INFLUENCE OF COMBINE APPLICATION OF TOPIC, GRANSTAR HERBICIDES AND PHOSPHOR LEVELS ON WEEDS AND BREAD WHEAT YIELD AND ITS COMPONENTS

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ABSTRACT
A field trail was conducted at the researches Farm of Agricultural College of Duhok University, Kordistan Region/ Iraq, which located in semi-arid zone during the season 2016-2017 in two planting dates (28 November and 28 December 2016 ) to study the influence of four integrate Topic and granstar (0, 1200, 1600, 2000 ml. ha⁻¹ and 0, 20, 40, 60 gm ha⁻¹ ) and four phosphor fertilizer levels at (0, 183, 229, 275 kg ha⁻¹ ) respectively, on weeds and bread wheat yield and its components. The experiment unit arranged in factorial experiment, using Randomize Complete Block Design (RCRD) with three replications. The results showed that herbicide and phosphorous levels exhibited significant effect on weeds and yield and its components. The treatment (Topic 2000 ml+60 g ha⁻¹ granstar) produced maximum reduction in total weeds growth and recorded maximum values for 51.1 g) respectively. High dose of herbicide (Topic:2000 ml ha⁻¹ and Granstar,60 g ha⁻¹) and high of of grains spike⁻¹, 1000-grain weight and grain yield which were (45.4, 42.5 g, and high phosphorous levels (275 kg ha⁻¹) are recommended for weed control and high yield and a good quality wheat grains.

KEYWORD: Herbicide, weeds, Phosphorus, wheat, yield

INTRODUCTION

Wheat (Triticum aestivum L) is one of the most important crop in the world and the widest distribution among cereal crops. It is an important cereal crop in Iraqi Kurdistan region. Its average productively is low comparing to other advance countries in the world. Several practices such as weed control, and adequate fertilizers are very important for production of bread wheat (23). The weeds compete with crop plants for essential growth factors like light, moisture, nutrients and space (8). Weed can also increase harvesting cost, reduce quality of product. Thus found that uncontrolled weed growth throughout the crop growth a 57.6% to 73.2% yield reduction, while, (22) reported the yield losses due to weed are 17 to 25% . The chemical weed control is more economical than conventional method (9). Several researchers (18), (15), and (3) . Consider that the chemical method of weeds control proved to be more efficient method in controlling weeds. (19), showed that phosphorus revealed as the second most important factor, and essential for plant growth after nitrogen. While, Mata and Brown showed the phosphor in soil was high fixation and low levels of avariable p, the applications of p in bands generally increase productivity, (13) exhibited that phosphorus is taken up by plants as an orthophosphate ions (H₂PO₄⁻ and HPO₄²⁻) which play a vital function to maintain yield and quality. When application of phosphorus in adequate quantity and available source to plant medium has a vital role for plant growth, yield production, and improving yield quantity of wheat, also phosphorus is essential for cell division seed and fruit development (1). Several researchers (6), (5), (4) and (7), were studied different soil and found that different parameters affected the availability of soil phosphorus to plant such as PH, Ca²⁺ Concentration, moisture, texture, root density, CaCO₃ amount of organic matter content and type of clay mineral, also obtained, the maximum phosphorus doses contributed in achieving maximum 1000-grain weight, dry matter and highest number of grain spike⁻¹. The present study was devoted to study the yield and yield components of wheat as affected by herbicide and phosphorus fertilizer application and weed growth and population.

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MATERIAL AND METHOD

This trial was conducted at the farm of Agriculture college, University of Duhok, Iraqi Kurdistan Region, which located in semi-arid zone during the 2016-2017 season in two planting dates under rain feed conditions to estimate the influence of four integrate Topic and granstar herbicides (1200, 1600, 2000 ml ha⁻¹) and four phosphorus levels. (0, 183, 229, 275 kg ha⁻¹) on weeds and wheat yield and it's components. The experimental units were arranged in factorial experiment, using Complete Randomize Block Design and replicated three times. All physiochemical properties of top soil sample (0-30) and weather properties shown in (Table 1). The experimental units consists from four rows with three meter length and 20 cm distance between rows. Nitrogen was added at rate 120 kg ha⁻¹ in form of urea 46%N. Half dose of nitrogen and all doses of phosphorus added before planting date, the second half of nitrogen added at tillering stage. The seeds were planted in 28 November and 28 December 2016 with seeding rate 120 k ha⁻¹ using TAWAHI-13 bread wheat (Triticum aestivum) variety The date of spraying the integrate herbicide were 7 and 15 July 2017 when the plat 2-3 leave stage. Weed sampling recorded after 100 days from planting date. The dry weight of broad and narrow leaved weeds of 1m² matured from each plot, were and dried using over drying at (75 c°) for (48) hrs, (25).

