

## Effect of competition between Galangal weed and pea crop and Fuslide

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### Abstract

*The experiment was carried out at summer agricultural season 2021 at AL-Rashedia location, the experiment include two factors, number tubers of Galangal plants (0 , 3 , 6 , 9 / plant) and Fuslide herbicide 450 ml / h-1 in addition the control) . The experiment applied according factorial experiment system using Randomize Complete Block Design with three replication sown seeds (Turkish variety) at 25 July, the field was fertilized according to the recommendations of the Iraqi ministry of Agriculture 60 kg /ha-1. Herbicide were sprayed a month after planting, the most important results can be summarized. Fuzelate herbicide decreased the number and dry weight of narrow leaves weeds, but did not effect on the broad leaves weeds, all the traits of coupea decreased with using the Fuslide herbicide and with the increasing of galangal tubers left.*

**Keywords:** Galangal weed, pea crop, Fuslide

### INTRODUCTION

The cowpea is one of the important crops, especially with the high prices of animal protein because of the protein it contains .it is grown for its dry seeds and sometimes green pods .it is grown in most countries of the world , especially hot and temperate countries , because of the special environmental conditions that it needs to not tolerate low temperatures (Ashton, and Crafts, 1973). the protein content reaches 30.3 in green pods and unripe grains to 30 % and 21 % in dry grains .In addition it is a source of carbohydrates , minerals and fiber .there are a lot of problems that direct cowpea crop , one of the important is summer weeds , there are many methods to control the weeds such as agricultural , mechanical , chemical methods . the study aims to know the effect of Topic herbicide on galangal and cowpea , as well as the competition between the galangal weed and cowpea (Agbogid and Egho,2012) .

### MATERIAL AND METHODS

The experiment was carried out in the summer agricultural season 2021 Al-Rashedia location , the experiment involved two factors. number tubers of Galangal plants ( 0 , 3 ,

6, 9 / plant) and Fuslide herbicide 450 ml / h-1 in addition the control). The experiment was applied according factorial experiment system using R.C.B.D with three replication sown seeds ( Turkish variety ) at 25 July , the field was fertilized according to the recommendations of the Iraqi ministry of Agriculture 60 kg /ha-1 . Herbicide were sprayed a month after planting . the studying traits were Number of narrow and broad leaves weeds and dry weight of them , plant height , Number of galangal plants , dry weight of galangal plants , number of branch , length of pod , Number of seed / pod , weight of pod , weight of 100 seeds , yield of plant , the data was analyzed according to the factorial experiment system using R.C.B.D . with three replication . the comparison made using Duncan's Multiple Range Test .significantly different treatments were distinguished with different letters.

THE RESULTS AND DISCUSSION

**Effect of Fuslide herbicide on studying traits :** Table (1) indicates that there are significant differences between fuslide herbicide and untreatment at their effect on number and dry weight of narrow leaves weed .Fuslide herbicide decreased the number and dry weight of narrow leaves weed by ( 5.16 ) and ( 162.59 gram ) while did not effect on broad leaves weeds . fuslide weeds did not effect on number and dry weight of formed galangal plants , Fuslide herbicide reduce the number of branch , length of pod , number of seeds / pod , weight of 100 seed and yield of seeds by ( 4.59 ) ( 6.91 ) ( 3.0 ) (2.38 ) ( 9.0 ) respectively the reason is that the herbicide may lead to an obstruction in the metabolic processes in the Cowpea and then grow .

Table (1): effect of Fuslide herbicide on studying traits .

herbicide	Yield of plant gram	Weight of 100 seed gram	Weight of pod gram	No of seed / pod	Lengt h of pod cm	No of branch es/ plant	Dry weight of galangal plants gram	No of galangal plants	Dry weight of broad leaves weeds gram	No of broad leaves weeds	Dry weight of narrow leaves weeds gram	No of narrow leaves weeds
control	141.25 a	9.96a	1.14 a	7.42 a	18.33 a	14.42 a	5.58 a	18.75 a	418.58a	3.92 a	199.42a	6.58 a
Fuslide	132.25 b	7.58 b	0.79 b	4.42 b	11.42 b	9.83 b	5.25 a	19.33 a	404.42a	3.75 a	36.83 b	1.42 b

**Effect of galangal tubers lefts on studying traits.** Table (2) indicates that there are significant differences between the number of galangal tubers left , dry weight of narrow leaves decreases with increasing number of galangal tubers left compared with the control by ( 20.5) (22.33 ) gram . while did not effect on dry weight of broad leaves weeds , the number and dry weight of galangal formed plants increases with the increase in number of galangal tubers left . the number of branches of cowpea did not affect with increases the galangal tubers left , the length of pod , number of seed / pod , weight of pod , weight of 100 100 seed , and yield of plant decreased with the increase of number of galangal tubers left .

**Effect of interaction between Fuslide herbicide and galangal tuners left on studying traits.** Table (3) indicates there are significant differences for the interaction between the fusilde herbicide galangal tubers left , number and dry weight of narrow leaves weed decreased using fuslide herbicide compared with control regardless of the number of galangal tubers left . the number and dry weight of galangal formed plants

increased by increasing the galangal tubers left .especially in the treatment that contain 9 tubers of galangal whether at the fuslide herbicide or at the control ( 36.00 and 35.67) (9.00 and 7.67 ) , the number of branches , length of pod , number of seeds / pod , weight of pod , weight of 100 seeds and yield of plant , all are traits negatively affected using the fuslide herbicide and by increasing the number of galangal tubers left , especially the yield plant that decreased at using fuslide herbicide with 9 galangal tubers left comparing with the treatment that did not using the herbicide and that devoid of galangal tubers left by (126.00 and 120.00 gram )

