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SUMMARY

Two field experiments were carried out at Ismailia Agriculture Research Station in successive seasons of 2007/08 and 2008/09 to study the effect of seeding rates of wheat (*Triticum aestivum*, L.) variety Giza 168, nine weed control treatments and their interaction on dry weight of annual weeds g/m², yield, yield components, protein content and economic evaluation in newly reclaimed lands under sprinkler irrigation system.

Studied factors:

A- Seeding rates:

- 1- 40 kg grains/fad.
- 2- 60 kg grains /fad.
- 3- 80 kg grains /fad.

B- Weed control treatments:

- 1- Hand weeding once at 30 DAS.
- 2- Hand weeding twice at 30 and 45 DAS.
- 3- Tribenuron–methyl (Granstar 75% DF.) at 6 g/fad.+ Hand weeding once at 45 DAS.
- 4-Tribenuron-methyl at 6 g/fad.+ Clodinafop-propargyl (Topik 15% WP.) at 21g/fad.
- 5-Tribenuron-methyl at 6 g/fad.+ Fenoxaprop-p- Ethyl (Puma Super 7.5% EW.) at 37.5g/fad.

6- Bromoxynil (Brominal W 24% EC.) at 240 g/fad + Hand weeding once at 45 DAS.

7- Bromoxynil at 240 g/fad.+ Clodinafop-propargyl at 21 g/fad.

8- Bromoxynil at 240 g/fad.+ Fenoxaprop-p-Ethyl at 37.5 g/fad.

9- Unweeded check (control).

A split-plots design with four replicates was used in both seasons. Seeding rates were arranged randomly in the main plots, while weed control treatments were allocated randomly in the sub-plots. Giza 164 variety was sown at 21st and 24th of November in both seasons, respectively. Plot area was 21 m² (3m×7m).

Studied characters:

1- Dry weight of weeds at 75 and 105 days after sowing (DAS).

2-Plant height (cm).

3-Number of tillers/m².

4-Number of spikes/m².

5-Spike length (cm).

6-Number of grains/spike.

7-Grains weight /spike(g).

8-1000-grain weight(g).

9-Grain yield/fad. (ardab).

10-Straw yield/fad. (ton).

11-Protein percentage in grains.

12-Economic evaluation.

The obtained results could be summarized as follows:

A. Effect of seeding rate.

A. 1-Effect of seeding rate on weeds.

The obtained results showed that the effect of seeding rate was significant on dry weight of annual broad-leaved, grassy weeds and total weeds at 75 and 105 days after sowing (DAS) in both seasons. Increasing seeding rate from 40 to 80 kg/fad. significantly decreased dry weight of annual broad-leaved, grassy weeds and total weeds at 75 and 105 days after sowing in both seasons.

A. 2-Effect of seeding rate on yield components, yield and grain protein %.

The recorded results revealed clearly that seeding rate had a significant effect on plant height, number of tillers/m², number of spikes/m², spike length, number of grains/spike, grains weight/spike, 1000-grain weight, grain yield/fad., straw yield/fad. and grain protein % in both seasons. Planting wheat plants at seeding rate of 40 kg/fad. gave the highest values of spike length, number of grains/spike, grains weight/spike and 1000-grain weight in both seasons. On the other hand, seeding rate of 80 kg/fad. gave the highest values

of plant height, number of tillers/m², number of spikes/m², grain yield/fad., straw yield/fad. and protein % in grains compared to other studied seeding rates in both seasons.

A. 3-Effect of seeding rate on economic traits.

Results cleared that increasing seeding rates significantly increased economic evaluation criteria of wheat yield in both seasons. Seeding rate of 80 kg /fad. gave the highest values of gross income, net income, gross margin, benefit / costs ratio and profitability in both seasons, while Seeding rate of 40 kg /fad. gave the lowest values of previous mentioned traits in both seasons.

B. Effect of weed control treatments.

B.1- Effect of weed control treatments on weeds.

