Bulgarian Journal of Agricultural Science, 24 (No 1) 2018, 74–79
Agricultural Academy

WEED CONTROL IN WHEAT WITH POST-EMERGENCE HERBICIDES

ARBEN MEHMETI[1*]; ZVONKO PACANOSKI[2]; ROZAFA FETAHAJ[1]; ALBINA KIKA[1]; BESARTA KABASHI[1]
[1] *University of Prishtina „Hasan Prishtina" Faculty of Agriculture and Veterinary, Department of Plant Protection, 10000 Prishtinë, Republic of Kosovo*
[2] *Ss. Cyril and Methodius University, Faculty for Agricultural Sciences and Food, 1000 Skopje, Republic of Macedonia*

Abstract

Mehmeti, A., Z. Pacanoski, R. Fetahaj, A. Kika and B. Kabashi, 2018. Weed control in wheat with post-emergence herbicides. *Bulg. J. Agric. Sci.*, 24 (1): 74–79

A field study was carried out during the 2011-12 to identify weed species and to investigate the efficacy of post-emergence herbicides on weeds and their effect on wheat grain yield in the region of Podujeva (north-east part of Kosovo). Four different herbicides were applied at the post-emergence stage of wheat, namely Lintur 70 WG (a.i. triasulfuron + dicamba), Granstar 75 WG (a.i. tribenuron-methyl), Mustang (a.i. florasulam + 2,4-D-EHE-ethyl-hepthyl ester) and herbicide combination Sekator OD (a.i. iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl) + Furore Super (a.i. fenoxaprop-p-ethyl) in the wheat cultivar Evropa. A total number of 16 weed species was documented in the wheat crop. The highest number of individuals was recorded for *Convolvulus arvensis* (24.0 plants/m^2), *Consolida regalis* (15.5 plants/m^2), *Polygonum aviculare* (11.5 plants/m^2), and *Galium aparine* (9.8 plants/m^2). The most efficient herbicides proved to be combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl (83.0%), triasulfuron + dicamba (75.4%), tribenuron methyl (65.6 %), and florasulam + 2,4-D-EHE-ethyl-hepthyl ester (64.6%) was markedly lower. Based on the results presented, it is recommended the use of triasulfuron + dicamba or herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl in the study region for successful weed control and high wheat grain yields.

Key words: wheat; weeds; herbicide; grain yield
Abbreviations: a.i – active ingredient; HSD – Honest Significant Difference

Introduction

Weeds have become an increasing problem in wheat and some weed species such as *Cirsium arvense*, *Consolida regalis*, *Polygonum aviculare, Consolida orientalis*, *Convolvulus arvensis, Centaurea cyanus, Erodium cicutarium*, *Bifora radians* are widespread in wheat crop in Kosovo (Susuri et al., 2001; Mehmeti et al., 2009; Mehmeti and Demaj, 2010).

Moreover, vegetation of cultivated land was species-rich at both the plot and the regional scale in Kosovo (Kojić and Pejčinović, 1982; Pejčinović, 1987; Shala, 1987; Pejčinović and Kojić, 1988). However, on the patch scale, i.e. on the scale of the arable field, only few species occur (Mehmeti et al., 2009).Wheat and maize are the main crops in arable land of Kosovo. Today, wheat is produced on about 90.728 ha (Statistical Office of Kosovo, Agriculture Census 2015) with average yield 3.4 t/ha (Kosovo Agency of Statistics, 2016).

According to Kojić and Pejčinović (1982) *Anthemis arvensis*, *Bifora radians*, *Caucalis platycarpos,Centaurea cyanus*, *Cichorium intybus,Cirsium arvense*, *Consolida regalis*, *Convolvulus arvensis*, *Fallopia convolvulus, Holcus mollis, Polygonum aviculare*, *Ranunculus arvensis*, *Rumex crispus, Scleranthus annuus, Sinapis arvensis*, *Trifolium arvense* and *Vulpia myuros* were widespread in winter wheat in the past.

Pests, plant diseases and weeds cause high losses of wheat yield. Yield losses due to weeds have been re-

**Corresponding author:* arben.mehmeti@uni-pr.edu

ported (Oerke and Dehne, 2004; Oerke, 2006; Dangwal et al., 2010; Pacanoski and Glatkova, 2014; Mehmeti and Demaj, 2012). Thus, in wheat production, it is necessary to undertake control of weeds which cause losses of wheat grain yield. In general, a wide range of various herbicides is available. However, the decision which herbicide can be used principally depends on e.g., the dominant weed species, the weather conditions, the crop stage, the herbicide activity and the weed communities (Šarić, 1991a). The aim of the research presented was to identify weed species, to investigate the efficacy of herbicides and yield of wheat.