Data collected on ten plants selected randomly from four rows, included a characters of broad and narrow leaved weeds in one m², plant height, leaf area cm², days to flowering, number of grains spike⁻¹, grains weight spike⁻¹, 1000- grain weight and grain yield. The data analyzed using Minitab software. Duncan Multiple Range Test (DMRT) was used to test the means of treatments.

| Table (1): Physiochemical properties of top soil sample (0-30) and weather properties. |
|----------------------------------------------------------------------------------------------------------------------------------|
| **Month** | Ave. Daily max. tem c° | Ave. Daily min. tem c° | Seasonal Relative Humidity RH % | Seasonal Rainfall mm | Sand (g.kg⁻¹) | Si (g.kg⁻¹) | Cl (g.kg⁻¹) | Clay (g.kg⁻¹) | Silt (g.kg⁻¹) | PH in soil past | Soil texture | Silty clay |
|--------------------------------------------------|------------------|-------------------|---------------------------|-------------------|----------------|-------------|-------------|---------------|----------------|----------------|-------------|-----------|
| October                                           | 36.2             | 18.3              | 32.3                      | 00                | 89.60          |             |             |               |                 |                |             |           |
| November                                          | 12.1             | 3.6               | 40.9                      | 10.2              |                 |             |             |               |                 | 486.90         |             |           |
| December                                          | 11.6             | 2.04              | 79.4                      | 72                |                 |             |             |               |                 | 419.85         |             |           |
| January                                           | 12.23            | -0.56             | 73.47                     | 29.1              |                 |             |             |               |                 | 8.25           |             |           |
| February                                          | 13.76            | -57.2             | 65.8                      | 17.6              |                 |             |             |               |                 | 0.55           |             |           |
| March                                             | 18.53            | 6.881             | 67.05                     | 52.2              |                 |             |             |               |                 | 205.2          |             |           |
| April                                             | 24.21            | 9.52              | 63.98                     | 81.4              |                 |             |             |               |                 | 145            |             |           |
| May                                               | 24.4             | 37.8              | 19                        | 15.0              |                 |             |             |               |                 | 0.22           |             |           |
| Total                                             | 277.5            |                   |                           |                   |               |             |             |               |                 |                |             |           |

* Ec: Electric conductivity

RESULTS AND DISCUSSIONS

Statistical analysis of data that showed all herbicidal treatments had significant effect on all studied traits in both seeding date with the exception to plant height and leaf area in the second date. The phosphorus levels exhibited considerable effects in all traits in first and second date with the exception of number and dry broad leaved weeds, plant height, leaf area and grain weight spike⁻¹. The interaction between herbicides and phosphorous levels gave significant and significant effects on all traits except of dry weight of broad leaved weeds, plant height, leaf area and grain weight spike⁻¹ in the first date and plant height, leaf area and number of grains spike⁻¹ in second date.

Similar impact of herbicides and phosphorus levels on 1000-grain, number of grains spike⁻¹ and grain yield were observed (12) and (10).
Table (2): Mean square analysis of integrate herbicide and phosphorus levels on broad and narrow leafed weeds. components in first and second planting date.

| S.O.V | D f | No. of broad leaved weeds m⁻² | Dry weight of broad leaved weeds (g) m⁻² | No. of narrow leaved weeds m⁻² | Dry weight of narrow leaved weeds (g) m⁻² | plant height (cm) | flag Leaf area cm² | Days to flowering | No. grain spike⁻¹ | Grain weight Spike⁻¹ (g) | 1000 grain weight (g) | Grain yield g m⁻¹ |
|-------|-----|------------------------------|------------------------------------------|------------------------------|------------------------------------------|-------------------|--------------------|-------------------|------------------|------------------------|---------------------|------------------|
|       |     | First date                   |                                           | Second date                  |                                           |                   |                    |                   |                  |                        |                     |                  |
|       |     |                              |                                           |                              |                                          |                   |                    |                   |                  |                        |                     |                  |
| Block | 2   | 0.188                        | 0.052                                    | 34.56                        | 1.84                                     | 103.02*           | 16.3               | 0.396             | 8.42*            | 0.084*                 | 11.7*               | 143              |
| H     | 3   | 130.85**                     | 5.69**                                   | 3972.9**                     | 3231.5**                                  | 191.22**          | 3.497              | 56.1**            | 303.3**          | 0.0175                 | 225.5**             | 31635            |
| HxP   | 9   | 6.502 *                      | 1.482                                    | 55.37**                      | 56.19**                                   | 9.41              | 8.362              | 1.42**            | 20.1**           | 0.0435                 | 38.9**              | 3785**           |
| Error | 30  | 2.788                        | 1.027                                    | 15.43                        | 3.64                                     | 21.45             | 6.676              | 0.285             | 1.56             | 0.0209                 | 3.275               | 492              |
| Total | 47  |                              |                                           |                              |                                          |                   |                    |                   |                  |                        |                     |                  |

| Block | 2   | 0.521                        | 0.600                                    | 2.771                        | 5.75                                     | 2063.8**          | 40.87              | 0.646             | 20.0*            | 0.0699*                | 0.957               | 5414             |
| H     | 3   | 68.47**                      | 49.10**                                  | 161.47**                     | 1015.85**                                 | 68.48             | 3.21               | 36.18**           | 79.3**           | 0.0592*                | 19.71**             | 3328             |
| P     | 3   | 6.354**                      | 1.842**                                  | 75.861**                     | 399.58**                                  | 300.99**          | 53.06*             | 16.69**           | 82.1**           | 0.3386*                | 108.3**             | 10989**          |
| HxP   | 9   | 5.650**                      | 2.366**                                  | 20.213**                     | 115.45**                                  | 24.42             | 8.30               | 3.76**            | 10.176           | 0.0527*                | 17.64**             | 1036             |
| Error | 30  | 0.654                        | 0.285                                    | 2.349                        | 3.74                                     | 36.61             | 16.45              | 0.425             | 5.436            | 0.02001                | 2.567               | 2145             |
| Total | 47  |                              |                                           |                              |                                          |                   |                    |                   |                  |                        |                     |                  |

*, **, indicating significant difference at 0. 05 and 0.01 probability levels respectively. H – Herbicide, P- phosphorus.

