

The Impact of Herbicidation in Variants on the Degree of Weedness to the Peach Delta and Cora Nectarines -Trees

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Abstract—According to the weedness level we investigated in the control variant of every species, and in every year of the research, we must take into account the significant role of the weeds *Agropyron repens*. The experiment was made by using two types of herbicides and two agro technique treatments that were very efficient. For the experimental variants, first a count of weed was necessary and afterwards the establishing of the weed. Finally, all the variants registered a degree of weed control of over 80%, with some differences between them.

Keywords—weed, control, counting, factor

I. INTRODUCTION

THE differential agro technique ways of treatment have established an important difference in the factors studied in all the species, and this scientific paper deals with experiments in variants, that were undertaken during a period of 3 years (2009,2010,2011), so that we could ascertain that by using the differential agro technique ways of treatment, respectively using weed control treatment, the degree of weedness lowers to an unbelievable level.

II. MATERIAL AND METHOD

Research was aimed at determining the impact of weed control on the level of weedness in the row of trees, to the Delta and Cora nectarines-trees, as a result of using some variants that include both chemical measures (herbicides) and agro technique measures (tilling). The experiment was monofactorial and it was made according to the method of the layered blocks, in four replications/with 5 variants. Before herbicidation with these two types of herbicides, the total weed was counted in order to estimate both the level of the weedness, and the present weed composition, thus determining the most efficient herbicide products for weed control. Before and after we applied herbicides and the tilling treatment, the estimation of weedness was done in order to investigate the level of weedness in the location of our experiment. Therefore, the experiment was carried out with an initial and a final count of weed (30 days after the treatment). The count of weed was done in two working phases: the first one being in the field and the second one consisting in data processing. Also among the proper number of weed belonging to different species that we discovered within the metric frame, the phenophase was

mentioned, where there have developed: A - plantlets or plants not reaching the stage of maturity or reproduction; B - plants with flower buds or in the stage of graminaceae; C -plants with flowers; D -plants with fructification; E - plants with disseminated seeds. The phase of data processing consisted in processing the primary data and making of an observation sheet (weedness). The symbols used to register the botanical category are the following: D.a. - dicotyledonous annual; D.p. - dicotyledonous perennial; M.a. - monocotyledonous annual; M.p. - monocotyledonous perennial. Calculation of synthetical data consisted in expressing the biological categories mentioned above according to the following aspects: a) number of the encountered species ; b) average number of individuals; c) participation of the specified weed to the general weedness. *Methods of chemical treatment in weed control* - a Roundup herbicidation 4 l/ha, using the product Basta 5 l/ha, consists in applying of this chemical substance on the weed de pe rândul pomilor, and in its absorption and translocation into the weed organs, thus completely destroying the weed. *Roundup 360 SL* is a type of herbicide that has total action, it is post-emergent, systemic, non-selective and universal, and it can be applied in any land cultivation, its active substance being Glyphosate as ammonium salt or as isopropyl salt 360 g/l. It attacks both monocotyledonous and dicotyledonous weed, annual or perennial, including the sorghum. *Basta 14 SL 5l/ha* is a type of herbicide that has total action, it is post-emergent, desiccant, contact and partially systemic, killing the vegetation, its active substance being Glufosinate-ammonium 15 g/l. It attacks monocotyledonous and dicotyledonous weed, annual or perennial, including severe weed as the twitch (*Agropyrum repens*) and it destroys it. Application of herbicides was made by utilizing the Solo type atomiser. *Method of agro technique weed control* 2-3 tillings consists in working manually the soil, using the weed hook for the row of trees; this way of treatment contributes to the destruction of both annual and biannual weed, and if this treatment of tilling is repeated it also destroys the perennial weed, thus using the agro technique of exhaustion.

Graduation was the following:

- V1 -no herbicide, no tilling
- V2 -herbicidation in the row of trees using ROUND UP 4L/ha
- V3 - herbicidation in the row of trees using BASTA 14SL 5L/ha
- V4 -manual tilling device and a mechanical tilling device
- V5 - two manual tilling devices and two mechanical tilling devices

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Delta		
V2	V3	V4
V5	V1	

Cora		
V2	V3	V4
V5	V1	

III. RESULTS

As it is presented at the figure 1, representing the 2009 values on the weedness sheet of the Cora peach tree, there are 14 species of weed, more exactly 10 dicotyledonous weed and 4 monocotyledonous weed. According to the phenophase, the majority of the species are to be found up to the stage of plants with flowers. The final number of weed was estimated to 177.33 weed/m².