Material and Methods

During the winter season 2011-12, an experiment was conducted on a fluvisol soil in the region of Podujeva (north-east part of Kosovo). In the beginning of October, the wheat cultivar Evropa was sown by using 300 kg/ha seeds in good tilled soil, treated with fertilizer NPK 15:15:15 in doses of 250 kg/ha. The previous crop was potato. In spring, a supplementary fertilization with ammonium nitrate in doses 200 kg/ha was applied. Herbicide treatment was carried out using the knapsack sprayer of the capacity of 20 l, and the amount of water used was 400 L/ha. In Table 1, basic data on the applied herbicides is provided. The trial was set in a randomized block design with four replications and elementary plots of 15 m^2. In the experiment were six treatments, four herbicide treatments, one with hand check of weeds and control (untreated).The estimation of weeds was conducted per 1 m^2. All four herbicides were applied at the end of tillering, than 40 days after herbicide application, the number and structure of weeds and the efficacy of herbicides were estimated by comparing sprayed plots and control plots (untreated). The yield of wheat and above dry biomass of weeds was estimated in end of experiment per 1 m^2.

The efficacy of herbicides was calculated by the equation (Šarić, 1991a):

$$CE\ \% = \frac{A \times 100}{B}\ \%,$$

where: CE % is the coefficient of efficacy, A is the number of destroyed weeds per m^2 and B is the number of weeds in the untreated 1 m^2 plots.

The equation can be applied to weed species individuals ($CE_{ind.}$) and to weed species numbers ($CE_{spec.}$).

The weeds were determined in the laboratory of the Faculty of Agriculture in Prishtina, Department of Plant Protection, using the atlases Šarić (1991b) and Demiri (1979), and life forms of weed vegetation of wheat crop according to (Ellenberg et al., 1992).

Statistical Analysis

The data were analyzed following Analysis of Variance (ANOVA) technique. To test the significance of differences of mean wheat yield and aboveground dry biomass of weeds, the mean values were calculated and significant differences were tested using Tukey HSD test and the statistical computer programme (JMP, 2010).

Meteorological condition

During the experiment in 2011/12, the air temperatures (Table 2) were slightly higher than in an average year, but not the amount of rainfall (Table 3).

Results and Discussion

In the experiment, the total number of 16 weed species was recorded,11 of which were annual broad-leaved species, 3 perennials and two annual grass species, indicating a fairly species-rich weed community in the experimental field. This result is in accordance with Susuri et al. (2001), who investigated fields cultivated with wheat in two localities, in west

Table 1
Basic data for applied herbicides

Treatments	Active ingredient	Product	Rate l/kg/ha	Time of application
A	iodosulfuron-methyl Na + amidosulfuron + safenermefenpyr-diethyl + fenoxaprop-p-ethyl	Secator OD + Furore super EW	0.150 0.800	post-emergence –"–
B	triasulfuron + dicamba	Lintur 70 WG	0.180	post-emergence
C	tribenuron-methyl	Granstar 75 WG	0.015	post-emergence
D	florasulam + 2,4-D-EHE-ethyl-hepthyl ester	Mustang 306 SE	0.600	post-emergence
E	Hand check (manual weed control)			once during vegetation
F	Control (untreated)			at the end of tillering

Legend: A: iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl; B: triasulfuron + dicamba; C: tribenuron-methyl; D: florasulam + 2,4-D-EHE-ethyl-hepthyl ester; E: hand check (manual weed control); F: control (untreated)

Table 2
Mean air temperature (°C) in Prishtina, near to the studied field (14 km) in the years of the experiment and between 1951-1980 ('average year') according to (Zajmi, 1996). (Δ: difference between 2011/2012 and the 'average year)

Year	Month											
	IX	X	XI	XII	I	II	III	IV	V	VI	VII	Average
2011 2012	20.2	9.9	3.4	1.6	-1.7	3.7	7.1	11.1	15.5	22.2	24.9	10.8
Aver. year	16.1	11.0	6.4	1.2	1.5	1.0	4.7	10.4	14.6	18.0	20.2	9. 5
Δ	+4.1	-1.1	-3.0	+0.4	-3.2	+2.7	+2.4	+0.7	+0.9	+4.2	+4.7	+1.3

