

EFFECT OF IRRIGATION AND FERTILIZATION ON LENTIL  
I- GROWTH OF ASSOCIATED WEEDS

BY

Sary, G.A.; Salem, M.S.; El-Deepah, H.R.A.  
and El-Naggar, H.M.M.

Fac. of Agriculture at Moshtohor, Zagazig Univ.

ABSTRACT

Two field experiments were carried out at Agricultural Research and Experimental Station, Faculty of Agriculture at Moshtohor, Kalubia, Egypt, during 1984/85 and 1985/86 seasons, to study the effect of number of irrigations, N and P fertilization treatments on associated weeds grown with lentil. Each experiment included 24 treatments which were the combination of four irrigation treatments and six fertilizer treatments.

Number of irrigations showed significant effect on fresh as well as dry weight of weeds/m<sup>2</sup> at different stages of growth in both seasons. The weight of weeds/m<sup>2</sup> significantly increased as the number of irrigations increased up to three times.

Lentil fertilization with N and P significantly increased weeds density, expressed as fresh and dry weight in lentil plots, but the unfertilized treatments showed the lowest fresh and dry weight of weeds/m<sup>2</sup>.

The effect of the interaction between number of irrigations and NP fertilizers was not significant on all studied characters.

INTRODUCTION

Lentil (*Lens esculenta*, Moench) is more sensitive to weed competition than other food legumes. Many investigators reported that some culture treatments showed significant effect on weight of weeds in lentil fields. Fresh as well as dry weight of weeds/m<sup>2</sup> significantly increased as the number of irrigations increased up to four irrigations. These results might be attributed to the importance of water for all biological processes such as absorption and translocation of nutrients (Fisher & Hagan, 1965; Hisao, 1973 and Boyer, 1976).

Nitrogen and phosphorus fertilizer affect weed growth, King (1966), found that N application increased weed density but Yaduraju *et al.* (1981), reported that the total number of weeds and their dry weight were not affected by N application in wheat. On the other hand Shafshak & Salem (1979); Pandey (1981); Shafshak *et al.*, (1983) and Singh *et al.* (1984), indicated that higher levels of N reduced weed growth associated with cotton, clover and wheat. Allam (1988), found that P application had no effect on number of weeds/m<sup>2</sup> but recuded fresh and dry weight of weeds at 3rd cut only in clover.

The purpose of this research was to study the effect of irrigation and NP fertilization in weeds growth in lentil fields.

#### MATERIALS AND METHODS

The experiments were conducted at the Agricultural Research and Experimental Station, Faculty of Agriculture at Moshtohor, Zagazig University, in 1984/85 and 1985/86 seasons. The aim of present investigation is to study the effect of irrigation and fertilization on associated weeds of lentil. The soil was clay textured with pH 7.8, organic matter of 2.5% and containing 400 ppm available P. Each experiment included 24 treatments which were the combination of four irrigation treatments and six fertilization treatments. The four irrigation treatments were:

- 1- One irrigation at 30 days after sowing.
- 2- Two irrigations at 30 and 60 days after sowing.
- 3- Three irrigations at 30, 60 and 90 days after sowing.
- 4- Four irrigations at 30, 60, 90 and 120 days after sowing.

Whereas, the six fertilization treatments were:

- 1- Without fertilizer ( $N_0P_0$ ).
- 2- 15 kg N + 0 kg  $P_2O_5$ /fad. ( $N_1P_0$ ).
- 3- 0 kg N + 24 kg  $P_2O_5$ /fad. ( $N_0P_1$ ).
- 4- 15 kg N + 24 kg  $P_2O_5$ /fad. ( $N_1P_1$ ).
- 5- 0 kg N + 48 kg  $P_2O_5$ /fad. ( $N_0P_2$ ).
- 6- 15 kg N + 48 kg  $P_2O_5$ /fad. ( $N_1P_2$ ).

