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## 5-Summary And Conclusion

The current study aimed to investigate the role of Mg- nutrition, relation to K, in growth and yield of wheat plants grown on a new reclaimed desert, sandy calcareous soil. To achieve that purpose, four locations [A,B,C and D] were chosen, at farm of the Centre Of Agricultural Exp. And Res. of Minia Univ. at Shosha - Samalute - El-Minia Governorate, A.R.E., to carry out the studied field experiments on wheat variety Giza 164. These experiments were conducted at the same season 1995/1996 using three rates of Mg applied to wheat plants in two application methods as follows:

15 and 20 kg MgO/Fed. as foliar spray.  
30 and 40 kg MgO/Fed. as soil application.

Also, four rates of k were applied only to the soil as 25, 50, 75 and 100 kg K<sub>2</sub>O/Fed.

These treatments were applied according to the recommended fertilization programme prescribed in this thesis, under two irrigation systems [sprinkler and surface] along the four growth stages of wheat (emergence, tillering, stem extension and head development at 30, 50 and 80 days from sowing, respectively).

The obtained findings of wheat growth parameters [fresh and dry weights] and wheat plant contents of Mg, k and chlorophyll fractions (chlorophyll- a, chlorophyll-b and total (a + b)), as well as, wheat yield [grain and straw] and its contents of Mg and k, as affected by the above treatments, could be summarized as follows:

1) At the lowest or the highest rates of both Mg and k, there was no more significant response than at a nutrient rate contrary to the other.

2) The maximum values were obtained at 15 kg MgO/Fed. ( foliar-sprayed ) or 30 kg MgO/Fed. ( soil - applied ) in parallel to 50 kg

D /Fed. ( soil- applied).

The minimum values were obtained at the lowest Mg-rate in parallel to the highest K- rate or at the reverse.

Treatments that gave maximum values proved a clear Mg-K interaction, while treatments that induced minimum values proved an interfered one.

Wheat straw had more pronounced values of Mg-and K-contents (conc. and uptake), except Mg-conc., than wheat grain.

In all locations and along the four wheat growth stages, except locations (B) and (D) at emergence stage, values of wheat growth parameters and its contents of Mg, K and chlorophyll fractions were more marked significantly at all Mg and K treatments than those at the control treatment. The same trend is true for wheat yield and its contents of Mg and K.

Generally, the best values were obtained when wheat plants were foliar sprayed with Mg under surface I.S. or when they were soil supplied with Mg under sprinkler I.S.

There is a weak correlation coefficient ( $r$ ) between Mg - conc. Mg - uptake and chlorophyll fractions content in wheat seedlings at emergence stage, whereas it is a strong one at the last three growth stages in all locations.

Wheat growth parameters progressively increased with wheat age, whereas its contents of Mg, K and chlorophyll fractions, in general, increased up to 50 days from sowing and decreased thereafter.

generally, it could be concluded that when applying the best treatments which are:

15 Kg MgO/Fed. (foliar – sprayed) plus 50 Kg K<sub>2</sub>O/Fed. (soil – applied) under surface I.S.

30 kg MgO/Fed. (soil – applied) plus 50 Kg K<sub>2</sub>O/Fed. (soil – applied) under sprinkler I.S.,

the maximum wheat growth parameters (F.W. and D.W.) and maximum its contents of Mg, K and chlorophyll fractions were obtained along the four growth stages resulting in maximum yield of wheat grain (29.4 Ard./Fed.) and straw, as well as, maximum their contents of Mg and K.