Figure 1. The findings showed that the highest significant and positive correlation ($r$ = 0.81, $p < 0.05$) was found between grain yield and harvest index, followed by the number of days to physiological maturity and plant height ($r$ = 0.79, $p < 0.05$), straw yield and biological yield ($r$ = 0.77, $p < 0.05$), grain yield and biological yield ($r$ = 0.75, $p < 0.05$), and the number of days to flowering and number of days to physiological maturity ($r$ = 0.71, $p < 0.05$). In contrast, the highest significant and negative correlation coefficient ($r$ = -0.80, $p < 0.05$). was found between the number of days to physiological maturity and the number of grains/spike.

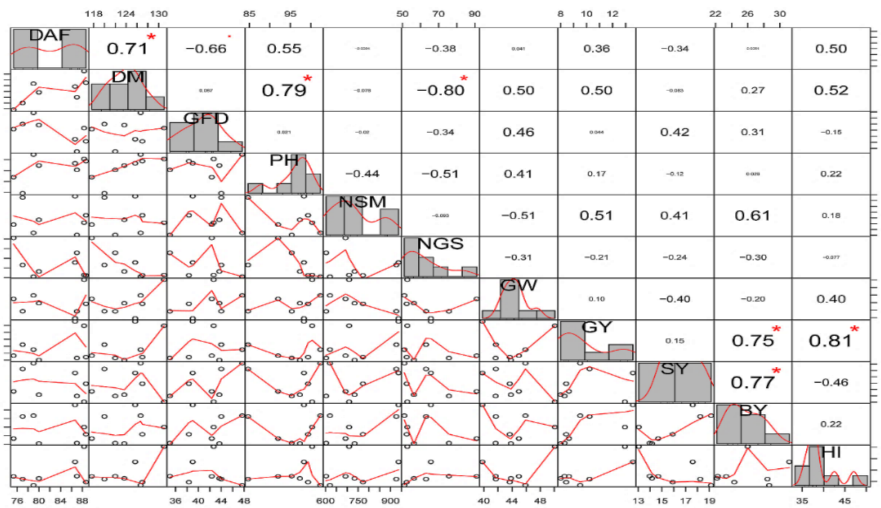


**Figure1. Pearson's correlation coefficient among different traits of four wheat genotypes.** DA, number of days to anthesis; DM, number of days to physiological maturity; GFD, grain fill duration; PH, plant height; NSM, number of spikes/$m^2$, NGS, number of grains per spike; GW, grain weight; GY, grain yield; SY, straw yield; BY, biological yield; HI, harvest index. * denotes significant variation between genotypes at 0.05% probability level.

## CONCLUSION

Gemmeiza-11 cultivar had the significantly highest values of plant height, grain fill duration, grain weight, grain yield, straw yield, biological yield, and harvest index in field experiments. As a result, the investigation results generally concluded that growing Gemmeiza-11 in the Abu El Matamir region and all similar regions is recommended.

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## الملخص العربي

## تقييم المحصول ومكوناته لبعض اصناف القمح المصرية

ايمان نايف

قسم المحاصيل – كلية الزراعة – جامعة دمنهور – البحيرة – مصر

أجريت التجربة الحقلية لتقييم المحصول ومكوناته لأربعة أصناف من القمح المصري (جميزة 11– جيزة 168– سدس 12– بني سويف 5 تم تنفيذ التجربة فى تصميم قطاعات كاملة العشوائية مع استخدام ثلاث مكررات خلال موسمي الزراعة 2020/2019 و2021/2020 بمنطقة ابو المطامير بمحافظة البحيرة بمصر. بالنسبة لصفة عدد الأيام حتى التزهير ، كان أعلى الأصناف هو جيزة 168 في كلا الموسمين بينما كان أقل الأصناف هو Sids 12 في الموسم الأول والصنف بني سويف 5 في الموسم الثاني. فيما يتعلق بصفة عدد الأيام حتى النضج، كان أبكر الأصناف في النضج هو الصنف Sids

12 في كلا الموسمين ، بينما كان الصنف جميزة 11 هو الأكثر تأخرا في النضج. أما جميزة 11 كان هو الأعلى في صفة فترة امتلاء الحبوب في كلا الموسمين ، بينما كان أقل الاصناف هو الصنف جيزة 168 في موسم 2020/2019 ، وكان سدس 12 هو الأقل في موسم 2021/2020. بالنسبة لارتفاع النبات ، كان الصنف جميزة 11 أطول الاصناف في كلا الموسمين ، بينما كان أقصر الاصناف بني سويف 5. فيما يتعلق بعدد السنابل / م 2 ، كان أعلى الاصناف بني سويف 5 في كلا الموسمين. فيما يتعلق بعدد الحبوب / السنبلة ، فإن أعلى الاصناف كان سدس 12 في كلا الموسمين. بالنسبة لوزن الحبوب ولصفة دليل الحصاد كان الصنف جميزة 11 أعلى الاصناف في كلا الموسمين. فيما يتعلق بمحصول الحبوب ومحصول القش والمحصول البيولوجي، كان أعلى الأصناف جميزة 11 لموسم 2020/2019 وبني سويف 5 في موسم 2021/2020.