Source: Hydrometeorology Institute of Kosovo

Table 3
Rainfall (mm) in Prishtina, near to the studied field (14 km), in the year of the experiment and between 1951-1980 ('average year'), (Δ: difference between 2011/12 and the 'average year')

Year	Month											
	IX	X	XI	XII	I	II	III	IV	V	VI	VII	Sum
2011 2012	34.1	48.1	4.5	72.3	105.7	36.1	12.8	51.5	102	6.2	53.3	526.6
Aver. year	47.0	62.0	55.0	50.0	35.0	34.0	34.0	47.0	72.0	55.0	43.0	534.0
Δ	-12.9	-13.9	-50.5	+22.3	+70.7	+2.1	-21.2	+4.5	+30.0	-48.8	+10.3	–7.4

Source: Hydrometeorology Institute of Kosovo

part of Kosovo and documented in first locality 15 weed species and in second locality 12, respectively. However, Mehmeti et al. (2008) showed that weed flora in wheat crop in Kosovo is species-poor at the field scale (about 9.6 weed species per 25m^2).

Furthermore, the number of weed individuals was high in the control plots compared to the herbicide treatments (Table 4). For *Convolvulus arvensis* 24.0 plants/m^2, *Consolida regalis* 15.5 plants/m^2, *Polygonum aviculare* 11.5 plants/m^2 and *Galium aparine* 9.8 plants/m^2, *Chenopodium album* 9.3

Table 4
Species life forms, number of individuals and coefficients of herbicide efficacy (CE) in the investigated wheat crop

Life forms	Weed species	Treatments					
		A	B	C	D	E	F
T	*Alopecurus myosuroides* Huds.	0	0.5	3.5	0	0	2.3
T	*Chenopodium album* L.	0	2.3	3.0	0	0	9.3
G	*Cirsiumarvense* (L.) Scop.	1.8	0	0	1.5	1.5	4.3
G, Hli	*Convolvulus arvensis* L.	4.0	4.0	8.0	7.3	0.8	24.0
T	*Consolidaorientalis* L.	0	0.5	0	0.8	0.8	3.0
T	*Consolida regalis* S.F. (Gray)	1.5	2.3	4.0	6.0	3.0	15.5
Tli	*Fallopia convolvulus* L.	0	0	0.3	0	0	0.8
T	*Fumaria officinalis* L.	0	0	0.3	0	0	0.5
Tli	*Gallium aparine* L.	0	3.0	4.5	2.8	1.5	9.8
H	*Lolium perenne* L.	0	0.3	0	6.0	0	0.8
T	*Lamium amplexicaule* L.	0	0	0.5	1.8	1.8	5.8
T	*Papaver rhoeas* L.	1.0	0	0	0	0	2.8
T	*Polygonum aviculare* L.	4.8	5.8	7.8	5.5	8.0	11.5
G,H	*Sonchus arvensis* L.	0	2.3	0.3	0.5	0.5	1.5
T, H	*Sonchus oleraceus* (L.) A. Löve.	0	0	0	0	0	1.5
T	*Veronica persica* Poir.	3.5	3.0	1.3	2.3	0.8	4.0
Number of plants/m^2		16.6	24.0	33.5	34.5	18.7	97.4
CE_{ind}(%)		83.0	75.4	65.6	64.6	80.1	0
Species number/m^2		6.0	10.0	11.0	10.0	9.0	16.0

plants/m^2, *Lamium amplexicaule* 5.8 plants/m^2 and *Cirsium arvense* 4.3 plants/m^2 were documented. This low weed density was due to crop rotation used for several years before the experiment. The occurrence of some weed species in wheat crop is in accordance with results of Mehmeti and Demaj (2010); Radivojević et al. (2006); Susuri et al. (2001); Georgiev et al. (2011).

The biological spectrum of wheat crop was dominated by therophytes with 71.9%, hemicryptophytes with 15.6% and geophytes 12.5%. These results for the biological spectrum for the domination of therophytes are similar to the Pejčinović (1987), who also found that therophytes dominated (57.1-74.4%), 78.0% respectively (Nikolich et al., 2012), in wheat crop.