Lentil variety Giza 9 were sown on 19 and 20 November in first and second seasons, respectively. The normal culture practices for growing lentil were followed as recommended in the region. The experiments were designed according

to split-plot design with four replications. The irrigation treatments were arranged at random in the main plots, while the fertilizer treatments were assigned at random in sub-plots. The area of the sub-plot was 1/400 fad.

Weeds were hand-pulled at random from one square meter of each plot after 45, 75, 105 days as well as at harvesting stage (160 days after sowing) and then classified to broad-leaved weeds and grasses. The fresh and dry weight of each group was recorded.

The data were analyzed statistically according to the procedure outlined by Snedecor and Cochran (1967). For comparison between means, Duncan's multiple range test was used (Duncan, 1955).

## RESULTS AND DISCUSSION

### 1- Effect of Irrigation:

Data presented in Tables (1 and 2) show that number of irrigations showed significant effect on fresh weight of weeds per m<sup>2</sup> at different stages of growth, i.e., 45, 75, 105 and 160 days from sowing. This result was true in the two successive seasons.

Fresh weight of broad-leaved and grass weeds significantly increased as the number of irrigations increased up to three irrigations. At harvesting stage, weight of weeds increased by 40, 54 and 68% when lentil was given two, three and four irrigations, respectively, in the first and second season over one irrigation.

The effect of number of irrigations on dry weight of weed/m<sup>2</sup> was very similar to the previous characters. Increases in dry weight of weeds/m<sup>2</sup> at harvesting stage amounted to 45, 60 and 76% in the first season and 42, 57 and 71% in the second season by two, three and four irrigations over one irrigation, respectively (Tables 3 and 4).

It could be concluded that fresh as well as dry weight of weeds/m<sup>2</sup> significantly increased as the number of irrigations increased up to four irrigations. These results might be attributed to the importance of water for all biological processes such as absorption and translocation of nutrients (Fisher & Hagan, 1965; Hisao, 1973 and Boyer, 1976).

Table (1): Effect of number of irrigations on fresh weight of weeds/m<sup>2</sup> (g) in 1984/85

Irrigation number	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
One irrigation	34.5 a	25.9 a	60.4 a	100
Two irrigations	37.7 a	30.2 b	67.9 b	112
Three irrigations	42.0 b	34.3 c	76.3 c	126
Four irrigations	44.2 b	35.8 c	80.0 c	132
2. 75 days from sowing				
One irrigation	532.0 a	405.4 a	937.4 a	100
Two irrigations	598.6 b	484.5 b	1083.1 b	116
Three irrigations	649.6 c	524.8 c	1174.4 c	125
Four irrigations	694.8 d	562.9 d	1257.7 d	134
3. 105 days from sowing				
One irrigation	214.8 a	152.6 a	367.4 a	100
Two irrigations	267.2 b	215.2 b	482.4 b	131
Three irrigations	341.5 c	271.5 c	613.0 c	167
Four irrigations	374.4 c	301.2 c	675.6 c	184
4. At harvesting (160 days from sowing)				
One irrigation	362.0 a	268.5 a	630.5 a	100
Two irrigations	488.4 b	394.3 b	882.7 b	140
Three irrigations	535.5 bc	436.7 c	972.2 c	154
Four irrigations	585.2 c	476.6 c	1061.8 d	168

Table (2) : Effect of number of irrigations on fresh weight of weeds/m<sup>2</sup> (g) in 1985/85

