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Summary

Four experiments (two field experiments and two laboratory experiments) were carried out in Tag Al-Ezz Agric., Research station farm and Mansoura seed Technology unit). During 2002/2003 and 2003/2004 seasons to study the effect of four harvest dates and six nitrogen treatments as well as their interaction on growth measurements, yield and yield components and technological characters of wheat (*Triticum, aestivum*, L.) Giza 168.

1- field experiments:

Two field experiments were carried out in Tag AL-EZZ Agricultural Research station farm, Dakhia Governorate, during the two winter seasons of 2002/2003 and 2003/2004. These studies were aimed to determine the effect of harvest dates, nitrogen treatments, as well as their interactions on growth yield and yield components of wheat CV. Giza168. A split plot design with four replicates was used in this study. The main plots were allocated to four harvest dates as follows:-

- 1- 17 days after heading.
- 2- 27 days after heading.
- 3- 37 days after heading.
- 4- 47 days after heading.

The sub-plots were occupied by six nitrogen treatments as follows:

- 1- Without fertilization (control).
- 2- 160kg Urea (soil application).

3- 80 kg Urea (soil application) + 5% foliar applications.

4- 80kg Urea (soil application) + 10% foliar applications.

5- 40kg Urea (soil application) + 5% foliar applications.

6- 40kg Urea (soil application) + 10% foliar applications.

- Nitrogen fertilizer in the form of Urea (46.5%N) was applied in three equal portions at the first watering. Each sub plot was 7.0m length and 3.0m width occupying an area of 2132 in both seasons wheat was proceeded by rice (*Oryza sativa*.L).

The most important results obtained from this experiments can be summarized as follows:-

A- Growth characters : at 65.80 and 95 days after sowing:-

A-1- Plant height:

Effect of nitrogen treatments:-

Plant height of wheat affected by nitrogen fertilization through soil and foliar application during 2002/2003 and 2003/2004. Results indicate that average plant height increased gradually through the whole experimental (65,80 and 95 day after sowing). Regarding plant height the results indicate that all nitrogen fertilization treatments (urea soil application and /or foliar application) significant increased the plant height in both seasons. Results show that the highest means of plant height were recorded when 80kg urea was applied through combined with 10% urea through foliage, followed by the application of 160kg urea through soil.

A-2- Number of tillers:

Effect of nitrogen treatments:-

- The averages of Number of tillers of wheat significantly increased with affected by nitrogen fertilization through soil and foliar application for both seasons 2002/2003 and 2003/2004. Results indicate that average Number of tillers did not change gradually through the plant physiological stages. Regarding Number of tillers, the results indicate that all nitrogen fertilization treatments (urea soil application and /or foliar application) significant increased the previous parameters for both seasons. Results show what that the highest means of the Number of tillers were recorded when 80kg urea was applied through In addition 10% urea through foliage followed by the application of 160kg urea through soil. Compared with the control.

A-3- leaf area:

Effect of nitrogen treatments:-

The averages of leaf area of wheat as affected by nitrogen fertilization through soil and foliar application in both seasons. Results indicate that averages of leaf area increased gradually through the whole experimental (65,80 and 95 day after sowing).

Regarding leaf area indicated that all nitrogen fertilization treatments (urea soil application and /or foliar application) significant increased leaf area in both seasons. Results show what that the highest means of the leaf area were recorded when application of 80kg urea through soil in addition to 10% urea through foliage followed by the application of 160 kg urea through soil. Results show that the little increase by application of 40kg urea through soil in addition to 5% urea through foliages compared with and the control (no fertilization) other nitrogen fertilization treatments.

A-4- Stems dry weight:

Effect of nitrogen treatments:-

The average of stems dry weight of wheat as affected by Nitrogen fertilization through soil and foliar application in both seasons. Results indicate that all nitrogen fertilization treatments increased significantly stems dry weight. The treatment (80Kg Urea soil application +10% foliar application) was the most effective in increasing compared with the control (no nitrogen treatments). While the little increase by application of 40kg Urea through soil in addition to 5% urea through foliage during 2002/2003 and 2003/2004 seasons.

A-5- leaves dry weight:

Effect of nitrogen treatments:-

The average of leaves dry weight of wheat as affected by Nitrogen fertilization through soil and foliar application for both seasons. Results indicate that all nitrogen fertilization treatments significantly increased leaves dry weight. The treatment (80Kg Urea soil application +10% foliar application) was the most effective in increasing compared with the control (no nitrogen treatments). Vice versa, the little increase by 40kg Urea was applied through soil in addition to 5% urea through foliage in both seasons.