The used herbicides showed satisfactory efficiency on weed plants number reduction. The dominant weed species in control plots was *Convolvulus arvensis,* also in plots treated with tribenuron-methyl and florasulam + 2,4-D-EHE-ethyl-hepthyl ester, while in plots treated with herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl and triasulfuron + dicamba the occurrence was lower.

The dominant weed species in plots treated with herbicides were: *Convolvulus arvensis*, *Consolida regalis*, *Polygonuma viculare,Galium aparine*, *Lolium perenne*, *Veronica persica*, *Chenopodium album* and *Alopecurus myosuroides*.

It is evident from the efficacy results (Table 4) that all four herbicides reduced the weed infestation in the wheat crop in comparison to the control plots. The highest efficiency showed herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl (CE_{ind}=83.0%) and traisulfuron+dicamba (CE_{ind} =75.4%). Less efficient was tribenuron-methyl (CE_{ind} =65.6%) and florasulam + 2,4-D-EHE-ethyl-hepthyl ester (CE_{ind} =64.6%). In general all treated herbicides had a low efficacy in the reduction of weed species numbers, beside herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl CE_{spec}62.5%.

The dominant species *Convolvulus arvensis* had the highest susceptibility to herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl and triasulfuron + dicamba. The effect of triasulfuron + dicamba for the *Convolvulus arvensis* is in accordance with Petrova and Sabev (2014). However, *Alopecurus myosuroides* was proved to be resistant against the tested herbicide tribenuron-methyl and *Lolium perenne* for the herbicide florasulam + 2,4-D-EHE-ethyl-hepthyl ester. Moreover, *Veronica persica* were proved to be resistant against herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl and triasulfuron + dicamba. Furthermore, herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethy showed high efficacy against *Alopecurus myosuroides* and *Lolium perenne.*

In comparison to the control plots, all herbicide treated plots showed increased grain yields (Figure 1), and results are in accordance with Mehmeti and Demaj (2010); Kumar et al. (1997); Abbas et al. (2009); Knežević et al. (2010); Khalil et al. (2010). In the study presented here, comparatively high grain yield were found in plots treated with traisulfuron + dicamba (5.6 t/ha) and herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethy (5.33 t/ha). Yields were lower in tribenuron-methyl treated plots (4.9 t/ha) and 2,4-D-EHE-ethyl-hepthyl ester (4.87 t/ha).

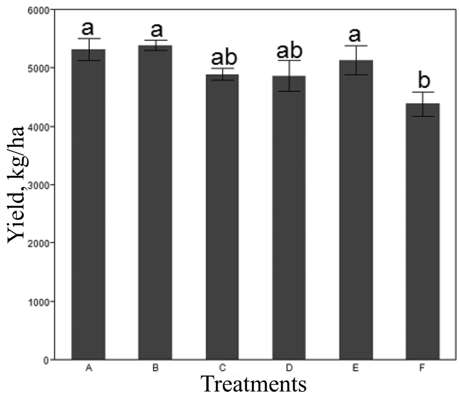

Fig. 1. Yield of grain wheat (kg/ha) depending on herbicide treatment (±SD, average with different letters are significant Tukey's HSD, < p = 0.05)

Herbicide triasulfuron + dicamba and herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethyl showed significant difference for the grain yield with control plots, but not herbicides tribenuron methyl and 2,4-D-EHE-ethyl-hepthyl ester (Figure 1).

The used herbicides have impact in reduction of above dry biomass of weeds in comparison with control plots. The highest effect in reduction of above dry biomass of weeds showed herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethy 65.3 g/m^2, triasulfuron + dicamba 68.3 g/m^2 and plots with hand check 88.8 g/m^2.

The lowest effect was in plots treated with 2,4-D-EHE-ethyl-hepthyl ester 117.1 g/m^2, and tribenuron methyl with

126.4 g/m^2, while in control plots the above dry biomass of weeds was 254.9 g/m^2 (Figure 2). The used herbicides have significant differences with control plots for the above dry biomass of weeds (Figure 2), but there were no significant differences between used herbicides.