Irrigation number	Broad leaves weeds	Grass weeds	Total	Rel.
<u>1. 45 days from sowing</u>				
One irrigation	31.8 a	23.8 a	55.6 a	100
Two irrigations	34.9 a	27.9 b	62.8 b	113
Three irrigations	39.2 b	31.2 c	70.4 c	127
Four irrigations	40.8 b	32.6 c	73.4 c	132
<u>2. 75 days from sowing</u>				
One irrigation	487.9 a	365.6 a	853.5 a	100
Two irrigations	548.9 b	438.9 b	987.8 b	116
Three irrigations	591.8 c	473.1 c	1064.9 c	125
Four irrigations	637.1 d	509.4 d	1146.5 d	134
<u>3. 105 days from sowing</u>				
One irrigation	195.6 a	136.7 a	332.3 a	100
Two irrigations	241.1 b	192.6 b	433.7 b	131
Three irrigations	303.8 c	242.8 c	546.6 c	164
Four irrigations	334.5 c	267.5 c	602.0 c	181
<u>4. At harvesting ( 160 days from sowing )</u>				
One irrigation	329.8 a	237.2 a	567.0 a	100
Two irrigations	442.7 b	350.8 b	793.5 b	140
Three irrigations	486.1 bc	388.5 c	874.6 c	154
Four irrigations	530.3 c	424.0 d	954.3 d	168

Table (3): Effect of number of irrigations on dry weight of weeds/m<sup>2</sup> (g) in 1984/85

Irrigation number	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
One irrigation	4.4 a	2.7 a	7.1 a	100
Two irrigations	4.9 b	3.1 b	8.0 b	113
Three irrigations	5.5 c	3.5 c	9.0 c	127
Four irrigations	5.7 c	3.7 c	9.4 c	132
2. 75 days from sowing				
One irrigation	71.0 a	51.3 a	122.3 a	100
Two irrigations	80.5 b	63.0 b	143.5 b	117
Three irrigations	86.7 c	67.0 c	153.7 c	126
Four irrigations	93.9 d	72.8 d	166.7 d	136
3. 105 days from sowing				
One irrigation	33.1 a	22.6 a	55.7 a	100
Two irrigations	41.6 b	33.7 b	75.3 b	135
Three irrigations	53.0 c	42.8 c	95.8 c	172
Four irrigations	58.8 c	47.3 c	106.1 c	190
4. At harvesting ( 160 days from sowing )				
One irrigation	82.3 a	62.6 a	144.9 a	100
Two irrigations	118.6 b	91.3 b	209.9 b	145
Three irrigations	130.2 bc	101.6 c	231.8 c	160
Four irrigations	142.1 c	112.2 d	254.3 d	176

Table (4) : Effect of number of irrigations on dry weight of weeds/m<sup>2</sup> (g) in 1985/86

Irrigation number	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
One irrigation	4.0 a	2.5 a	6.5 a	100
Two irrigations	4.4 a	2.9 b	7.3 b	112
Three irrigations	5.0 b	3.3 c	8.3 c	128
Four irrigations	5.2 b	3.4 c	8.6 c	132
2. 75 days from sowing				
One irrigation	65.5 a	45.9 a	111.4 a	100
Two irrigations	73.4 b	55.8 b	129.2 b	116
Three irrigations	79.4 c	60.1 c	139.5 c	125
Four irrigations	84.9 d	65.3 d	150.2 d	135
3. 105 days from sowing				
One irrigation	30.3 a	20.2 a	50.5 a	100
Two irrigations	37.9 b	30.1 b	68.0 b	135
Three irrigations	48.2 c	38.2 c	86.4 c	171
Four irrigations	53.3 c	42.3 c	95.6 c	189
4. At harvesting ( 160 days from sowing )				
One irrigation	76.8 a	55.9 a	132.7 a	100
Two irrigations	106.8 b	81.5 b	188.3 b	142
Three irrigations	117.2 bc	90.7 c	207.9 c	157
Four irrigations	127.9 c	99.4 d	227.3 d	171

## 2- Effect of Fertilizer:

Data on fresh weight of weeds/m<sup>2</sup> as affected by lentil fertilization treatments at different growth stages, i.e., 45, 75, 105 and 160 days from sowing in 1984/85 and 1985/86 seasons were shown in Tables (5 and 6).