Table ( 2 ) : Effect of galangal tubers left on studying traits :

No of galangal tubers	Yield of plant gram	Weight of 100 seed gram	Weight of pod gram	No of seed / pod	Length of pod cm	No of branches/ plant	Dry weight of galangal plants gram	No of galangal plants	Dry weight of broad leaves weeds gram	No of broad leaves weeds	Dry weight of narrow leaves weeds gram	No of narrow leaves weeds
0	149.67a	10.42 a	1.13 a	7.00a	16.83 a	11.83 a	0.00 c	0.00 d	411.17a	3.83 a	132.00a	4.50 a
3	145.50a	10.00 a	1.04 b	5.50b	15.50 b	12.50 a	5.33 b	15.50 c	387.17a	3.50 a	119.33ab	3.67 a
6	128.83b	7.83 b	0.89 c	5.50b	14.33 c	12.00 a	8.00 a	24.83 b	418.33a	3.83 a	111.50 b	3.83 a
9	123.00c	6.83 c	0.82 d	5.67b	12.83 d	12.17 a	8.33 a	35.83 a	429.33a	4.17 a	109.67 b	4.00 a

3-Effect of interaction between Fuslide herbicide galangal tubers heft on studying traits

No of galangal tubers	Herbicide	Yield of plant gram	Weight of 100 seed gram	Weight of pod gram	No of seed / pod	Length of pod cm	No of branches/ plant	Dry weight of galangal plants gram	No of galangal plants	Dry weight of broad leaves weeds gram	No of broad leaves weeds	Dry weight of narrow leaves weeds gram	No of narrow leaves weeds
0	control	153.33a	11.50 a	1.37 a	7.67a	18.33 a	14.00 a	0.00 d	0.00 d	403.33a	3.67 a	210.33a	7.33 a
	Fuzelate	146.00ab	9.33 b	0.88 e	6.33b	15.33 b	9.67 b	0.00 d	0.00 d	419.00a	4.00 a	53.67 c	1.67 b
3	control	150.67 a	11.33 a	1.21 b	7.33ab	19.33 a	15.00 a	5.00 c	15.00 c	406.67a	3.67 a	220.67a	6.67 a
	Fuzelate	140.33bc	8.67 b	0.86 e	3.67 c	11.67 c	10.00 b	5.67 c	16.00 c	367.67a	3.33 a	18.00 d	0.67 b
6	control	135.00 c	8.67 b	1.03 c	7.33ab	16.67 b	14.33 a	8.33 ba	24.00 b	397.33a	3.67 a	185.00b	6.00 a
	Fuzelate	122.67 d	7.00 c	0.76 f	3.67 c	12.00 c	9.67 b	7.67 b	25.67 b	439.33a	4.00 a	38.00cd	1.67 b
9	control	126.00 d	8.33 b	0.95 d	7.33ab	19.00 a	14.33 a	9.00 a	36.00 a	467.00a	4.67 a	181.67b	6.33 a
	Fuzelate	120.00 d	5.33 d	0.67 g	4.00 c	6.67 d	10.00 b	7.6667 b	35.67 a	391.67a	3.67 a	37.67cd	1.67 b

DISCUSSION

**Effect of Fuslide herbicide on studying traits:** Table (1) indicates that there are differences significant differences between fuslide herbicide and untreatment at their effect on number and dry weight of narrow leaves weed .Fuslide herbicide decreased the number and dry weight of narrow leaves weedwhile did not effect on broad leaves weeds .the reason is that the herbicide is specialized in control the narrow leaves weeds. The results are in agreement with that was (Agbogid and Egho,2012) mentioned . who confirmed using fuslide herbicide reduces the number and dry weight of narrow leaves weeds (Agbogid and Egho,2012) . fuslide weeds did not effect on number and dry weight of formed galangal plants, Fuslide herbicide reduce the number of branch , length of pod , number of seeds / pod , weight of 100 seed and yield of seeds , the reason is that the herbicide may lead to an obstruction in the metabolic processes in the Cowpea and then grow again , the result are in agreement with what was (Agbogid and Egho,2012), ( Blackshaw and Esau 1991).

**Effect of galangal tubers lefts on studying traits.** Table (2) indicates that there are significant differences between the number of galangal tubers left, dry weight of narrow leaves decreases with increasing number of galangal tubers left compared with the control while did not effect on dry weight of broad leaves weeds , the number and dry weight of galangal formed plants increases with the increase in number of galangal

tubers left . the number of branches of cowpea did not affect with increases the galangal tubers left , the length of pod , number of seed / pod , weight of pod , weight of 100 100 seed , and yield of plant decreased with the increase of number of galangal tubers left , the reason in due to the competition of galangal plants with the cowpea plants for the requirements of life this results are in agreement with what was (Aldhahi, *et al.* 2018). , (Blackshaw, *et al.* 2000). who confirmed the competition between galangal weeds and crops causes decrease of yield of the legume crops .

**Effect of interaction between Fuslide herbicide and galangal tuners left on studying traits .** Table (3) indicates there are significant differences for the interaction between the fusilde herbicide galangal tubers left , number and dry weight of narrow leaves weed decreased using fuslide herbicide compared with control regardless of the number of galangal tubers left . the number and dry weight of galangal formed plants increased by increasing the galangal tubers left .especially in the treatment that contain 9 tubers of galangal whether at the fuslide herbicide or at the control all are traits negatively affected using the fuslide herbicide and by increasing the number of galangal tubers left , especially the yield plant that decreased at using fuslide herbicide with 9 galangal tubers left comparing with the treatment that did not using the herbicide and that devoid of galangal tubers . this result are in agreement with ( Blackshaw and Esau 1991) , (Aldhahi, *et al.* 2018).

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