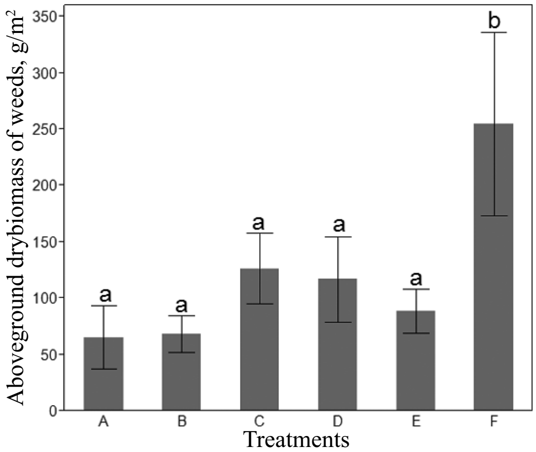

Fig. 2. Impact of herbicides in aboveground dry biomass of weeds (g/m^2)
(±SD, average with different letters are significant Tukey's HSD, < p = 0.05)

These results for the effect of herbicides of above dry biomass of weeds are found and from other studies (Knežević et al., 2010; Tanveer et al., 2010). Also, and hand check plots has effect in reduction of above dry biomass of weeds.

Conclusions

The wheat community in wheat crop at the locality of Podujeva consisted of 16 weed species, with an average number of 97.4 plants/m^2 in the control plots of the experiment.

Dominant weeds in the control plots were: *Convolvulus arvensis* 24.0 plants/m^2, *Consolida regalis* 15.5 plants/m^2, *Polygonum aviculare* 11.5 plants/m^2, and *Galium aparine* 9.8 plants/m^2.

Highly efficient in the reduction of weed individuals ($CE_{ind.}$) were herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethy (83.4%) and triasulfuron + dicamba (75.6%); less efficient was tribenuron-methyl (CE_{ind} = 65.6%) and florasulam + 2,4-D-EHE-ethyl-hepthyl ester (CE_{ind} = 64.6%).

In comparison to the untreated plots, the wheat yield was comparatively high in traisulfuron+dicamba (5.6 t/ha) and combination iodosulfuron-methyl Na + amidosulfuron + safenermefenpyr-diethyl + fenoxaprop-p-ethly (5.33 t/ha).

The highest effect in reduction of above dry biomass of weeds showed combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethy65.3 g/m^2, and triasulfuron + dikamba 68.3 g/m^2 , while in control plots the above dry biomass of weeds was 254.9 g/m^2.

Based on the results presented, we recommend the usage of traisulfuron+dicamba or herbicide combination iodosulfuron-methyl Na + amidosulfuron + safener mefenpyr-diethyl + fenoxaprop-p-ethy in the study region for successful weed control and high wheat grain yields.

References

Abbas, A., M. Anjum Ali, Z. Abbas, M. Aslam and M. Akram, 2009. Impact of different herbicides on broadleaf weeds and yield of wheat. *Pak. J. Weed Sci. Res.*, **15**: 1-10.

Dangwal, R.L., A. Singh., T. Singh and C.H. Sharma, 2010. Effect of weeds on the yield of wheat crop in Tehsil Nowshera. *Journal of American Science*, **10**: 405-407.

Demiri, M., 1979. Përcaktues bimësh, Libri shkollor (Determination of plants. School book. Albania), Tirana, *Shqipëri* (Al).

Ellenberg, H., H.H. Weber, R. Düll, V. Wirth, W. Werner and D. Paulißen, 1992. Zeigerwerte von Pflanzen in Mitteleuropa. Scripta Geobot, Göttingen.

Georgiev, M, D. Pavlov, G. Beev, M. Gerdzhikova and R. Bazitov, 2011.Species composition of weeds in wheat and barley. *Agricultural Science and Technology*, **3** (2): 143-149.

JMP 10.0.0, 2010. *SAS Institute*.

Khalil, M.F., G. Hassan, Z. Hussain, N.H. Shah and M.M. Khan, 2010. Effect of individual and tank mixed herbicides on yield of wheat crop. *Pak. J. Weed Sci. Res.*, **16** (1): 89-96.

Knežević, M., M. Antunović, R. Baličević and L. Ranogajec, 2010. Weed control in winter wheat as affected by tillage and post-emergence herbicides. *Herbologia*, **11** (2): 47-55.

Kojić, M. and D. Pejčinović, 1982. Weed Flora and Vegetation of Kosovo. Monograph. *Institute for Textbooks and Teaching Means*. Pristina, Kosovo. (Korovska flora i vegetacija Kosova. Monografija. Zavod za udžbenike i nastavna sredstva, Priština) (Sr).