In general, high levels of N+P to lentil plants significantly increased the fresh weight of weeds compared with other treatments through the two growing seasons. Minimum fresh weight of weeds resulted from unfertilized treatment. On the other hand, maximum total fresh weight of weeds/m<sup>2</sup> was achieved when lentil was supplied with 15 kg N + 48 kg P<sub>2</sub>O<sub>5</sub>/fad. (N<sub>1</sub>P<sub>2</sub>). At harvesting stage, the fresh weight of weeds/m<sup>2</sup> in lentil could be relatively arranged in a descending order according to lentil fertilization treatments in 1984/85 season as follows: N<sub>1</sub>P<sub>2</sub> (154), N<sub>1</sub>P<sub>1</sub> (146), N<sub>1</sub>P<sub>0</sub> (135), N<sub>0</sub>P<sub>2</sub> (127), N<sub>0</sub>P<sub>1</sub> (115), and control treatment (100%) in the first season (Table 5). The corresponding increase in the fresh weight due to the previous treatments reached 52, 44, 33, 26 and 15% compared with the unfertilized treatment in the second season (Table 6).

Results in Tables (7 and 8) show that dry weight of associated weeds in lentil plots was significantly affected by lentil fertilization treatments. This was true at different growth stages, namely, 45, 75, 105 and 160 days from sowing. In the first season, at harvesting stage, the total dry weight of weeds/m<sup>2</sup> was significantly higher in 15 kg N + 48 kg P<sub>2</sub>O<sub>5</sub>/fad. (N<sub>1</sub>P<sub>2</sub>) than all other fertilization treatments, followed by 15 kg N + 24 kg P<sub>2</sub>O<sub>5</sub>/fad. (N<sub>1</sub>P<sub>1</sub>). On the other hand, the control treatment contained the lowest dry weight which significantly lower than in all other fertilization treatments. Dry weight was increased by 102, 94, 78, 68 and 53% in (N<sub>1</sub>P<sub>2</sub>), (N<sub>1</sub>P<sub>1</sub>), (N<sub>1</sub>P<sub>0</sub>), (N<sub>0</sub>P<sub>2</sub>) and (N<sub>0</sub>P<sub>1</sub>) over unfertilized treatment, respectively. Similar results were obtained in the second season (Table 8).

It could be concluded that lentil fertilization treatments significantly affected weed density, expressed as fresh and dry weight in lentil plots. Supplying lentil with N+P fertilizer significantly increased weed growth in lentil fields, whereas, unfertilized treatments reduced weed density. These results were in agreement with those obtained by King (1966), with N-fertilizer and Allam (1988), with P-fertilizer, but did not agree with those obtained by Shafshak & Salem (1979); Pandey (1981); Shafshak *et al.* (1983) and Singh *et al.* (1984), who reported that higher N levels applied to clover, cotton and wheat were more effective in reducing weed growth compared with unfertilized treatment.

Table (5): Effect of fertilizer on fresh weight of weeds/m<sup>2</sup>  
(g.) in 1984/85 season.

