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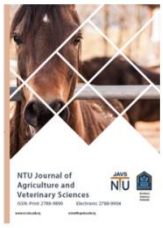

The Effect of Planting Distances and Bazagran Herbicide on Yield and Growth of Local Cultivar Peas *Pisum sativum* L. (1)

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A B S T R A C T

A field experiment was conducted In the winter season for the Rashidieh (1) site for local variety s Peas *Pisum sativum* L. (2021-2022) using two factors, The first factor is distances which (25,50,75), The second factor is pesticide concentrations which (750, 1,500 and 3,000 ml/ha) in addition to comparator control , Plants were randomly selected with three previous applications. the seeds of the local cultivar the data was analyzed according to the factorial experiments system using R.C.B.D significantly different treatments were distinguished with different letters .The most important results can be summarized as follow : From, the effect table of the three planting distances 25, 50 and 75 cm, it was found that there were no differences in the number of airy and thin leaves, leaves and their weight, and yield characteristics. Jungle eradication, As for the weight of the pod, seed yield and dry weight, it was found that the control treatment gave the least results, and the reason may be due to the strength of competition that occurs between the crop and its accompanying weeds in the field. control gave the highest number of broad and thin bushes and their dry weights in the three distances. As for plant height and pod length characteristic, there were no significant differences.

Introduction

The peas(*Pisum sativum* L.) is one of the most important legume crops , especially with the high prices of animal protein because of the protein it contains .it is grown for its dry seeds . it is grown in most countries of the world , especially middle temperate countries ,(1) because of the special environmental conditions that it needs to not tolerate high temperatures . the protein content reaches 29.2 in green pods and unripe grains to 30 % and 21 % in dry grains .In addition it is a source of carbohydrates , minerals and fiber Its seeds also contain essential amino acids such as lysine, leucine, arginine, tryptophan, and important vitamins that humans need, which reflect the nutritional value (6, 7, 8). .there are a lot of problems that direct pea crop , one of the important is winter weeds (2), there are many methods to control the weeds such as agricultural , mechanical , chemical methods . the study aims to know the effect of Basgran herbicide on weeds and peas(*Pisum sativum* L.) (3).

Material and Methods

The winter planting season (2021-2022) at the Rashidiya site, the experiment involved two factors: planting space (25, 50, 75 cm) between rows. And four doses of Basgran (750, 1500, 3000 ml/hour -1 in addition to the control). The experiment was carried out using a randomized complete block design with three replications. Seeds of the local variety are sown on December 10-11. the field was fertilized according to the recommendations of Iraqi ministry of Agriculture 60 kg h-1 . Herbicide were sprayed a 30 days after planning .the traits of weeds took after a month of spraying the herbicide . the data was analyzed according to the factorial experiments system . using R.C.B.D . significantly different treatments were distinguished with letter different .

Results and Discussion:

1.Effect of Planting Space on Styding Traits :

The table indicates that there are no significant differences with regard to the effect of the three planting distances (25-50-75) cm in the number of thin-leaved bushes and their weight, the number of broad-leaved bushes and their weight, as well as the plant height characteristic, the number of pods and the weight of the pod. There were no significant differences. 75 cm, which gave the lowest results, as it recorded (53.33 gm), It was found that there were slight significant differences in the yield characteristic through its effect on the planting distances, but the distance of 75 cm gave the highest yield and was recorded (9.85 g), followed by the second distance of 50 cm, which recorded (9.83 g) and this agreed with what (1) stated that the wide distances This led to the crop being able to grow and compete with other bush plants. Through the table, significant differences were found in the characteristic of the number of seeds, as the two distances of 50 and 75 cm were superior and recorded (55.77 and 58.20 seeds/pod), respectively, over the first distance of 25 cm, which gave the least number of seeds, reaching (39.34 seeds/pod). As for the final dry weight, there were significant differences, and that the third distance of 75 cm was superior to the two distances of 25 and 50 cm, as the third distance recorded (25.06 g).

