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Evaluation of the Efficacy of Sulfosulfuron and other Herbicides on Management Weeds of Wheat

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Abstract

This field study was conducted in college of Agriculther, Islamic Azad University Shuoshtar branch, to investigate and study about effect of four kind of herbicide on weed control in 2010 experimental treatments was in three replication. The of Herbicide doze (Sulfosulfuron, Mesosulfuron-methyl 30 $^0/_0$ + Iodesulfuron–methyl–sodium 30$^0/_0$, Imazamethabenz-methyl, Metribuzin and 2, 4-D + Chlodinafop prop argil EC 8 %(Topic). For evaluation effect of treat ments on density(number) of broad and narrow leaf weed , sampling of plots was do after spraying results showed significant difference among the for weed control . Use of 31 g/ha Sulfosulfuron was the best treatment. The highest control of leaf broad weed was obverting using of Sulfosulfuron 31g/ha. The highest control of narrow leaf weed was obsverd using of Sulfosulfuron 31, 20 and 26 g/ha, Mesosulfuron-methyl 30 $^0/_0$ + Iodesulfuron–methyl–sodium 30$^0/_0$ 350 g/ha and Imazamethabenz-methyl 2 l/ha.

Keywords: Herbicides, Sulfosulfuron, Weed and Wheat.

Introduction

Among the factors reducing the yield of crops, including wheat, weeds are important in the first row and about 25 percent of compensation [2].Discussion reduce herbicide use today, the environmental risks due to herbicide use, including the underground water pollution, pesticide residues in food and increase Weed herbicide resistant simple, has become a serious matter . Herbicide application management must be designed to at least damage to the agricultural producer sources can enter. Herbicide to determine the appropriate role in the sustainability of agriculture and agricultural products plays [13]. Methods to minimize herbicide use include: new technology herbicides with low-dose use, herbicide use tape, the herbicide consumption timely

herbicide application herbicides to spot and use a herbicide mixture are addressing. Removed as a factor to delete of Weed and Weed flora changes caused cholera rate and cause various changes in the ability Weed control is sometimes used for low herbicide Weed control in different systems Tillage was not particularly suitable and efficient conservation tillage have [15]. That's why the use of herbicides in higher consumer rates in minimum tillage systems and protective is essential. Several decreased in Weed Control systems are [4]. On the other hand increased straw and stubble in the soil, the effect desired herbicide to greatly reduce, straw and stubble causes more lasting than herbicide ground without straw stubble is [14]. Use different frequency herbicides Weed control Weed reduce and prevent the increase in resistant strains, that the conditions for increased effect Herbicide [14]. With reviews that made by other researchers has shown that herbicide use with rate 0 / 36 kg ha, 76 percent control of wild oat and concentration of 0 / 18 kg ha control 84 percent oat will and if the concentration repeated in two 0 / 18 kg ha than the one on 0 / 36 kg ha used to control wild boast oat will be 13 percent higher [4], and Mesosulfuron methyl ability to single cotyledon and weed control ability of ydosulforun methyl weed control has two cotyledons and could also very darnel and the two split peas or wheat to control. In fact, methyl Mesosulfuron–methyl 30 $^{0}/_{0}$ + Iodesulfuron–methyl-sodium 30 $^{0}/_{0}$ a mixture of the two above herbicides [1]. The necessity to prevent damage to the crops to prevent weed species resistant to increase and to prevent the indiscriminate use of chemical pesticides with high amounts of environmental problems makes such a research seems necessary. Therefore the purpose of this research studies of different herbicides on wheat yield and weed control has been.

Materials and methods

This study farm, Islamic Azad University of agriculture shoushtar, northern shoushtar with 48 degrees 50 minutes and latitude 32 degrees 3 minutes north and 67 meters height abovesea level in crops from 2010 was conducted. This experiment as a completely randomized design with three replications was carried out. Repeat treatment every 3 meters, including the width and 2 meters long that every plot line 16 kills and 12 cm between lines and between plots of the time a meter is. On 10/11/2010 by the amount of wheat density 400 plants m completely in uniform plots were planted with the exact observance. Including surface treatments in ten Herbicide: Sulfosulfuron 20 g/ha, Sulfosulfuron 26 g/ha, Sulfosulfuron31g/ha , Metribuzin 200g/ha before green , 2-4-D 1/5 Li/ ha + Chlodinafop prop argil 0 /7 kg/ha , Mesosulfuron-methyl 30 $^{0}/_{0}$ + Iodesulfuron–methyl–sodium 30$^{0}/_{0}$ 350 g/ha , Imazamethabenz–methyl 2 l/ha , Metribuzin 200 g/ha after the green weed free an weed control, were considered. After spray sprayer calibration operation at the time of consumption by each herbicide sprayer of back, with continuous output pressure liquid spray at all during the 2/5 times the amount of fixed and 350 liters of water per hectare was. At different growth stages of wheat plants to harvesting the final sampling was done in each specific sampling lines and the sidelines, observing with a 50 × 50 cm plant wheat from the soil surface and the transfer of traits to laboratory measurements was. Weed number before treatment (spraying) and after spraying