Fertilizer treatment	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	25.4 a	19.7 a	45.1 a	100
N <sub>1</sub> P <sub>0</sub>	41.4 d	34.2 d	75.6 d	168
N <sub>0</sub> P <sub>1</sub>	30.8 b	24.3 b	55.1 b	122
N <sub>1</sub> P <sub>1</sub>	49.4 e	39.3 e	88.7 e	197
N <sub>0</sub> P <sub>2</sub>	36.2 c	28.7 c	64.9 c	144
N <sub>1</sub> P <sub>2</sub>	54.2 F	43.2 F	97.4 F	216
2. 75 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	488.3 a	385.1 a	873.4 a	100
N <sub>1</sub> P <sub>0</sub>	635.6 c	505.3 c	1140.9 c	131
N <sub>0</sub> P <sub>1</sub>	543.7 b	433.3 b	977.0 b	112
N <sub>1</sub> P <sub>1</sub>	692.0 d	556.1 d	1248.1 d	143
N <sub>0</sub> P <sub>2</sub>	603.3 c	484.7 c	1088.0 c	124
N <sub>1</sub> P <sub>2</sub>	749.6 e	601.9 e	1351.5 e	155
3. 105 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	183.8 a	144.8 a	328.6 a	100
N <sub>1</sub> P <sub>0</sub>	310.0 c	242.9 c	552.9 d	168
N <sub>0</sub> P <sub>1</sub>	234.8 b	184.4 b	419.2 b	128
N <sub>1</sub> P <sub>1</sub>	372.4 d	288.0 d	660.4 e	201
N <sub>0</sub> P <sub>2</sub>	279.5 bc	222.2 c	501.7 c	153
N <sub>1</sub> P <sub>2</sub>	416.5 d	328.5 e	745.0 F	227
4. At harvesting (160 days from sowing)				
N <sub>0</sub> P <sub>0</sub> ( control )	381.2 a	303.8 a	685.0 a	100
N <sub>1</sub> P <sub>0</sub>	512.8 cd	411.7 cd	924.5 cd	135
N <sub>0</sub> P <sub>1</sub>	438.4 ab	352.7 b	791.1 b	115
N <sub>1</sub> P <sub>1</sub>	556.0 de	442.5 de	998.5 d	146
N <sub>0</sub> P <sub>2</sub>	481.9 bc	386.7 bc	868.6 c	127
N <sub>1</sub> P <sub>2</sub>	586.4 e	466.6 e	1053.0 e	154

Table (6): Effect of fertilizer on fresh weight of weeds/m<sup>2</sup>  
(g.) in 1985/86 season.

Fertilizer treatment	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	23.1 a	18.3 a	41.4 a	100
N <sub>1</sub> P <sub>0</sub>	38.7 d	30.4 d	69.1 d	167
N <sub>0</sub> P <sub>1</sub>	28.5 b	22.5 b	51.0 b	123
N <sub>1</sub> P <sub>1</sub>	45.8 e	36.0 e	81.8 e	197
N <sub>0</sub> P <sub>2</sub>	33.8 c	26.6 c	60.4 c	146
N <sub>1</sub> P <sub>2</sub>	50.2 F	39.6 F	89.8 F	217
2. 75 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	444.4 a	350.4 a	794.8 a	100
N <sub>1</sub> P <sub>0</sub>	577.8 c	455.7 c	1033.5 c	130
N <sub>0</sub> P <sub>1</sub>	499.2 b	393.6 b	892.8 b	112
N <sub>1</sub> P <sub>1</sub>	635.2 d	501.2 d	1136.4 d	143
N <sub>0</sub> P <sub>2</sub>	553.9 c	436.9 c	990.8 c	125
N <sub>1</sub> P <sub>2</sub>	688.0 e	542.7 e	1230.7 e	155
3. 105 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	165.6 a	129.6 a	295.2 a	100
N <sub>1</sub> P <sub>0</sub>	278.5 c	217.3 c	495.8 d	168
N <sub>0</sub> P <sub>1</sub>	211.0 b	165.0 b	376.0 b	127
N <sub>1</sub> P <sub>1</sub>	330.2 d	257.6 d	587.8 d	199
N <sub>0</sub> P <sub>2</sub>	251.2 c	196.0 bc	447.2 c	151
N <sub>1</sub> P <sub>2</sub>	376.0 e	293.9 e	669.9 e	227
4. At harvesting (160 days from sowing)				
N <sub>0</sub> P <sub>0</sub> ( control )	350.0 a	270.4 a	620.4 a	100
N <sub>1</sub> P <sub>0</sub>	463.0 cd	363.5 cd	826.5 c	133
N <sub>0</sub> P <sub>1</sub>	399.8 ab	313.9 b	713.7 b	115
N <sub>1</sub> P <sub>1</sub>	502.1 de	393.7 de	895.8 d	144
N <sub>0</sub> P <sub>2</sub>	438.6 bc	344.1 bc	782.7 bc	126
N <sub>1</sub> P <sub>2</sub>	529.7 e	415.1 e	944.8 d	152

Table (7): Effect of fertilizer on dry weight of weeds/m<sup>2</sup> (g.) in 1984/85 season.