2.Effect of Doses of Basagran Herbicide on Styding Traits:

Table (2) indicates the effect of pesticide concentrations on the growth and yield of pea crops and the accompanying weeds. It was shown through the table that there were significant differences between the concentrations of the pesticide used. The treatment was based on the used concentrations of the pesticide 750, 1500, 3000 ml / ha, which gradually decreased as the concentration of the pesticide increased, respectively. It was found that the comparison treatment, control, was significantly superior and gave the highest dry weight of broad-leaved bushes, which recorded (8.22 g / m^2), and that the lowest dry weight was found at the third concentration of 3000 ml / ha, which recorded (4.44 g). The control comparison gave the highest number of bushes (9.33 m^2), while the lowest number of thin-leaved bushes was found at the second concentration of 1500 ml / ha and recorded (8.11 m^2). As for the dry weight of the thin-leaved bushes, it was found that there were no significant differences between the concentrations. used and compared with the comparison treatment control, It was found that the characteristics of the yield, plant length, pod length, weight of 500 seeds and the number of seeds per pod did not have any significant differences in their effect on the use of pesticides and their concentrations. As for the characteristic of the number of pods, there are significant differences, and it was found that the third concentration of 3000 ml / ha gave the highest number of pods, as it was recorded (27.33 pods / seed), while it was found that the control treatment gave the lowest number of pods, as it was recorded (16.67 pods / plant). As for the pod weight, it was found that the three pesticide concentrations were significantly superior to the control treatment,. As for the weight of the pod, it was found that there were no significant differences .It was shown through the table that there were significant differences in the characteristic of pod length, where it was found that the control treatment gave the highest length of the pod, reaching (6.09 cm), and the pesticide concentrations used did not notice any significant differences between them, and it was found that there were slight significant differences in the characteristic of weight 500 seeds

when using different concentrations and compared with control treatment. As for the yield characteristic, the concentration of the second and third pesticides was significantly superior to 1500 and 3000 ml / ha, as it recorded (10.89 and 11.33 g) respectively , while the lowest yield was found in the control treatment, and in the number of seeds characteristic, the third concentration 3000 ml / ha gave the highest number and this agreed with(4) what Of the seeds, (52.22 seeds / plant) were recorded, followed by the control treatment, which recorded (51.30 seeds / plant), while the lowest number of seeds was found at the second concentration of 1500 ml / ha, which was recorded (49.58 seeds / plant). The treatment of the third concentration 3000 ml / ha over the rest of the treatments and compared with the control treatment, which gave the lowest dry weight, which recorded (12.11 g).

3 Effect of Interaction Between the Planting Spaces and Doses of Herbicide:

The table (3)indicates that there are significant differences between the planting distances and the concentrations of the Bazakran herbicide in the studied traits, as the concentration exceeded 3000 for the distances 50 and 75 in reducing the number of broad-leaved weeds compared to the rest of the treatments, while the highest number of high-leaved weeds was found in the control treatment for the three distances that were not treated with the pesticide. It was also found that the lowest dry weight was at concentration 3000 and the first distance 25 cm, which decreased from control by 4 g. The number of thin-leaved bushes was slightly affected, either in terms of number or weight. Plant height was not affected by the interaction between planting distances and pesticide concentrations. The highest number of pods in the treatment of 50 cm and the treatment with three concentrations, as well as the third focus for a distance of 75 cm. While the lowest number of horns in the comparison treatment for a distance of 25 cm (16.33). Pod length decreased at distance 75 for all concentrations compared with the rest of the treatments. The weight of the pod also decreased at the distance 25 for the four concentrations compared with the rest of the treatments, while it was found that the highest weight of the pod was at the distance 50 and the treatment at concentration 1500, which recorded (2.30). The overlap between planting distances and pesticide concentrations had a significant effect on the weight of 500 grains, as it was found that the highest weight in the two treatments was the concentration of 3000 for the first distance and the concentration of 1500 for the second distance, while the lowest weight was in the comparison treatment for the third distance. The three pesticide treatments were superior to the control treatment for the three distances in the amount of yield as well as the dry weight of the plant. While the number of seeds decreased in the first distance and for the four concentrations compared with the second and third distances in the number of seeds.

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Table (1) Effect of planting space on growth and yield of *Pisum sativum* L. and the accompanying weeds.