The interaction between herbicides and phosphorus (H*P) caused remarkably differences in most of studied traits, i.e., for number and dry weight of broad and narrow leaved weeds. The check treatment gave the maximum values (8.8, 2.6 g, 44.5, 37.9 g and 6.7, 5.3 g, 10.1 cm and 22.1 g in first and second dates while, H₃ level exhibited the minimum values 1.8, 1.0 g, 6.6, 3.7, 1.4, 0.8 and 1.9 g in both dates(Table 3). Regarding the phosphorus effect, results in (table 4) showed that the phosphorous levels gave worthy effect on the whole traits with except of number and dry weight of broad leaved weeds, plant height, leaf area and grain weight spike⁻¹ in first date, and leaf area in second date. The date also showed the effect of four levels of phosphorus in number and dry weight of narrow leaved weeds, the Po level gave the maximum values 21.2 and 16.2 g. For yield and yield components the Po level produced the highest value (40.0, 32.2 g and 330.5 g) for number of grain spike⁻¹, 1000-grain weight and grain yield, respectively in first date. In second date the Po level was superior in number and dry weight of broad and narrow leaved weeds with values 4.2, 2.9 g, 9.2 and 19.0 g, respectively. For plant height and leaf area the Po and P₁ level produced the highest value, 103.4 cm and 28.9 cm². For the earliest days to flowering, P₁ level recorded the lowest value 121.9 days. The Po level was superior in most yield components and gave 1.1 g, 2.9 g and 298.3 g for grain weight spike⁻¹, 1000-grain weight and grain yield. These results indicate that phosphorus has an important effect on the grains in spike because the phosphorus is important in cell division and development of new tissue, phosphorus is also associated with complex energy transformation in the plant and the H₃ level was more effective to kill the most broad and narrow leaved weeds compared to the weedy check and caused noticeable increasing in grain yield. Similar results regarding herbicide and phosphorous levels were reported by (2) and (24).
Table (3): Influence of integrate Topic and Granstar herbicides and phosphorous levels on weeds and yield and yield components of bread wheat.

| Treat. | No of broad leaved weeds m² | Dry weight of broad leaved weeds (g) | No of narrow leaved weeds m² | Dry weight of narrow leaved weeds (g) | Plant height (cm) | Flag leaf area cm² | Days to flowering | No. grain spike | 1000 grain weight (g) | Grain yield g m⁻² |
|--------|-----------------------------|-------------------------------------|-----------------------------|-------------------------------------|------------------|------------------|-----------------|----------------|----------------------|------------------|
| H₀     | 8.8 a                       | 2.6 a                               | 44.5 a                      | 37.9 a                              | 101.3 a          | 22.3 a           | 141.4 d         | 26.8 c         | 0.9 a                | 25.3 c           | 265.5 b           |
| H₁     | 3.0 b                       | 2.1ab                               | 6.9 c                       | 4.8 c                               | 96.4ab           | 21.5 a           | 143.1 c         | 35.1 b         | 0.9 a                | 26.8 c           | 260.7 b           |
| H₂     | 2.1 b                       | 1.9ab                               | 11.7 b                      | 7.1 b                               | 93.1 b           | 22.4 a           | 144.2 b         | 36.7 a         | 1.0 a                | 31.9 b           | 283.0 b           |
| H₃     | 1.8 b                       | 1.0 b                               | 6.6 c                       | 3.7 c                               | 92.5 b           | 21.4 a           | 146.3 b         | 37.9 a         | 1.0 a                | 34.6 a           | 370.6 a           |
| P₀     | 3.7 a                       | 1.7 a                               | 21.2 a                      | 16.2 a                              | 95.7 a           | 21.1 a           | 143.5 d         | 25.0 d         | 0.9 a                | 24.3 c           | 247.7 c           |
| P₁     | 3.3 a                       | 1.9 a                               | 16.1 b                      | 14.2 a                              | 94.9 a           | 22.5 a           | 143.2 c         | 34.6 c         | 0.9 a                | 29.3 b           | 283.6 b           |
| P₂     | 4.6 a                       | 2.3 a                               | 17.8ab                      | 11.4 b                              | 97.4a            | 21.9 a           | 143.3 b         | 36.9 b         | 0.9 a                | 32.7 a           | 318.0 a           |
| P₃     | 4.2 a                       | 1.7 a                               | 14.7 b                      | 11.6 b                              | 95.4a            | 22.0 a           | 144.4 a         | 40.0 a         | 1.0 a                | 32.2 a           | 330.5 a           |
| H₀     | 6.7 a                       | 5.3 a                               | 10.1 a                      | 22.1 a                              | 97.3a            | 27.3a            | 123.4 a         | 27.7 b         | 0.9 a                | 28.2 a           | 235.3 a           |
| H₁     | 2.5 b                       | 1.8 b                               | 7.3 b                       | 13.5 b                              | 103.1a           | 28.3a            | 123.2b          | 32.1 a         | 0.9 a                | 25.7 b           | 272.9 a           |
| H₂     | 2.0 bc                      | 1.5 b                               | 2.2 c                       | 4.4 c                               | 100.a            | 27.3a            | 122.7 b         | 32.6 a         | 0.8 a                | 25.7 b           | 248.4 a           |
| H₃     | 1.4 c                       | 0.8 c                               | 3.2 c                       | 1.9 d                               | 100.a            | 28.1a            | 119.7c          | 33.5 a         | 1.0 a                | 25.4 b           | 263.9 a           |
| P₀     | 4.2 a                       | 2.9 a                               | 9.2 a                       | 19.0 a                              | 92.9 b           | 24.6b            | 120.8 d         | 27.6 b         | 0.7 c                | 22.8 d           | 230.7 b           |
| P₁     | 2.6 b                       | 1.9 b                               | 5.5 b                       | 6.9 b                               | 102.a            | 28.8a            | 121.9c          | 32.6 a         | 0.9bc               | 25.0 c           | 238.2 b           |
| P₂     | 3.2 b                       | 2.4ab                               | 5.0 b                       | 8.6 b                               | 103.4a           | 28.6a            | 122.8 b         | 32.6 a         | 1.0ab               | 27.6 b           | 253.3ab           |
| P₃     | 2.7 b                       | 2.2 b                               | 3.2 c                       | 7.3 b                               | 103.1a           | 28.9a            | 123.5 a         | 33.2 a         | 1.1 a                | 29.7 a           | 298.3 a           |

