



# Resistance of *Apera-spica venti* in Lithuania

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## INTRODUCTION

Weed flora has been changed over the last decades. Chemical weed control, absence of crop rotation, use of minimal soil tillage system conditioned that the number of dicotyledonous perennial weeds decreased whereas number of annual monocotyledonous particularly *Apera spica-venti* notably increased. For the control of *A. spica-venti* mostly sulfonylurea herbicide has been used in Lithuania. During the last years complains of farmers about low efficacy of some herbicides increased. No resistance test for *A. spica-venti* was made in Lithuania before.

## MATERIALS AND METHODS

The samples of *A. spica – venti* seeds were taken at the ripening stage of *Apera* in the period of 2012 - 2013. Twelve winter wheat fields were chosen in two different regions of Lithuania according to compliance of farmers about low efficacy of herbicides. 60 – 70 panicle of *A. spica venti* were taken from each field. Herbicide efficacy was tested in the pot experiments. 16 pots from each sample were sown with *A.spica venti* seeds – there were 172 pots in total. Seven different herbicides at normal rates (Table 1) were spray applied after the *A. spica venti* germination. Efficacy of tested herbicides were visually evaluated one month after herbicide application.

Table 1. Trial scheme

Tr. No.	Herbicide -active ingredient	a.i. amount		herbicide rate		HRAG group
1.	Untreated					
2.	Komplet 560 SC	560	g l <sup>-1</sup>	0,5	1 ha <sup>-1</sup>	K3, F1
	-Diflufenikan	280				
	-Flufenacet	280				
3.	Puma Universal	144	g l <sup>-1</sup>	1,2	1 ha <sup>-1</sup>	A
	-Fenoksaprop –P-ethyl	69				
	-Mefenpyr-diethyl	75				
4.	Axial 50	50	g l <sup>-1</sup>	0,9	1 ha <sup>-1</sup>	A
	-Pinoxaden	50				
5.	Arelon flussig	500	g l <sup>-1</sup>	3,0	1 ha <sup>-1</sup>	C3
	-Izoproturon	500				
6.	Hussar activ OD	387	g l <sup>-1</sup>	1,0	1 ha <sup>-1</sup>	B, O
	-natrio metiljodsulfuron	10				
	-2,4D 2-etylheksyl ester	377				
7.	Tombo + Dassoil	125	g kg <sup>-1</sup>	0,2+1,0	kg ha <sup>-1</sup> + 1 ha <sup>-1</sup>	B, O
	-piroksulam	50				
	-florasulam	25				
	-aminopyralide	50				
8.	Monitor + Trend	750	g kg <sup>-1</sup>	26,7+ 0,2	g kg <sup>-1</sup> + 1 ha <sup>-1</sup>	B
	-sulfosulfuron	750				



## RESULTS

Testing showed that two populations of *A.spica venti* were resistant against sulfonylurea herbicides – efficacy of tested herbicides of this group against this weed was 20 -45 percent. Reduced efficacy (50 – 65 percent) showed sulfosulfuron and iodosulfuron on other six populations of *Apera spica venti*.

Field history of tested field showed, that resistant *A.spica venti* populations occurred in cases, where reduced soil tillage prevalent and repeated application of the same active ingredient was used. Experience showed that this kind of agricultural practices is quite frequent in Lithuania.

It could be concluded that the problem of herbicide resistance exist in Lithuania and extent of this should be investigated.