A-6- flag leaves dry weight:

Effect of nitrogen treatments:-

The average of flag leaves dry weight of wheat as affected by Nitrogen fertilization through soil and foliar application in both seasons. Results indicate that all nitrogen fertilization treatments significantly increased flag leaves dry weight. Application of 80Kg Urea soil application +10% foliar application was the

most effective in increasing compared with other treatments and produced the highest values of flag leaves dry weight.

A-7- Photo synthetic pigments contents:

Effect of nitrogen treatments:-

Results show that photosynthetic pigments concentrations were increased by nitrogen fertilization levels (soil and foliar application). Moreover application of 160kg urea through soil and 80kg urea applied through soil in addition to 10% urea through foliage were most effective in this respect combined average of wheat in both seasons. .

B-yield and yield components:

B-1- Plant height:

B-1-1- Effect of harvest dates:

The effect of harvest dates on plant height, it can be show that harvest dates treatments after heading had no significant effect on plant height in both seasons

B-1-2- Effect of nitrogen treatments:

Results indicated that plant height significantly increased by nitrogen fertilization treatments in addition to application of 160kg urea through soil and 80kg urea applied through soil combined with 10% urea through foliage. Moreover the treatments 160kg urea/fed applied through soil and 80kg urea/fed through along with 10% urea through foliage were most effective in this respect.

B-1-3- Effect of the interaction:

The interaction between harvesting dates and nitrogen fertilization treatments was insignificant effect on plant height in both seasons.

B-2- length Internodex:

B-2-1- Effect of harvest dates:

The effect of harvest dates on length internodex , it can be show that harvest dates treatments after heading had no significant effect on length Internodex in both seasons.

B-2-2- Effect of nitrogen treatments:

Results indicated that Length internodex significantly increased by nitrogen fertilization treatments. In addition the treatments (160kg urea soil application) and 80kg urea applied through soil in addition to 10% urea through foliage produced the highest values of length internodex compared with the control. (no fertilization)

B-2-3- Effect of the interaction:

With regard to the interaction between harvest dates and nitrogen fertilization treatments on length internodex. The results indicated that this interaction had no significant effect no length internodex in both seasons.

3- Flag leaf area: (at after heading):

B-3-1- Effect of harvest dates:

The effect of harvest dates on flag leaf area. It can be show that harvest dates treatments after heading had no significant effect on flag leaf area in both seasons.

B-3-2- Effect of nitrogen treatments:

The data indicated that flag leaf area significantly increased by application all nitrogen fertilization treatments. In addition when to 80kg Urea was applied through soil in addition of 160kg urea through soil produced the highest values of flag leaf area. While, the lowest values of flag leaf area resulted from no N fertilization.

B-3-3- Effect of the interaction:

Results showed that the effect of interaction between harvest dates treatments and nitrogen fertilization treatments had no significant effect on flag leaf area in both seasons.

B-4- Number of tillers:

B-4-1- Effect of harvest dates:

The effect of harvest dates on Number of tillers. It can be show that harvest dates treatments after heading had no significant effect on number of tillers.

B-4-2- Effect of nitrogen treatments:

Results indicate that number of tillers significantly increased by application of (160 kg urea) soil through and 80kg urea applied through soil in addition to 10% urea through foliage.

The results showed that addition of 160kg urea/fed through soil or 80kg urea/fed through along with 10% urea through foliage produced the highest values of number of tillers. While the lowest number of tillers /m² was recorded from the control (no N fertilization).

B-4-3- Effect of the interaction:

With concerned to the interaction between harvest dates and nitrogen fertilization treatments on number of tillers. The results showed that this interaction had no significant effect on number of tillers.

B-5- Number of spikes:

B-5-1- Effect of harvest dates:

Results indicate that harvest dates treatments after heading did not show any significant increase due to harvest dates treatments.

B-5-2- Effect of nitrogen treatments:

Regarding spikes number show that different nitrogen fertilization treatment significantly increased number of spikes. Addition of 160kg urea through or application 80kg urea/fed through soil along with 10% urea through foliage) treatments were most effective in this respect and produced the highest values of number of spikes.

B-5-3- Effect of the interaction:

Results showed that the effect interaction of between harvest dates and nitrogen fertilization treatments had no significant effect on number of spikes in both seasons.

B-6- numbers of spikelet / spike:

B-6-1- Effect of harvest dates:

Results indicate that harvest dates treatments after heading did not show any significant increase due to harvest dates treatments.