pesticides were determined and the effect of changes in morphology Weed and Advertising cereal was operating. Practice counting and determination of leaf species and status of being narrow and broad leaf and dry weight measured after spraying weeds in the middle of a square meter plot in the area was conducted. Methods for analysis of variance and statistical data and software for comparison MSTATC same software was used and the method of Duncan drawing diagrams using Excel software was done.

Results and discussion

The results of this experiment diagram (1) showed that the use of herbicides Sulfosulfuron by 26 and 31, and Mesosulfuron–methyl 30 $^{0}/_{0}$ + Iodesulfuron–methyl l-sodium 30 $^{0}/_{0}$ and 2-4-D + Chlodinafop prop argil reduce broadleaf Weed is well visible. Sulfosulfuron top 31 in the group are Weed Control [11].

Review results can be seen with the herbicide Sulfosulfuron 31 gr decrease weed broadleaf and narrow leaf are more successful [2,4]. Other results from this experiment showed that the use of herbicides Imazamethabenz–methyl Weed control of the lowest rank among the herbicide has dedicated to his [10]. Imazamethabenz methyl was poor in terms of weed control especially on broad leaf weeds. Also investigated metsulfuron methyl 30 % + iodosulfuron methyl 30 % had better performance in controlling broadleaf weeds in wheat [12]. On the other hand according to [8], sulfosulfuron herbicide was superior in controlling narrow leave weeds. Metsulfuron methyl 30 % + iodosulforon methyl 30and sulfosulfuron herbicides were best in controlling broad leaf weeds. However, metsulfuron methyl 30 % + iodosolforon methyl 30 % were poor in controlling *Convolvulus arvensis*, sulfosulfuron in controlling mallow and black bindweed (*Polygonum convolvulus*), imazamethabenz methyl herbicide in controlling safflower, black bindweed and lesser bindweed (*Convolvulus arvensis*), metribuzin in controlling lesser bind weed and mallow weeds, respectively.

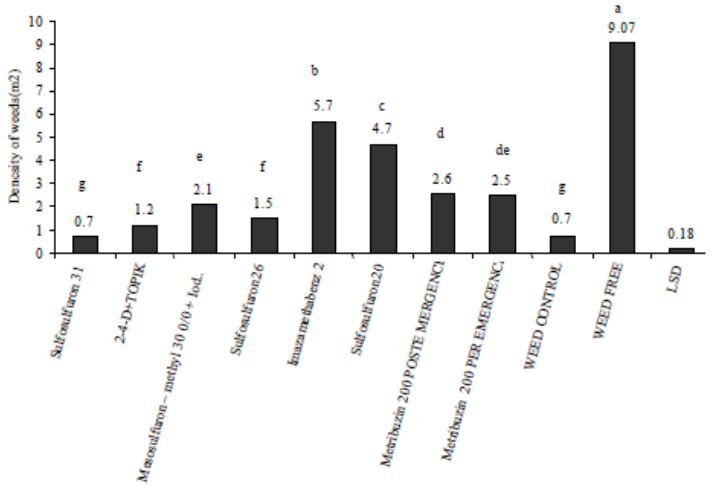

Diagram 1: Effect of herbicides on density of broad leaf weeds.

Results Diagram (2) also showed that herbicide treatments Mesosulfuron–methyl 30 $^{0}/_{0}$ + Iodesulfuron–methyl l-sodium 30 $^{0}/_{0}$, Imazamethabenz–methyl and Sulfosulfuron the most effect on Weed Control show narrow leaves, and herbicides by 2-4-D + Chlodinafop prop argil and Weed Control narrow leaves effective are not. Imazamethabenz–methyl herbicide to control *Avena ludoviciana* in winter wheat consumption is effective with 0/36 and 76 kg / ha and 0 kg, 2 and 3 liters consumption per hectare, can Weed controlled leaves are narrow [5,9].