Fertilizer treatment	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	2.7 a	1.9 a	4.6 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	5.5 d	3.4 d	8.9 d	193
N <sub>0</sub> P <sub>1</sub>	4.0 b	2.5 b	6.5 b	141
N <sub>1</sub> P <sub>1</sub>	6.5 e	4.1 e	10.6 e	230
N <sub>0</sub> P <sub>2</sub>	4.8 c	3.0 c	7.8 c	169
N <sub>1</sub> P <sub>2</sub>	7.2 F	4.5 F	11.7 F	254
2. 75 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	53.6 a	43.9 a	97.5 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	89.4 cd	66.1 c	155.5 c	159
N <sub>0</sub> P <sub>1</sub>	70.1 b	56.3 b	126.4 b	130
N <sub>1</sub> P <sub>1</sub>	96.5 d	72.9 d	169.4 d	174
N <sub>0</sub> P <sub>2</sub>	83.9 c	62.9 c	146.8 c	150
N <sub>1</sub> P <sub>2</sub>	104.7 e	79.0 e	183.7 e	188
3. 105 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	25.2 a	19.1 a	44.3 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	49.0 c	38.6 c	87.6 d	198
N <sub>0</sub> P <sub>1</sub>	36.9 b	29.3 b	66.2 b	149
N <sub>1</sub> P <sub>1</sub>	58.2 d	45.7 d	103.9 e	234
N <sub>0</sub> P <sub>2</sub>	44.1 c	37.7 c	81.8 c	185
N <sub>1</sub> P <sub>2</sub>	66.3 e	52.2 e	118.5 F	267
4. At harvesting (160 days from sowing)				
N <sub>0</sub> P <sub>0</sub> ( control )	71.8 a	55.1 a	126.9 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	127.5 cd	98.3 cd	225.8 c	178
N <sub>0</sub> P <sub>1</sub>	110.1 b	83.9 b	194.0 b	153
N <sub>1</sub> P <sub>1</sub>	138.2 de	107.7 de	245.9 d	194
N <sub>0</sub> P <sub>2</sub>	120.7 bc	93.1 bc	213.8 c	168
N <sub>1</sub> P <sub>2</sub>	145.8 e	112.2 e	258.0 e	203

Table (8): Effect of fertilizer on dry weight of weeds/m<sup>2</sup> (g.) in 1985/86 season.