The obtained results indicated that weed control treatments significantly affected dry weight of annual broad-leaved, dry weight of annual grassy weeds and dry weight of annual total weeds at 75 and 105 DAS in both seasons. Treated wheat fields by weed control treatment of Bromoxynil at 240 g/fad. + clodinafop-propargyl at 21 g/fad. significantly decreased dry weight of annual broad-leaved, grassy weeds and total weeds compared to all other treatments at 75 and 105 DAS in both seasons.

B.2-Effect of weed control treatments on yield components, yield and grain protein %.

The obtained results exhibited that plant height, number of tillers/m², number of spikes/m², spike length, number of grains/spike, grains weight/spike, 1000-grain weight, grain yield/fad., straw yield/fad. and grain protein % were significantly affected by weed control treatments in both seasons. Weed control treatment of Bromoxynil at 240 g/fad. + clodinafop-propargyl at 21 g/fad. gave the highest values of all previously mentioned traits compared to all other studied weed control treatments in both seasons. On the contrary the lowest values were recorded with unweeded treatment (check) in both seasons.

B.3-Effect of weed control treatments on economic traits.

Weed control treatments significantly affected economic evaluation criteria of wheat in both seasons. The highest values of gross income, net income, gross margin, benefit / costs ratio and profitability were obtained by using Bromoxynil at 240g/fad. + clodinafop-propargyl at 21g/fad. treatment in both seasons. Unweeded (check) treatment gave the lowest values of previous traits in both seasons.

C. Effect of interaction between seeding rate and weed control treatments.

C. 1-Interaction effect on weeds.

The obtained results showed clearly that the interaction effect among seeding rate and weed control treatments was significant on dry weight of annual broad-leaved, grassy weeds and dry weight of total weeds in both seasons. Sowing wheat plants at seeding rate of 80 kg seeds /fad. and treated by weed control treatment of Bromoxynil at 240 g/fad. + clodinafop-propargyl at 21 g/fad. significantly decreased annual broad-leaved, grassy weeds and total weeds dry weights compared to all other this interaction treatments in both seasons.

C. 2- Interaction effect on yield components, yield and grain protein %.

The recorded results indicated that the interaction effect among seeding rate and weed control treatments was significant on number of tillers/m², number of spikes/m², number of grains/spike, grains weight/spike, 1000-grain weight, grain yield/fad. and straw yield/fad, on the other hand it was insignificant on plant height, spike length and grain protein % in both seasons. The treatment combination of seeding rate at 80 kg seeds /fad. and Bromoxynil at 240 g/fad. + clodinafop-propargyl at 21 g/fad. gave the highest values of number of tillers/m², number of spikes/m², grain yield/fad. and straw yield/fad., while seeding rate of 40 kg seeds /fad. with Bromoxynil at 240 g/fad. + clodinafop-

propargyl at 21 g/fad. gave the highest values of number of grains/spike, grains weight/spike and 1000-grain weight compared to all other this interaction treatments in both seasons.

C. 3-Interaction effect on economic parameters.

The interaction between seeding rate and weed control treatments was significantly affected on economic evaluation criteria of wheat in both seasons. The greatest values of gross income, net income, gross margin, benefit / costs ratio and profitability were obtained from the interaction between seeding rate 80 kg/fad. and Bromoxynil at 240g/fad. + clodinafop-propargyl at 21g/fad. treatment in the both seasons. The lowest value of these traits were obtained from the interaction between seeding rate 40 kg seeds/fad. with unweeded check in both seasons.

Conclusion

Generally it could be concluded that sowing wheat (variety Giza 168) with 80 kg seeding rate and application Bromoxynil at the rate of 240 g/fad., at 4-5 leaf stage of wheat + Clodinafop-Propargyl at the rate of 21 g/fad. at 45 days after sowing greatest grain yield of wheat and increased net income in newly reclaimed land in Ismailia Governorate.