Means having the same letters in the same column are not significantly different at P-value > 0.05

The data in table 4. recognized the interaction effect between integrate herbicide and phosphorus levels on weeds and wheat yield. The results revealed that the lowest number and dry weight of broad leaved weeds 1.3 and 0.7 g obtained from H₁P₂ level whilst the lowest values 3.0 and 1.7 g recorded for number and weight of narrow leaved weeds produced by H₁P₁ level in the first date. Moreover, in second date, a minimum number and dry weight of broad and narrow leaved weeds were obtained by H₀P₁ and H₀P₂ level and values were 1.3, 0.3 g, 1.3 and 1.1 g respectively. The plant height and leaf area exhibited non significant effect by interaction between herbicide and phosphorous levels in both dates and grains weight spike⁻¹ in first date. The earliest days to the flowering was recorded in check treatment and values were 140 and 120 days in first and second date respectively. These traits significantly affected by weed and check treatment and exhibited highly competition between wheat crop and both of broad and narrow leaved weeds. Regarding to yield and yield components the results table 5 showed that the highest number of grains spike⁻¹, 1000-grain weight and grain yield were realized by H₂P₁ and H₂P₁ level for number of grain spike⁻¹ in first date and recorded 45.4, 42.5 g, 451.1 g, 35.3, 34.0 and 312.8 g respectively. The results of herbicide and phosphorus levels were agreed with (14) and (16). However, these results appear that interaction between (H x P) was superior in number of grain-spike⁻¹, 1000-grain weight and grain yield in both dates.
Table (4): Effect of interaction of integrate herbicides and phosphorous levels on broad and narrow leaved weeds and yield and its components of bread wheat.

| First date | H | P | No. of broad leaved weeds (m²) | Dry weight of broad leaved weeds (g) | No. of narrow leaved weeds (m²) | Dry weight of narrow leaved weeds (g) | Plant height (cm) | flag Leaf area (cm²) | Days to flowering | No. of grain/spike e¹ | Grain weight Spike¹ | 1000 grain weight (g) | Grain yield g m⁻² |
|------------|---|---|-----------------------------|-------------------------------------|---------------------------------|-------------------------------------|-----------------|---------------------|-------------------|------------------|-----------------|-------------------|-------------------|
| H₀ | P₀ | 8.7abc | 2.3ab | 52.0 a | 45.0 a | 100.2a | 20.7 a | 140.7 e | 21.0 h | 0.9 a | 20.7 e | 231.1 d | 269.9 cd |
| P₁ | 5.3bcd | 1.7ab | 41.3ab | 43.7 a | 101.2a | 21.9 a | 140.7 e | 24.5 gh | 0.8 a | 22.8de | 269.9 cd |
| P₂ | 11.7 a | 4.3 a | 44.7ab | 28.4 c | 102.0a | 25.2 a | 141.3de | 27.7 g | 0.9 a | 32.3bc | 314.7 bc |
| P₃ | 9.7ab | 2.3ab | 40.0 b | 34.5 b | 101.5a | 21.3 a | 142.0de | 34.1 f | 1.1 a | 25.3de | 246.2 d |
| H₁ | P₀ | 2.3 d | 1.7ab | 3.0 d | 3.8d-f | 98.3 a | 20.1 a | 144.3 c | 28.0 g | 0.9 a | 26.0de | 241.8 d |
| P₁ | 3.3 d | 2.3ab | 6.3 cd | 3.8def | 94.1 a | 21.8 a | 142.3 d | 35.7 ef | 1.0 a | 26.7 d | 254.4 cd |
| P₂ | 2.7 d | 2.1ab | 12.7cd | 8.1 d | 97.6 a | 21.3 a | 142.0de | 37.8def | 0.8 a | 27.5cd | 265.3 cd |
| P₃ | 3.7 cd | 2.2ab | 5.7 cd | 3.5def | 95.8 a | 22.7 a | 144.3 c | 38.9 be | 0.9 a | 27.1cd | 281.4bcd |
| H₂ | P₀ | 1.7 d | 1.6ab | 14.7cd | 7.8 de | 94.5 a | 24.5 a | 144.3 c | 25.7 g | 0.9 a | 24.7de | 237.7 d |
| P₁ | 2.3 d | 2.7ab | 13.7cd | 7.8 de | 93.0 a | 22.7 a | 144.7bc | 39.7bd | 0.8 a | 32.5bc | 276.0 cd |
| P₂ | 2.7 d | 2.2ab | 8.7 cd | 6.5def | 93.1 a | 20.6 a | 144.3 c | 39.9bd | 1.1 a | 36.3 b | 280.5bcd |
| P₃ | 3.1d | 1.1b | 10.0cd | 6.5def | 91.9 a | 21.8 a | 144.3 c | 41.7ac | 1.1 a | 33.9 b | 343.1 b |
| H₃ | P₀ | 2.3 d | 1.3ab | 15.0 c | 8.2 d | 89.8 a | 21.9 a | 146.0ab | 25.5 g | 1.0 a | 26.0de | 280.1bcd |
| P₁ | 2.0 d | 1.0 b | 3.0 d | 1.7 f | 91.4 a | 21.7 a | 146.0ab | 38.5cde | 1.1 a | 35.4b | 339.6 b |
| P₂ | 1.3 d | 0.7 b | 5.0 cd | 2.6def | 96.7 a | 22.4 a | 146.3 a | 42.3ab | 1.0 a | 34.5 b | 411.6 a |
| P₃ | 1.7 d | 1.0 b | 3.3 cd | 2.1 ef | 92.3 a | 19.5 a | 147.0 a | 45.4 a | 0.9 a | 42.5 a | 451.1 a |