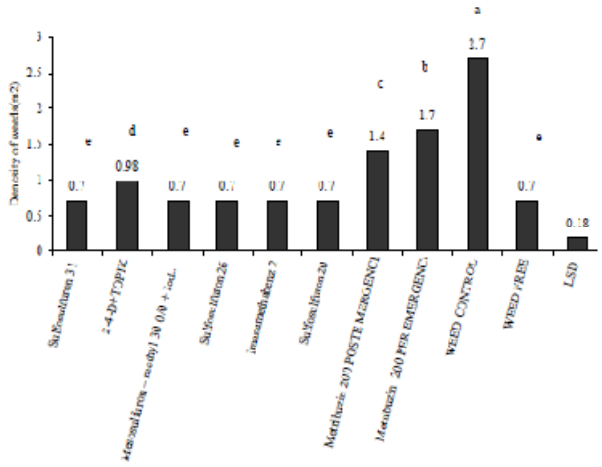

Diagram 2: Effects of herbicides on density narrow leaf weeds.

Herbicide use Sulfosulfuron 31 g/ha most effect in reducing Weed dry weight than the other herbicide has, between the treatment and control of herbicide Imazamethabenz–methyl lowest and the highest dry matter of grass Weed is capable of. Sulfosulfuron only in low levels failed can not controlled weeds: *malva neglecta*, *convolvulus arvensis*, *polygonum avicular*, *centuria* repence, *sttelaria media* and *ammi majus.* But Sulfosulfuron 31 g/ha had the best performance.

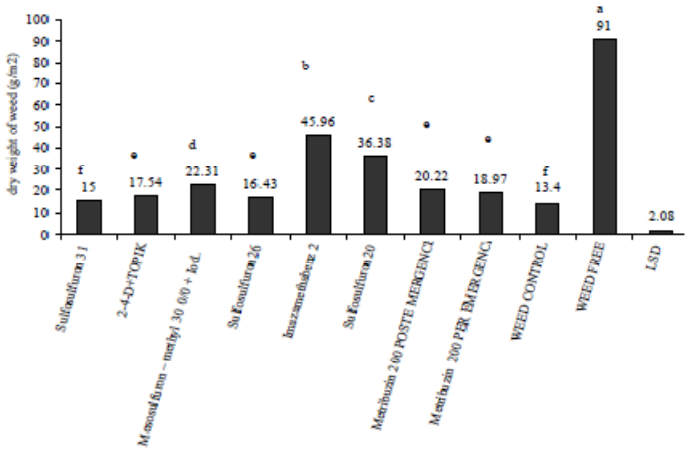

Diagram 3: Effects of herbicides on dry weight of weeds.

Results of the diagram (4) showed that among type herbicide game significant difference on yield there. In addition to weed control that has the highest yield, herbicide treatments Sulfosulfuron 31 and 26 g/ha of successful herbicide and yield was Imazamethabenz–methyl 2 l/ha yields is the lowest. The sulfosulfuron treatment 31 g ha^{-1} in system increased wheat straw yield due to controlling weeds and no competition with farm plants and existence of suitable environment for root growth in soil. This increase in straw yield is a factor in increase in grains. Imazamethabenz methyl and metribuzin lower wheat straw yield due to burning effect, affecting growth of root and aerial parts of the wheat as well as their less efficient weed control.

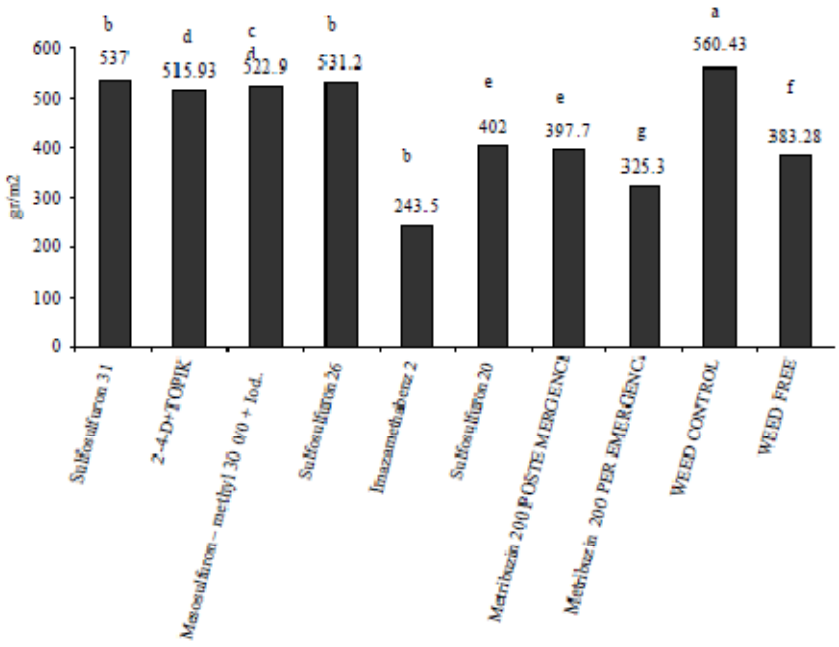

Diagram 4: Effects of herbicides on yield of seed.

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