HARMFULNESS THRESHOLD PRODUCED BY UNSEMELLING CAMOMILE (*MATRICARIA INODORA* L.) IN WHEAT WINTER CROP

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Abstract

In the year 2009, an experiment with 5 treatments was performed at the Moara Domneasca Experimental Station.

The objective was to find the harmfulness threshold produced by the weed Matricaria inodora (MATIN) on the wheat crop fertilized with 200 kg N/ha. The densities of MATIN were: 0; 1; 2; 4; and 6 plants/m^2.

Densities were stabilized by hand weeding. The obtained results showed that MATIN is a harmfulness weed. For the wheat crop, fertilized with 200 Kg N, the threshold in 2009 was 1.8 plant/m^2.

INTRODUCTION

Nowadays, agriculture is facing two situations: to increase production and find sustainable solutions that should lead to higher production and, at the same time, to protect the environment and preserve agricultural resources (soil, water, biodiversity, etc.) [3, 1, 4]. Weeds are components of the biodiversity.

There are two kinds of effects in the agroecosystems: negative, due to the competition for the vegetation factors; positive, thanks to the important role of the weed in habitat formation in the agricultural ecological system.

Thus, they are components of the phytocenosis.

They should not be destroyed totally [5]. In the last 5-10 years, scientists have worked to perform sustainable weed management.

Consequently, new information is necessary about competition, the harmfulness threshold, its level for every weed species, an economic and energetic survey [6, 2].

MATERIAL AND METHODS

The experiments started in 2008. The results presented in this paper are part of the research for our doctoral thesis. Its objective was to determine the harmfulness threshold produced by MATIN in the winter wheat crop of variety Dropia,

fertilized with 200 kg N/ha. The experiment had 5 treatments, i.e. 5 plant densities of MATIN, presented in Table 1.

The plot surface was 3.75 m^2 (that is, 10 wheat plant surface was 2 m^2). The experiment had 5 repetitions. Seeds of MATIN collected during July and August period, were spread the second day after the sowing of the wheat crop, and buried slightly by hand harrowing.

Weeding was made manually starting on the 10th of April, periodically until the 20th of May. At the beginning, more density of Matin was left and gradually only the right numbers were saved according to every treatment marked by a red thread.

At the harvesting time, wheat plants were cut from the soil, the plants of MATIN were separated, labelled and put into a shed to dry until they reached a constant weight.

For the wheat crop, it was determined the number of grains per plant, the yield at the 14% humidity, the 1000 grains weight.

RESULTS AND DISCUSSION

Part of the obtained results is presented in Tables 1, 2 and 3. Analysing the data, the conclusions are as follows:
1. The dry weight of the MATIN (Table 1) increased, as normally, with their density
2. Calculated for a hectare, the values varied between 720-4380 kg/ha. The weight of a plant decreased slightly on average.

Table 1

Matricaria inodora, dry weight of the plants at the wheat harvest time, 2009 year

No.	Densities of MATIN (pl/m^2)	Dry weight		
		g/m^2	g/plant	kg/ha
1	0	-	-	-
2	1	72	72	720
3	2	143	75.5	1430
4	4	280	70	2800
5	6	408	68	4080

DL 5%=4.0 g/m^2
DL 1%=7.2 g/m^2
DL 0.1%=15.0 g/m^2

Table 2

Winter wheat yields influenced by densities of *Matricaria inodora*

No.	Densities of MATIN pl/m^2	Yields kg/ha	D	%	Signific.
1	0	4020	Mt	100	Mt
2	1 pl	3860	160	96	-
3	2 pl	3746	274	93	x
4	4 pl	3565	455	88	xx
5	6 pl	3360	650	83	xx

DL 5%=250 kg/ha
DL 1%=447 kg/ha
DL 0.1%=735 kg/ha

Calculation of the harmfulness threshold: the value of DL 5% is 250 kg/ha. Comparing this value with that from column D (Differences), it is observed that this value is close to the value of 274 kg/ha. The value of 274 kg/ha is determined by the density of the treatment no 3, i.e. two plants MATIN/ha.

If the difference 274 kg/ha is caused by the density of 2 plants/ha; 250 kg/ha would be determined by the density of 1.8 plant of MAINT/m^2.

Table 3

1000 grain weight of wheat, Dropia variety, depending on weediness by *Matricaria inodora*, the year 2009

Nr.	*Matricaria inodora*		Wheat grains		
	Density no./m^2	Dry weight g/m^2	Weight of 1000 grains	D	%
1	0	0	47	Mt	100
2	1	72	46.2	-0.8	98
3	2	138	44.8	-2.2	95
4	4	296	43.7	-3.3	93
5	6	438	42	-5.0	89

DL 5%=3
DL 1%=5
DL 0.1%=8

CONCLUSIONS

1. The lowest to the highest density is from 72 to 68 g/plant.

2. The values of wheat yields (Table 2) decrease gradually with the increasing density of MATIN. Expressed as percentage, the decrease was between 4 and 17%.

3. The weed MATIN is a very harmful threshold for a crop fertilized with 200 kg N, being 1.8 plant/m^2.

4. The 1000 wheat grains decreased with the increase of the density of MATIN. In percentage, this means from 100% to 89%.

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