Means having the same letters in the same column are not significantly different at P-value > 0.

Table 5. showed significant effect of integrate herbicide (H) in the whole of studied traits with except of plant height and leaf area, but the phosphorous levels (P) showed highly, remarkable effect in all of traits except dry weight of broad leaved weeds, plant height and leaf area, also the date (T) produced substantially significant effect in all traits except of plant height and grains weight spike¹. The interaction between H x P exhibited highly significant effect for all studied traits with the exception of the grains weight spike¹. the result in the same table indicated that
The effect of herbicides levels on weed (broad and narrow leaved weeds) was significant different. The data in table 6, showed that the highest weed control efficacy (0.89%) was recorded by H3 level, increasing herbicide rates led to significantly increasing weeds control efficiency, while, the H1 level recorded the minimum percent (0.68%) of efficiency compared with control. For a number and dry weight of broad and narrow leaved weeds the P3 level produced the maximum values 4.0, 2.3 g, 15.2 and 17.6 g, respectively. For plant height and leaf area, these traits were not significantly effects by different levels of herbicides. Also the same traits appeared different effects by phosphorus levels, the maximum plant height was recorded by P3 level with value 100.4 cm but leaf area appeared non significant effect.

The earliest days to flowering the H0 and P0 level gave the minimum days to the flowering and values were 130.4 and 132.3 days because the competition between the weeds and wheat plant was higher in this treatment. Significant differences were also found in yield and yield contributing characters (table 6). The H3 and P3 level produced the highest values (35.7, 1.0g, 31.4 g and 317.3 g, 36.6, 1.0 g, 30.9 g and 314.4 g), for number of grains spike-1, grain weight, 1000-grain weight, grain yield and the lowest grain yield and yield components were also found in control treatment. The data in the same table confirmed that the first date was superior in the number and dry weight of broad and narrow leaved weeds and also superiority in number of grains spike-1, 1000- grain weight and grain yield and recorded the maximum values (34.1, 29.6 g and 295.0 g) respectively. Similar trends were found by (4) and (24). The results showed that the herbicide reduced the compete between eeds and crops for nutrients, light, causing increase in wheat vigour, tillering, head size and kernel weight.
Table (6): Influence of integrate herbicides and phosphorous levels on broad and narrow leaved weeds and yield and its components of bread wheat.

| Herbicide | No. of broad leaf weeds m² | dry weight of broad leaf weeds (g) m² | No. of narrow leaf weeds m² | dry weight of narrow leaf weeds (g) m² | plant height (cm) | Flag Leaf area cm² | Days to flowering | No. grain.spike³ | Grain weight Spike² (g) | 1000 grain weight (g) | Grain yield g m² |
|-----------|-----------------------------|--------------------------------------|----------------------------|--------------------------------------|-----------------|-------------------|------------------|----------------|------------------------|-----------------------|----------------|
| H₀        |                             |                                      |                            |                                      |                 |                   |                  |                |                        |                       |                |
| H₁        | 7.7 a                       | 4.0 a                                | 27.3 a                     | 30.0 a                               | 99.3 a          | 22.3 a            | 130.4 c         | 27.3 c         | 0.9 a                   | 25.5 c                 | 250.4 b         |
| H₂        | 2.8 b                       | 1.9 b                                | 7.1 b                      | 9.1 b                                | 99.8 a          | 21.5 a            | 133.2 b         | 33.6 b         | 0.9 a                   | 26.3 c                 | 266.8 b         |
| H₃        | 2.0bc                       | 1.7 b                                | 7.0 b                      | 5.8 c                                | 96.9 a          | 22.4 a            | 133.5 b         | 34.7ab         | 0.9 a                   | 28.6 b                 | 265.7 b         |
| H₄        | 1.6 c                       | 0.9 c                                | 4.9 b                      | 2.8 d                                | 96.3 a          | 21.4 a            | 134.9 a         | 35.7 a         | 1.0 a                   | 31.4 a                 | 317.3 a         |
| P₀        | 3.4 ab                      | 2.3 a                                | 15.2 a                     | 17.6 a                               | 94.3 b          | 21.1 a            | 132.3 c         | 26.3c           | 0.8 c                   | 23.6 c                 | 239.2 c         |
| P₁        | 3.1 b                       | 1.9 a                                | 10.8 bc                    | 10.6 b                               | 98.5ab          | 22.5 a            | 132.7 c         | 33.6 b         | 0.9 bc                  | 27.2 b                 | 260.9bc         |
| P₂        | 3.9 ab                      | 2.3 a                                | 11.4 b                     | 10.0 b                               | 100.4 a         | 21.9 a            | 133.1 b         | 34.8 b         | 1.0ab                   | 30.1 a                 | 285.7 b         |
| P₃        | 3.4 ab                      | 1.9 a                                | 9.0 c                      | 9.5 b                                | 99.2 ab         | 22.0 a            | 134.0 a         | 36.6 a         | 1.0 a                   | 30.9 a                 | 314.4 a         |
| D₁        | D₁₁                         | 3.9a                                 | 1.9 b                      | 17.4 a                               | 13.4 a          | 100.3 a           | 143.8 a         | 34.1 a         | 0.9 a                   | 29.6 a                 |                |
| D₂        | D₂₂                         | 3.1b                                 | 2.3 a                      | 5.7 b                                | 10.5 b          | 95.8 b            | 21.9 a           | 122.2 b        | 31.5 b                  | 0.9 a                   | 26.2 b          |