B-6-2- Effect of nitrogen treatments:

Regarding numbers of spikelet/ spike show that different nitrogen fertilization treatment significantly increased numbers of spikelet / spike. Addition of 160kg urea through along soil or 80kg urea/fed through soil with 10% urea through foliag treatments were most effective in this respect and produced the highest values of number of spikelet/ spike.

B-6-3- Effect of the interaction:

Results showed that the effect of between interaction harvest dates treatments and nitrogen fertilization treatments had no significant effect on numbers of spikelet / spike in both seasons.

B-7- spike length:

B-7-1- Effect of harvest dates:

Results indicate that harvest dates treatments after heading did not show any significant increase due to harvest dates treatments.

B-7-2- Effect of nitrogen treatments:

Concerning the results of length show that different nitrogen fertilization treatments significantly increased spike weigh. Application of 160 kg urea through soil alone, also, addition of 80 kg urea/fed through soil with 10% urea through foliage produced the highest values of spike length compared the other treatments and on fertilization.

B-7-3- Effect of the interaction:

Results showed that the effect of between interaction among harvest dates treatments and nitrogen fertilization treatments had no significant effect on spike length in both seasons.

B-8- spike weight:

B-8-1- Effect of harvest dates:

Results indicate that harvest dates treatments after heading significantly increased spike weight in both seasons. The highest means of spike weight were produced from harvest date at 47 DAH in both seasons.

B-8-2- Effect of nitrogen treatments:

Regarding spike weight show that different nitrogen fertilization treatment significantly increased spike weight. Addition of 160kg urea through soil along or 80kg urea/fed through soil with 10% urea through foliage treatments were most effective in this respect and produced the highest values of spike weight.

B-8-3- Effect of the interaction:

Results showed that the effect of between interaction among harvest date treatments and nitrogen fertilization treatments had no significant effect on spike weight in both seasons.

B-9- Grain weight/spike (gm):

B-9-1- Effect of harvest dates:

Resulting revealed that harvesting date had a highly significant on grain weight/spike (gm) in both seasons. The data indicated that delaying the harvesting date up to 47 day after heading resulting in significant increases in both characters and recorded the highest means of grain weight/ spike.

B-9-2- Effect of nitrogen treatments:

Results showed that highly significant differences were observed among different nitrogen fertilizer treatments concerning their effect on grain weight/spike in both seasons, The highest means of grain weight/ spike (gm) were recorded when plots were treated with 80kg urea applied through soil in addition to 10% urea through foliage or 160kg urea through soil. Also, The highest means were observed when 80kg urea was applied through soil addition to 10% urea through foliage.

B-9-3- Effect of the interaction:

Resulting showed that the interaction treatments in most cases significantly increased grain weight /spike. The most effective interaction treatments increased grain weight/spike (gm) were (160kg urea soil application combined with 37 or 47 day after heading) and (80 kg urea soil application + 10% foliar application combined with 37 or 47 days after heading).

B-10- 1000-grain weight (gm):

B-10-1- Effect of harvest dates:

Results showed that harvesting dates had a highly significant effect on 1000-grain weight (gm) in both seasons. The data indicated that delaying the harvesting date up to 47 day after heading resulting in significant increases in both seasons and recorded the highest values of 1000-grain weight.

B-10-2- Effect of nitrogen treatments:

Results indicated that highly significant differences were observed among different nitrogen fertilizer treatments concerning their effect on 1000-grain weight (gm) in both seasons. The highest means of 1000-grain weight (gm) were recorded when plots were treated with 80kg urea applied through soil in addition to 10% urea through foliage or 160kg urea through soil.

B-10-3- Effect of the interaction:

Results showed that the interaction between harvest dates and nitrogen fertilization treatments in most cases increased significantly 1000-grain weight (gm). The highest 1000-grain weight produced when application of 160kg urea soil combined with 37 or 47 day after heading and application 80 kg urea soil + 10% foliar application combined with 37 or 47 days after heading.

B- 11- Grain yield (ardab/fad):

B-11-1- Effect of harvest dates:

Results showed that harvesting date had a highly significant effect on grain yield in both seasons. Delaying the harvesting date up to 37 day after heading resulted in significant increases in grain yield while delaying harvesting after 37 day from heading had no significantly increased grain yield.