Kosovo Agency of Statistics (KAS), 2015.Agriculture Census in the Republic of Kosovo, Publication date: November, 2015.

Kosovo Agency of Statistics, 2016. Series 2: Agriculture and Environment Statistics, Agricultural Holding Survey 2015, Prishtina.

Kumar, S.Y.S. Shivay and G. Singh, 1997. Performance of tralkoxydim and Isoproturon for broad spectrum weed control and wheat growth. *Indian J. Agron.*, **42** (3): 474-478.

Mehmeti, A. and Demaj, 2010.Efficiency of post-emergence herbicides on weeds in wheat and the yield of the crop. Jubile Scientific Conference, Scientific Works, *Agriculture University*, Plovdiv, Bulgaria, **LV** (2): 119-125.

Mehmeti, A. and Demaj, 2012. Evaluation of post-emergence herbicides for weed control in maize (*Zea mays* L.) and their influence on maize yield. *Plat Protction Society of the Republic of Macedonia,* **XXIII** (24/25): 107-113.

Mehmeti, A., A. Demaj and R. Waldhardt, 2008. Ackernutzung und aktuelle Acker vegetation im Kosovo. Naturschutz Biol. Vielfalt **60:** 61-66.

Mehmeti, A., A. Demaj, and R. Waldhardt, 2009. Plant species richness and composition in arable land of Kosovo. *Landsc. Online*, **11:** 1-29.

Nikolich, L, D. Milosev, S. Seremesich, I. Dalovich and V. Vuga-Janjatov, 2012. Diversity of weed flora in wheat depending on crop rotation and fertilisation. *Bulgarian Journal of Agricultural Science*, **18** (4): 608-615.

Oerke, E.C, 2006.Crop losses to pests. Centenary review. *Journal of Agricultural Science*, **144:** 31-43.

Oerke, E.-C. and H.-W. Dehne, 2004. Safe guarding production-losses in major crops and the role of crop protection. *Crop Protection*, **23**: 275-285.

Pacanoski, Z. and G. Glatkova, 2014. Weed control in green beans (*Phaseolus vulgaris* L.) with soil-applied herbicides. *Herbologia*, **14** (1): 53-62.

Pejčinović, D., 1987. Weed life forms within hoeing plant and cereal grain communities in the region of Kosovo (Životni oblici korovskih vrsta u zajednicima okopavina i strnih žita Kosova). *Fragm. Herbol. Jugoslavica,* **16:** 95-102 (Sr).

Pejčinović, D. and M. Kojić, 1988. Application of ecological indexes for characterization of Kosovo's weed vegetation (Primena ekoloških indeksa za karakterizaciju korovske vegetacije Kosova). *Fragm. Herbol. Jugoslavica*, **17**: 231-242 (Sr).

Petrova, Z. and G. Sabev, 2014. Effect of the date of application of a set of herbicides in common winter wheat crops on weed infestation. *Agricultural Science and Technology*, **6** (3): 300-303.

Radivojević, L., R. Stanković-Kalezić, D. Pavlović and D. Marisavljević, 2006. Efficacy of several herbicides in controlling weeds in wheat. *Journal of Plant Diseases and Protection*, Sonderheft, **XX:** 787-793.

Šarić, T., 1991a. Weeds and their control with herbicides. VII edition (Korovi i njihovo uništavanje herbicidima.VII izdanje), *VIP Zadrugar*, Sarajevo (Sr).

Šarić, T., 1991b. Weed atlas (Atlas korova). I ed. *Svjetlost*. Sarajevo (BiH) (Sr).

Shala, B., 1987. Spread of wild oats in the territory of SAP Kosovo (Rasprostrajnost divljeg ovsa na teritoriji SAP Kosovo). *Fragm. Herbol. Jugoslavica*, Vol. **16**: 65-72 (Sr).

Susuri, L., A. Demaj and E. Memaj, 2001. Structure and control of weeds in wheat. *Acta Agric. Slovenica*, **77:** 267-272.

Tanveer, A., A. Ali, M.M., Javaid, R. Ahmad, M. Ayub, R.N. Abbas and H.H. Ali, 2010. The effect of fluroxypyr + mcpa applied with urea and terbutryn alone on weeds and yield components of wheat. *Herbologia*, **11** (2): 57-66.

Received March, 23, 2017; accepted for printing January, 17, 2018