Numbers fallowed by the same letters in the same column are not significant difference at 0.05 probability level

Table 7. indicated that an interaction between integrate of herbicide and phosphor levels for both dates of planting on wheat and weed yield, and gave the heights number and dry weight of broad and narrow leaved weeds values 9.3, 32.7 and 44.2 g recorded by H¹ wherever, the lowest values (1.5, 2.7 and 1.5 g) were recorded by H₃ at P₁ respectively. Clear decreases found in the above traits as a results of H and P application together. According to interaction between HxP on leaf area and days to flowering, the maximum values of leaf area and days to flowering recorded by H₀ P₀ which was 25.2 cm² and 130 days to flowering, while the lowest values of leaf area was 19.5 cm², and maximum value for days to flowering was 136.2 days. The data in table 8. showed the highest number of grains spike⁻¹, grain weight spike⁻¹, 1000- grain weight and grain yield obtained with H₃ P₃ level which were 39.9, 1.0 gm, 38.3 gm and 381.9 g respectively. While the lowest values were found in H₀ P₀ level with the exception grain weight spike⁻¹ which was found in H₃ P₀. These results showed that adding herbicide and phosphorous levels to crops will provide their requirement for a variable phosphorous in balance proportion with nitrogen. The results revealed that all herbicide and phosphorus significantly decreased weed population and direct effected on the wheat yield rate. These results were in agreement with those state out by (20),(19)and (24) .

Table (7): Influence of interaction of integrate herbicides and phosphorus levels on broad and narrow leaved weeds and yield and its components of bread wheat

| H | P | No. of broad leaved weeds m² | Dry weight of broad leaved weeds (g) m² | No. of narrow leaved weeds m² | Dry weight of narrow leaved weeds (g) m² | plant height (cm) | flag Leaf area cm² | Days to flowering | No. grain.spike³ | Grain weight Spike² (g) | 1000 grain weight (g) | Grain yield g m² |
|---|---|-----------------------------|--------------------------------------|----------------------------|--------------------------------------|-----------------|-------------------|------------------|----------------|------------------------|-----------------------|----------------|
| H₀ | P₀ | 9.3 a                       | 4.4 a                                | 32.7 a                     | 44.2 a                               | 94.6 a          | 20.7 a            | 130.3 g         | 22.7 e         | 0.8 bc                  | 22.5 h                  | 222.7 e         |
|   | P₁ | 4.8 bc                      | 2.9 bcd                              | 27.3 a b                   | 28.4 b                               | 100.2 a         | 21.9 a            | 130.0 g         | 25.9 d         | 0.8 b c                  | 24.39gh                 | 251.3 cde        |
|   | P₂ | 2.0 d                       | 5.5 a                                | 27.5 a b                   | 22.9 c                               | 100.8 a         | 21.3 a            | 130.3 g         | 27.7 d         | 0.9abc                  | 29.7bcd                 | 279.2 b-e        |
|   | P₃ | 7.2 ab                      | 3.1 b c                              | 21.7 b                     | 24.4 c                               | 101.7 a         | 25.2 a            | 131.0 g         | 32.7 c         | 1.1 a b                  | 25.5 e-h                 | 248.4 cde        |
According to data in table 8, the results showed the interaction of integrative herbicide, phosphorus levels and planting dates on studied traits. The results explained significant effects in all studied traits, the check treatment ($H_0 D_1$) was superiority in number and dry weight of broad and narrow leaved weeds, and obtained highest values (8.8, 5.3g, 44.5 and 37.9 g) whilst, the $H_1 D_2$ recorded the lowest values (1.4, 0.8 and 1.9 g), respectively. For an interaction between phosphorus and planting date, the $P_2 D_1$ gave the maximum value for number of broad leaved weeds whereas, maximum value for dry weight of broad leaved weed obtained by $P_0 D_2$. For number of narrow leaved weed the $P_0 D_1$ gave the high value 21.2 whereas, the maximum value of dry weight (19.0 g) for this trait obtained by $P_0 D_2$, this mean the continuous growth of grass throughout different stage of wheat growth of wheat crop. For plant height the $H_1 D_2$ treatment gave high average of plant height with value of 103.2 cm. the earliest for days to flowering, the $H_0 D_2$ recorded the minimum days(119.7) to flowering. While the first planting date recorded the maximum value (141.2 days) with check treatment of herbicide. The interaction between phosphorus and planting date in the same table showed the maximum plant height was recorded by $P_3 D_2$ and minimum days to flowering 122.7 days was found in $P_2 D_3$. Regarding to data represented in table 9. for yield and yield components the first planting date gave high average number of grains spike$^{-1}$ (37.9), 1000-grain weight (34.6 g) and grain yield 370.6 g with $H_1$ level of herbicide, and same date recorded the high value for the same trait (40.0, 32.2 g and 330.5 g). For number of grains spike$^{-1}$, 1000-grain weight and grain yield at $P_3$ level. The reasons of superior this traits may be due to the long of first date compared to the second planting date and fast grain filling can reach optimum grain weight and grain filling is the most critical stage, any stress during this stage will negatively affect on 1000-grain weight and final seed yield (21). Similar results were also reported by (1) and (17).