B-11-2- Effect of nitrogen treatments:

Concerning different nitrogen fertilizer treatments highly significantly increased grain yield in both seasons. The highest averages of grain yield were recorded when plots were treated with 80kg urea applied through soil in addition to 10% urea through foliage or 160kg urea through soil. While, the lowest grain yield (ardab/fad) was noticed when no fertilizer N was applied in both seasons.

B-11-3- Effect of the interaction:

The interaction between nitrogen fertilization and harvest date had a highly significant effect on grain yield of wheat throughout. The data indicated that plots receiving 160kg urea through or 80kg urea/fed through soil along with 10% urea through foliage and harvested either 37 or 47 day after heading produced the highest grain yield as compared to the other treatments.

B- 12- Number of grains/spike:

B-12-1- Effect of harvest dates:

Highly significant differences were noticed among the different harvest date treatments in both seasons regarding their effect on number of grains/ spike. The data showed that harvesting wheat either 37 DAH or 47 DAH produced the highest number of grains/spike without significant difference. However the earlier the harvesting (17 day after heading) resulted the lower the number of grain/spike.

B-12-2- Effect of nitrogen treatments:

Results show that highly significant differences were observed among different nitrogen fertilizer treatment concerning their effect on number of grains per spike in both seasons. The highest averages of number of grains/ spike were recorded when plots were treated with 80kg urea applied through soil along with

105 urea through foliage or 160kg urea through soil. While, the lowest averages were noticed of number of grains when no fertilizer N was applied in both seasons.

B-12-3- Effect of the interaction:

Results revealed that there were no significant interaction effect on the number of grain/ spike in both seasons.

B- 13- Straw yield (ton / fed):

B-13-1- Effect of harvest dates:

Results indicated that harvesting dates showed no significant effect on straw yield in both seasons.

B-13-2- Effect of nitrogen treatments:

Results show that highly significant differences were observed among different nitrogen fertilizer treatment concerning their effect on straw yield (ton/fed) in both seasons. The highest averages of straw yield (ton/fed) were recorded when plots were treated with 80kg urea applied through soil alone with 10% urea through foliage or 160kg urea through soil on the contrary. The lowest averages were noticed of straw yield (ton/fed) when no N fertilizer was applied in both seasons.

B-13-3- Effect of the interaction:

The results indicated that the interaction between harvest dates and nitrogen treatments was insignificant effect on straw yield/fed.

C- Technological characters :-

C-1- Nitrogen percentage:

C- 1-1: Effect of harvest date:

Results showed that harvesting date had a highly significant effect on grain nitrogen content in both seasons. Delaying harvesting date up to 47 days after heading resulted in significant increases in nitrogen content of wheat grains in both seasons and produced the highest percent of nitrogen in grain.

C- 1-2 Effect of nitrogen treatment:

Results indicated that highly significant differences were observed among different nitrogen fertilization treatments concerning their effect on nitrogen content of harvested wheat grains in both seasons. The highest averages of nitrogen content were recorded when plots were treatment with 80kg urea applied through soil in addition to 10% urea through foliage or 160kg urea through soil. However, lowest N content was resulted when no fertilizer nitrogen was applied in both seasons.

C- 1-3 The effect of the interaction:

Results revealed that highly significant effect was noticed due to the interaction between nitrogen fertilizer treatments and harvesting dates on nitrogen content of wheat grains. The data indicated that, in the first seasons, plants receiving 80kg urea through soil alone with 10% urea through foliage and harvested 47 days after heading gave the highest grain N content as compared to the rest of the interaction treatments.

C-2- Grain protein percentage:

C-2-1 Effect of harvest date:

Results indicated that harvesting date had a highly significant effect on protein content in both seasons. Delaying the harvesting date up to 47 DAH resulted in significant increases in this character.

C-2-2 Effect of nitrogen treatment:

Regarding protein content was highly significantly increased with nitrogen fertilizer levels over two seasons of this experimentation. Application of 80kg urea through soil with 10% urea through foliage gave the highest means of protein content in grain, followed by addition of 160kg urea through soil. Whilst, the lowest means of protein content were produced from the control (no N fertilization).

C-2-3 The effect of the interaction:

The interaction between harvest dates and nitrogen fertilization treatments had a highly significant effect on protein content in both seasons. In the first season, plants receiving 80kg urea through soil along with 10% urea through foliage and harvested 47 DAH produced the highest grain protein content as compared to the other interaction treatments. While, in the second season the application of either 160kg urea through soil or 80kg urea through soil along with 10% urea through foliage and harvested 47 DAH gave the same highest grain protein content as compared to the rest of the interaction treatments.