Planting space cm	No.of broad weeds/m2	Dry weight of broad weeds/m2	No.of narrow weeds/m2	Dry weight of narrow weeds/m2	Plant hight cm	No pods plant	Dry weigh of pod	Pod length	Weight of 500 seeds gm	Seed yield plant	No.of seeds/ pods	Dry wight Of pod(gm)
25Mean	5.58a	6.08a	5.50a	9.50a	32.58a	23.58a	1.30b	6.37b	63.08a	8.59b	39.34b	21.67c
50Mean	5.75a	6.25a	8.58a	9.17a	28.42a	24.83a	1.64a	7.04a	63.81a	9.83a	55.77a	23.41b
75Mean	5.42a	6.00a	8.42a	10.50a	31.67a	23.00a	1.60a	4.13c	53.33b	9.85a	58.20a	25.06

Table (2) Effect of Doses of Basagran herbicide on growth and yield of *Pisum sativum* L. and the accompanying weeds.

Plantin g space cm	No.of broad weeds/ m2	Dry weight of broad weeds/m 2	No.of narrow weeds/ m2	Dry weight of narrow weeds/m 2	Plant hight cm	No pods plant	Dry weigh of pod	Pod length	Weigho f 500 seeds gm	Seed yield plant	No.of seeds/ pods	Dry wight Of pod(gm)
Control Mean	9.67a	8.22a	9.33a	10.22a	29.89a	16.67b	1.04a	6.09a	59.48b	6.03c	51.30a	12.11c
750 Mean	5.33b	5.67b	8.33b	10.22a	32.78a	26.33a	1.24a	5.81a	60.53a	9.44b	51.31a	26.74ab
1500 Mean	5.00b	6.11b	8.11b	9.67a	30.22a	24.89a	1.32a	5.87a	60.92a	10.89a	49.58a	26.40b
3000 Mean	2.33c	4.44c	8.22b	8.78a	30.67a	27.33a	1.11a	5.62a	59.36b	11.33a	52.22a	28.27a

Table (3)Effect of Interaction Between the Planting Spaces and Doses of Herbicide

Planting space cm	Doses of Basagran herbicide	No.of broad weeds/m2	Dry weight of broad weeds/m^2	No.of narrow weeds/m2	Dry weight of narrow weeds/m^2	Plant hight cm	No pods plant	Dry weigh of pod	Pod length	Weight of 500 seeds gm	Seed yield plant	No.of seeds/ pods	Dry wight Of pod(gm)
25Mean	control	10.33a	8.00a	9.33a	8.67ab	32.67a	16.67c	0.30c	6.83a	61.60b	5.68d	37.56b	11.33d
	750	4.00cd	6.00bcd	8.33ab	8.67ab	36.00a	24.00abc	0.29c	6.13a	63.85a	10.67b	39.94b	24.33c
	1500	5.00bc	6.33bc	7.67b	9.67a	30.67a	25.33ab	0.30c	6.17a	64.03a	8.67c	36.98b	24.43c
	3000	3.00de	4.00d	8.67ab	11.00a	31.00a	28.67a	0.30c	6.33a	62.84b	9.33c	42.88b	26.60bc
50Mean	Control	10.00a	8.67a	10.00a	12.00a	29.00a	16.33c	1.31abc	7.13a	63.74a	6.33d	54.44a	12.33d
	750	6.00b	6.00bcd	8.33ab	10.00a	27.00a	28.33a	1.16bc	7.13a	64.43a	8.67c	55.63a	26.97bc
	1500	5.00bc	6.00bcd	8.00b	8.67ab	29.33a	26.00a	2.30a	7.03a	65.30a	12.00a	55.38a	24.83c
	3000	2.00e	4.33cd	8.00b	6.00b	28.33a	30.07a	1.79ab	6.87a	61.76b	12.33a	57.65a	29.50ab
75Mean	Control	8.67a	8.00a	8.67a	10.00a	28.00a	17.33ab	1.52ab	4.30b	53.1c	6.08d	61.91a	12.67d
	750	6.00b	5.00cd	8.33ab	12.00a	35.33a	24.33abc	2.27ab	4.17b	53.30c	9.00c	58.36a	28.93ab
	1500	5.00bc	6.00bcd	8.67a	10.67a	30.67a	23.33abc	1.37abc	4.40b	53.43c	12.00a	56.39a	299.93a
	3000	2.00e	5.00cd	8.00b	9.33ab	32.67a	27.00a	1.24abc	3.67b	53.47c	12.33a	56.13a	28.70ab