| Table (8): Influence of interaction of integrative topic and granstar herbicides and phosphorus levels on broad and narrow leaved weeds and yield and its components of bread wheat. |
|---|---|---|---|---|---|---|---|---|---|
| H | D | No. of broad leaved weeds m$^{-2}$ | No. of dry weight of broad leaved weeds mm$^3$ | No. of dry weight of narrow leaved weeds mm$^3$ | Plant height (cm) | flag area cm$^2$ | Days to flowering | No. grain spike$^{-1}$ | Grain weight (g) | 1000 grain weight (g) | Grain yield (g/m$^2$) |
| $H_0$ | $D_1$ | 8.8 a | 5.3 a | 44.5 a | 37.9 a | 101.3ab | 22.3 a | 141.2 d | 26.8 e | 0.9 a | 25.3 d | 265.5 bc |
| $D_2$ | 6.7 b | 2.6 b | 10.1bc | 22.1 b | 97.3 ab | 22.3 a | 119.7 f | 27.7 e | 0.9 a | 25.7 d | 235.3 c |
| $H_1$ | $D_1$ | 3.0 c | 2.1 bc | 6.9 c | 4.8 d | 96.4 ab | 21.5 a | 143.2 c | 35.1 b c | 0.9 a | 26.8 cd | 260.7 b c |
| $D_2$ | 2.5 c | 1.8 bc | 7.3 c | 13.5 c | 103.2 a | 21.5 a | 123.2 e | 32.1 d | 0.9 a | 25.7 d | 272.9 b c |
| $H_2$ | $D_1$ | 2.1 c | 1.9bcd | 11.8 b | 7.1 d | 93.1 b | 22.4 a | 144.4 b | 36.7 a b | 1.0 a | 31.9 b | 283.0 b |
Results in table 9. exhibited the interaction effect of herbicide, phosphorous levels and planting date. The interaction $H_0 x P_0 x D_2$ gave the highest number and dry weight of broad and narrow leaved weeds which, were (10.0, 6.5 g, 43.4 g ), respectively but, the highest value for number of narrow leaved weeds was 52.0 at $H_0 P_0 D_2$. The lowest value were 1.3 and 0.8 for number and dry weight of broad leaved weeds. The maximum value for number and dry weight of narrow leaved weed obtained by $H_3 P_2 D_2$ and $H_3 P_1 D_2$ which were 1.3 and 0.9 g. For days to flowering the earliest days produced by $H_0 P_0 D_1$ was 119.3 days while, the latest days to flowering recorded by $H_3 P_1 D_1$ which was 147.0 days because the duration was 30 days between the first and second date. Data regarding yield and yield components is shown in table 9. Statistical analysis of data that the interaction $H_3 x P_3 x D_1$ showed significant affected on yield and yield component of wheat. Mean values showed that the maximum number of grains spike$^{-1}$ (45.4), 1000-grain weight (42.5 g) and grain yield (451.1 g) was found in $H_3 x P_3 x D_1$, while, the minimum values for this traits were 21.0, 20.7 g and 214.2 g was found by $H_0 P_0 D_1$ and $H_3 P_0 D_2$ respectively .From the results above, all herbicide treatment and phosphor application increased wheat yield and yield components, wheat yield were negatively correlated with weed growth. These results were those of (2) and (11). Who reported that herbicide offer sizeable increase in crop productivity corresponding to their weed control and application of P under semi arid climate improve the crop growth, yield and its components and seeds quality.

Table (9): Influence of interaction of integrate topic and granstar herbicides and phosphorous levels on broad and narrow leaved weeds and yield and its components of bread wheat.