C- 3- Phosphorus percentage:

C- 3-1: Effect of harvest date:

Harvesting date had a highly significant effect on grain phosphorus content in both seasons. Delaying the harvesting date up to 47 day after heading resulted in significant increases in this character and recorded the highest means of phosphorus content in grain compared with the earlier harvesting date.

C- 3-2 Effect of nitrogen treatment

Results indicated that highly significant differences were observed among different nitrogen fertilizer treatments concerning their effect on grain phosphorus content in both seasons. The highest means of phosphorus content were recorded when plots were treated with 80kg urea applied through soil in addition to 10% urea through foliage, followed by the application of 160kg urea through soil. Whilst the lowest averages were noticed when no fertilizer N was applied in both seasons.

C- 3-3: Effect of the interaction:

Results revealed that in the first season, plants receiving 80kg urea through soil with 10% urea through foliage and harvested 47 day after heading gave the same highest grain phosphorus content as compared to other of the interaction treatments in both season.

C- 4- Potassium percentage:

C- 4-1: Effect of harvest date:

Results showed that harvesting date had a highly significant effect on grain potassium percentage in both seasons. Delaying the harvesting date up to 47 day after heading resulting in significant increases in this character.

C- 4-2 Effect of nitrogen treatment

Results indicated that highly significant differences were detected among different nitrogen fertilizer treatment concerning their effect on potassium content in both seasons. The highest means of potassium content were recorded when plots were treated with 80kg urea applied through soil in addition to 10% urea through foliage, followed by the application of 160kg urea through soil. While the lowest averages were resulted when no fertilizer N was applied in both seasons.

C- 4-3: Effect of the interaction:

Results revealed that highly significant interaction effect on grain potassium content in both seasons. In the first seasons, plants receiving 80kg urea through soil along with 10% urea through foliage and harvested 47 day after heading produced the highest grain potassium content as compared to the other interaction treatments.

C- 5 Carbohydrate percentage:

C- 5-1: Effect of harvest date:

Harvesting dates had a highly significant effect on carbohydrate percentage in both seasons. Delaying the harvesting date up to 27, 37 day after heading harvesting dates resulted in significant increase in carbohydrate percentage and produced the highest percent of carbohydrate in grain.

C- 5-2 Effect of nitrogen treatment:

Results showed clearly that highly significant differences were detected among different nitrogen fertilizer treatments concerning their effect on grain carbohydrate percentage in both seasons. The highest means of carbohydrate percentage were recorded when plots were treated with no fertilizer nitrogen was applied. Vice versa the lowest averages were produced when plots were treated

with 80kg urea applied through soil in addition to 10% urea through foliage, followed by the application of 160kg urea through soil in both seasons.

C- 5-3: Effect of the interaction:

The interaction between harvest dates and nitrogen fertilization treatments had a highly significant effect on carbohydrate percentage in both seasons. In the first season, plant receiving 80kg urea through soil alone with 10% urea through foliage and harvested 17 day after heading produced the lowest carbohydrate percentage as compared to the other interaction treatments. While, in the second seasons the application of either 160kg urea through soil or 80kg urea through soil along with 10% urea through foliage and harvested 17 day after heading gave the same lowest carbohydrate percentage as compared to the rest of the interaction treatments.

C-6- Germination percentage:

C-6-1 Effect of harvest date:

Results revealed that harvesting date had a highly significant effect on germination percentage on both seasons. Delaying the harvesting data up to 47 DAH significantly increased germination percentage. The highest percent of germination was recorded from harvesting at the age of 47 DAH in the first and the second seasons compared with the earlier harvesting date (17 DAH)

C-6-2 Effect of nitrogen treatment:

Results indicated that averages germination percentage of seed wheat significant decreased with different nitrogen fertilizer treatments concerning their effect on germination percentage in both seasons. The high means germination percentage were recorded when plots were treated with 80kg urea through soil in addition to 10% urea through foliage or 160kg urea through soil. On the contrary,

the lowest percent of germination was resulted when no fertilizer N was applied in both seasons.

C-6-3 Effect of the interaction:

The interaction between nitrogen fertilization and harvest date had a highly significant effect on wheat germination percentage through out in this study. The data indicated that plots receiving 160kg urea through soil or 80kg urea /fad through soil along with 10% urea through foliage and harvested either 37 or 47 DAH produced the highest percent of germination as compared to the other interaction treatments.