Fertilizer treatment	Broad leaves weeds	Grass weeds	Total	Rel.
1. 45 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	2.5 a	1.8 a	4.3 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	5.0 d	3.2 d	8.2 d	191
N <sub>0</sub> P <sub>1</sub>	3.6 b	2.3 b	5.9 b	137
N <sub>1</sub> P <sub>1</sub>	5.9 e	3.8 e	9.7 e	226
N <sub>0</sub> P <sub>2</sub>	4.3 c	2.8 c	7.1 c	165
N <sub>1</sub> P <sub>2</sub>	6.5 F	4.1 e	10.6 F	246
2. 75 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	48.8 a	38.5 a	87.3 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	81.2 cd	59.2 c	140.4 c	161
N <sub>0</sub> P <sub>1</sub>	66.3 b	50.3 b	116.6 b	133
N <sub>1</sub> P <sub>1</sub>	87.6 d	65.2 d	152.8 d	175
N <sub>0</sub> P <sub>2</sub>	76.1 c	56.8 c	132.9 c	152
N <sub>1</sub> P <sub>2</sub>	94.8 e	70.6 e	165.4 e	189
3. 105 days from sowing				
N <sub>0</sub> P <sub>0</sub> ( control )	23.1 a	17.0 a	40.1 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	44.6 c	34.4 b	79.0 d	197
N <sub>0</sub> P <sub>1</sub>	33.7 b	21.2 a	54.9 b	137
N <sub>1</sub> P <sub>1</sub>	52.8 d	40.8 c	93.6 e	233
N <sub>0</sub> P <sub>2</sub>	40.2 c	31.1 b	71.3 c	178
N <sub>1</sub> P <sub>2</sub>	60.2 e	46.6 d	106.8 F	266
4. At harvesting (160 days from sowing)				
N <sub>0</sub> P <sub>0</sub> ( control )	64.7 a	48.6 a	113.3 a	<u>100</u>
N <sub>1</sub> P <sub>0</sub>	114.8 cd	87.8 cd	202.6 c	179
N <sub>0</sub> P <sub>1</sub>	99.1 b	76.6 b	175.7 b	155
N <sub>1</sub> P <sub>1</sub>	124.5 de	95.0 de	219.5 d	194
N <sub>0</sub> P <sub>2</sub>	108.7 bc	83.1 bc	191.8 c	169
N <sub>1</sub> P <sub>2</sub>	131.3 e	100.2 e	231.5 d	204

**3- Effect of the Interaction:**

The effect of the intreaction between number of irrigations and NP fertilizers was not significant on all studied characters.

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### تأثير الري والتسميد على محصول العدس

#### ١ - نمو الحشائش المصاحبة

جابر عبد اللطيف ساري محمد شحاته سالم حسن رمضات احمد الدببة  
هارون محمد موسى النجار

أجريت تجربتان حقليةتان في مركز البحوث والتجارب الزراعية بكلية الزراعة بمشهر خلال موسمي ١٩٨٥/٨٤ ، ١٩٨٦/٨٥ وذلك لهدف دراسة تأثير عدد الريات والتسميد النيتروجيني والفوسفاتي على نمو الحشائش المصاحبة لمحصول العدس وتضمنت كل تجربة على أربعة وعشرين معاملة عبارة عن التوافق المختلف لاربع مواعيد للري وست معاملات للتسميد النيتروجيني والفوسفاتي وكان التصميم المتبع هو قطع منشقة مرة واحدة ووزعت معاملات الري في القطع الرئيسية وكان عدد التكرارات أربعة وتتلخص أهم النتائج في الآتى :-

- ١ - كان لعدد الريات تأثير معنوي على وزن الحشائش الغض والجاف /٢م في مراحل النمو المختلفة حيث ازداد وزن الحشائش الغض والجاف معنوياً بزيادة عدد الريات أكثر من ثلاثة وذلك مراحل النمو المختلفة بعد ٤٥ ، ٧٥ ، ١٠٥ ، ١٦٠ يوم من الزراعة .
- ٢ - كان للتسميد النيتروجيني والفوسفاتي تأثير على الوزن الغض والجاف للحشائش حيث ازداد نمو الحشائش نتيجة لآضافة السماد النيتروجيني والفوسفاتي بالمقارنة بمعاملة المقارنة ( الكنترول ) .
- ٣ - يمكن ترتيب تأثير معاملات التسميد على نمو الحشائش تنازلياً كالاتى: ١٥ كجم نيتروجين + ٤٨ كجم فوسفات ، ١٥ كجم نيتروجين + ٢٤ كجم فوسفات ، ١٥ كجم نيتروجين ، ٤٨ كجم فوسفات و ٢٤ كجم فوسفات ثم معاملة المقارنة ( بدون تسميد) .
- ٤ - لم يكن هناك تأثير للتفاعل بين عدد الريات والتسميد النيتروجيني والفوسفاتي على وزن الحشائش الغض والجاف .

\* كلية الزراعة بمشهر - جامعة الزقازيق .