| $H_0$ | $P_0$ | $D_1$ | N%No. of broad leaved weeds | Dry weight of broad leaved weeds (g) | No of narrow leaved weeds m² | Dry weight of narrow leaved weeds (g) | Plant height (cm) | Flag leaf area cm² | Days to flowering | No. of grain spike$^{-1}$ | Grain weight Spike$^{-1}$ (g) | 1000 grain weight (g) | Grain yield g m$^{-1}$ |
|-------|-------|-------|-----------------------------|----------------------------------|-----------------------------|--------------------------------------|------------------|------------------|----------------|-------------------------|---------------------------|--------------------------|------------------------|
| H0    | P1    | D1    | 8.7 a b                     | 2.3 b-e                          | 52.0 a                      | 45.0 a                                | 100.2 a          | 20.7 a           | 140.7 d         | 21.0 n                   | 213.1 c d                 | 214.2 d                  |
| D2    | 10.0 a| 6.5 a | 13.3 cde                    | 43.4 a                           | 88.9 a                      | 20.7 a                                | 120.0 i j        | 24.4 m          | 0.8cde           | 24.2h k                 | 231.1 c d                 | 214.2 d                  |
| P2    | D1    | 10.3 c| 43.3 cde                    | 43.7 a                           | 101.2 a                     | 21.9 a                                | 140.7 d          | 24.5 m          | 0.9 e           | 24.2h k                 | 299.9 c d                 | 214.2 d                  |
| D2    | 4.3 c | 4.2 abc | 13.3 cde                   | 13.2 efg                        | 99.2 a                      | 21.9 a                                | 119.3 j          | 27.9 km         | 0.8 b-e          | 25.8h k                 | 232.7 c d                 | 214.2 d                  |
| P2    | D1    | 11.7 a| 4.3 a b                     | 44.7 a                           | 28.4 b c                    | 102.0 a                               | 21.3 a           | 141.3 d         | 27.7 j-m         | 0.9 a-e                  | 314.7 bcd                 | 214.2 d                  |
| D2    | 7.7 abc| 6.7 a | 10.3 c-e                    | 17.4 d e                         | 99.5 a                      | 21.3 a                                | 119.3 j          | 27.8 j-m        | 0.8 a-e           | 27.1 e-i                 | 243.7 c d                 | 214.2 d                  |
| P2    | D1    | 9.7 a b| 2.3 b-e                     | 40.0 b                           | 101.5 a                     | 25.2 a                                | 142.0 d          | 34.1 d-h        | 1.1 abc           | 25.3 h-k                 | 246.2 c d                 | 214.2 d                  |
| D2    | 4.7 bcd| 3.9 bcd | 3.1 f g                     | 14.3 e f                        | 101.8 a                     | 25.2 a                                | 120.0 i j        | 31.4 g-j        | 1.1 i-e           | 25.7 h-k                 | 250.5 c d                 | 214.2 d                  |
| H1    | P1    | D1    | 2.3 d                      | 1.7 c-e                          | 3.0 f g                     | 22.5 c                               | 98.3 a           | 20.1 a          | 144.3 c         | 28.0 i-m                | 214.8 c d                 | 214.2 d                  |
| D2    | 3.0 d | 1.7 cde | 13.3 cde                   | 3.8 h-m                         | 100.6 a                     | 20.1 a                                | 121.3 h           | 25.1 m          | 0.6 d-e          | 23.4 h-k                 | 232.2 c d                 | 214.2 d                  |
| P1    | D1    | 3.3 d | 2.3 b-e                     | 6.3 c-g                          | 10.9fhg                     | 94.1 a                                | 21.8 a           | 142.3 d         | 35.7 c-g         | 1.0 a-e                  | 26.7 f-i                 | 254.4 c d                 |

Numbers followed by the same letters in the same column are not significant difference at 0.05 probability leve
CONCLUSION

We conclude that the most effective herbicide treatment (H3) and (P3) level which provided the maximum reduction in total weed. and because of the environmental concerns, application of the high herbicide dose with high phosphorus level are recommended for improving weed control and high wheat yield and good wheat seed quality.

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پیوخته
نف، قهکولینه ل رژ دوین کولیزا چالندنی/ زانکویا دهون هانه تا جامدئل و هرزی زستانتی 2016-2017 ژیت دو دوین رفقات نزاردی / چالندنی (8/11 و 28/16). چار دویسیجنات فرکه ری گیایی (توبیک، 183, 227 گرم هکتار و 376 کیلو هکتار). فاکلتین قهکولینه هانه دابهشکن لب سی دویاره کرنا زیو تاقیکرنا کارتیکرنا دوسیمئن جیاوار بين فرکه رین (RCBD) دویف نخستین (آگیا و زیلی فسفوری لسر نادیه و برههم و بیگهشتن ویپ سینی گیم).

تعجیمان کارتوکی نئین برهامجین نزاردی چالندی و زیلی لسری هره تاک ز نادیه و برههم و بینکا نئین دی گیم. فاکلتین (H1 R2 D1) ب چارجئی رنزا نادیه کیم کر بهردوو جوران قه (بکه زراف و ییجی ست) لگمل نهجئیمن امین تاک دکالیکا دی و کینش 1000 دنکا و برههمی تویت کو (4.5 و 42.5 غم) و هوپا هم پیشیارا دنکا د بکاریانا 376 کیلو و 3000 مل/ اکثری و 10/ هکتار تویک و 60/ هکتار گرانستار دنکا د یو کونترالکرنا نادیه و بدهسی دینیانا بهره گیم بلند و جورهرکی باش ز تویت گیم.

حئتناا الخیز و تأثیراتها با استفاده از مراکز مختلف از مخمل مبيد الادغال (تویک + کرانستار) و سماد الفوسفاتی علی الادغال و حاصل و مكوناتان

الخلاصه
نفت تجربة حقلیة في حقل كلیة الزراعة جامعة دهوك خلال موسم الشتوي 2016-2017، وومعدين

الاول في 28 تشرين الثاني، ونحزا في 28 كانون الأول (2016) استعملت اربعة تركيز من مبيد (تویک: 2000, 1600, 1200, 800 مل/ هکتار و کرانستار: 60, 40, 20, 02 غم/ هکتار) واربعة مستويات من السماد الفوسفاتی (0, 183, 229, 275 کیلو هکتار) وزعت معاملات التجربة العاملية في تصميم القطعات العشوائية الكاملة بثلاث مكررات وفراز تأثیر تركيز مختلف من المبيد والفسفور على الأدغال وحاصل الحنطة ومكوناته. أظهرت النتائج تأثیرا ملحوظا لمستويات المبيد والفسفور على الأدغال والحاصل ومكوناته وأظهرت المعاملة (H1 R2 D1) نقص واضح في عدد الأدغال العريضة العرقية ومع (Topic:2000 ml. ha⁻¹ and Granstar,60 gm ha⁻¹) وعلیه نوصی باستعمال 275 kg ha⁻¹ (45.4, 42.5 g) للسيطرة على نمو الأدغال وحاصل عالي ونوعية جيدة من بذور الحنطة.