C- 7- Germination rates:

C- 7-1 Effect of harvest date:

Harvesting dates had a highly significant effect on germination rates in both seasons. The data showed that highly significant differences were noticed among the different date treatment in both seasons regarding their effect on germination rate. The data stated that harvesting wheat crop 47 day after heading produced the highest germination rate compared with the earlier harvest date (17 DAH) in both seasons.

C- 7-2: Effect of nitrogen treatment:

Results indicated that highly significant differences were observed among different nitrogen fertilizer treatments concerning their effect on germination rate. The highest means of germination rate were recorded when plots were treated with 80kg urea applied through soil alone with 10% urea through foliage or application of 160kg urea through soil. Vice versa, the lowest averages of germination rate were resulted from the control (no fertilizer nitrogen) in both seasons.

C- 7-3: The Effect of the interaction:

With regard to the interaction between harvesting date and nitrogen fertilization treatments, it had insignificant effect on germination rate in both seasons.

C-8- Shoot and root length (Cm):

C-8-1 Effect of harvest date:

Harvesting dates had a highly significant effect on shoot and root length in both seasons. Delaying the harvesting up to 47 day after heading resulting in significant increases in both characters. The highest values of shoot and root, length were resulted from the delaying harvesting at the age of 47 DAH in both seasons. However the lowest of shoot and root, length were recorded from the earlier harvesting date (17 DAH).

C-8-2 Effect of nitrogen treatment:

Results showed that highly significant differences were detected among different nitrogen fertilizer treatments concerning their effect on shoot and root length (cm) in both seasons. The highest means of shoot and root lengths were recorded when plots were treated with 80kg urea applied through soil in addition to 10% urea through foliage followed by 160kg urea through soil. On the other hand the lowest averages of shoot and root length were resulted when no fertilizer N was applied in both seasons.

C-8-3 The Effect of the interaction:

The interaction between N fertilizer treatments and harvest dates had a positive effect on shoot and root length in two seasons. The highest mean of shoot and root length were recorded when wheat plants treated with 80kg urea through soil along with 10% urea through foliage and harvest 37 or 47 DAH followed by

plots treated with 160kg urea /fed through soil with the same dates of harvesting. While, the last rank came plants without any nitrogen applied and harvested 17 DAH.

C – 9- Seedlings dry weight (g):

C-9-1 Effect of harvest date:

Harvesting dates had a highly significant effect on seedling dry weight in both seasons. The data indicated that delaying the harvesting date up to 47 day after heading significantly increased in seedlings dry weight.

C-9-2 Effect of nitrogen treatment:

Results indicated that highly significant differences were noticed among different nitrogen treatments concerning their effect on seedling dry weight in both seasons. The highest means of the seedling dry weight were recorded when 80kg urea was applied through soil in addition to 10% urea through foliage followed by the application of 160kg urea through soil.

C-9-3 The Effect of the interaction:

With concerned to the interaction between harvesting dates and nitrogen fertilization treatments, it had a highly significant effect on seedling dry weight during 2002/2003 and 2003/2004. Plots receiving 80kg urea /fad alone with 10% urea through foliage and harvested at the age of 47 DAH gave the heaviest seedlings flowed by plots fertilized with 160kg urea through soil and harvested at the age of 47 day after heading. Whilst the lowest values of seedling dry weight were recorded when plots received no fertilizer and harvest 17 DAH.

C-10 Electrical conductivity of seeds:

C-10-1 Effect of harvest date:

Highly significant differences were detected among the test harvesting dates regarding their effect on (EC) in both seasons. The earlier of harvesting dates produces the higher the electrical conductivity. However, the later of harvesting date recorded the lower of electrical conductivity.

C-10-2 Effect of nitrogen treatment:

Nitrogen fertilizer treatments had a highly significant effect on (EC) in both seasons. The highest means of electrical conductivity were recorded with the control (no fertilizer nitrogen). While, the lowest means were detected when addition of 80kg urea /fed through soil with 10% urea through foliage or application of 160kg urea/fed through soil in both seasons.

C-10-3 The Effect of the interaction:

The interaction between the studied factors had a highly significant electrical conductivity in the two seasons. In both years plots receiving 80kg urea/fed through soil with 10% through foliage or application of 160kg urea through soil and harvest either 37 or 47 day after heading gave the lowest means of EC in both seasons.

Conclusion

From previous results, it can be concluded that application of 80kg urea applied through soil in addition to 10% urea through foliage and harvesting wheat plants at 37 or 47 DAH to produce the highest quality and the best germination as well as the highest grain yield of wheat cv. Giza 168 under, Dkahlia Governorate.