TABLE I

THE 2009 VALUES ON THE WEEDNESS SHEET OF THE REDGLOBE PEACH TREE
Variant 1, no herbicidation, no tilling

Nr crt	Species	Fenophases	Total weeds /m ²	Total weeds media/m ²	Participations (%)	Botanic classes
1	<i>Agropyron repens</i>	A-C	88	29.33	16.54	Mp.
2	<i>Cynodon dactylon</i>	A-C	80	26.67	15.03	M.p.
3	<i>Stellaria media</i>	A-C	72	24.00	13.53	Da.
4	<i>Convolvulus arvensis</i>	A-C	64	21.33	12.03	Dp.
5	<i>Veronica hederifolia</i>	A-C	56	18.67	10.52	D.a.
6	<i>Cirsium arvense</i>	A-B	44	14.66	8.27	D.p.
7	<i>Amaranthus retroflexus</i>	A-C	32	10.67	6.01	D.a.
8	<i>Cardaria draba</i>	B-C	28	9.33	5.26	D.p.
9	<i>Capsella bursa-pastoris</i>	A-C	20	6.67	3.77	D.a.
10	<i>Chenopodium album</i>	B	16	5.33	3.03	D.a.
11	<i>Sonchus arvensis</i>	B-C	12	4.00	2.26	D.p.
12	<i>Echinochloa crus-galli</i>	B	8	2.67	1.50	M.a.
13	<i>Sorghum</i>	A-B	8	2.67	1.50	Mp.

Total species (D.a./D.p./M.a./M.p.): 6/4/1/3=14

Total media/m² = 177.33

	<i>halepensis</i>					
14	<i>Sinapis arvensis</i>	A-C	4	1.33	0.75	D.a.
		Total	532	177.33	100	

According to the weed control ways of treatment, in the second variant (herbicidation using Roundup 4l/ha) there is a degree of weed control of 82.80 % of the total sum of weed, remaining only 25.77 present weed. The most efficient way of treatment is V5(using 2 mechanical tilling devices and 2 manual tilling devices) with a final number of present weed estimated to 19.55/m² and a degree of weed control of over 86%.(table II)

TABLE II

THE SYNTHESIS OF THE RESULTS REGARDING THE IMPACT OF THE AGRO TECHNIQUE AND CHEMICAL TREATMENTS OF WEED CONTROL TO THE CORA, DURING 2009-2011

Variant	Final no. of present weed/m ²	Degree of weed control (%)	No. Of weed that was attacked/m ² in comparison with the control variant	Meaning
V1 - mt.	163.33	0,00	0,00	mt.
V2	25.77	82.80	-137.56	000
V3	28.44	82.32	-134.89	000
V4	24.00	85.23	-139.33	000
V5	19.55	86.99	-143.78	000

DL 5% = 5.23
DL 1% = 6.94
DL 0,1% = 8.87

In table III a weedness sheet is presented to the Delta , in the control variant, between the years 2009-2011. After the agro technique count estimations were up to 180weed/m², nine species of dicotyledonous weed and four species of monocotyledonous weed, out of which *Stellaria* and *Agropyron repens* had the highest percentage of participation (table III).

TABLE III
THE WEEDNESS SHEET OF THE DELTA, 2009 *VARIANT I*, NO HERBICIDES, NO TILLING

Nr crt.	Species	Fenophasy	Total weeds /m ²	Total weeds media/m ²	Participations (%)	Botanics class
1.	<i>Stellaria media</i>	A-C	88	29.33	16.79	D.a.
2.	<i>Agropyron repens</i>	A-C	80	26.67	15.26	M.p.
3.	<i>Cynodon dactylon</i>	A-C	72	24.00	13.74	M.p.
4.	<i>Convolvulus arvensis</i>	A-C	64	21.33	12.21	D.p.
5.	<i>Veronica hederifolia</i>	A-C	52	17.33	9.95	D.a.
6.	<i>Cirsium arvense</i>	A-B	44	14.67	8.39	D.p.
7.	<i>Amaranthus retroflexus</i>	A-C	32	10.67	6.10	D.a.
8.	<i>Cardaria draba</i>	B-C	28	9.33	5.36	D.p.
9.	<i>Capsella bursa-pastoris</i>	A-C	20	6.67	3.81	D.a.
10.	<i>Chenopodium album</i>	B	16	5.33	3.05	D.a.
11.	<i>Sonchus arvensis</i>	B-C	12	4.00	2.29	D.p.
12.	<i>Echinochloa crus-galli</i>	B	8	2.67	1.53	M.a.
13.	<i>Sorghum halepense</i>	A-B	4	1.33	0.76	M.p.
14.	<i>Sinapis arvensis</i>	A-C	4	1.33	0.76	D.a.
		Tot al	524	174.66	100	

Total species (D.a./D.p./M.a/M.p.): 6/4/1/3=14

Total media/m² = 174.66

Table IV shows the synthesis of the results after the treatment of weed. There is a higher level of weed control in all applied variants, in all the three repetitions. From the final number of weed estimated in the end of the process, the 5th variant is notable, where after the application of tilling there remains a number of only 19.33 weeds /m² having a degree of weed control of 85.37%.

TABLE IV
THE SYNTHESIS OF THE RESULTS REGARDING THE IMPACT OF WEED CONTROL AND TREATMENT OF WEEDNESS TO THE DELTA, BETWEEN THE YEARS 2009-2011

Variant	Final no. of present weed/m ²	Degree of weed control (%)	No. Of weed that was attacked/m ² in comparison with the control variant	Meaning
V1 - mt.	157.77	0,00	0,00	mt.
v ₂	25.33	82.74	-132.44	000
v ₃	30.00	81.54	-127.77	000
v ₄	22.66	85.19	-135.11	000
v ₅	19.33	86.94	-138.44	000

DL 5% = 6.34 DL 1% = 7.92 DL 0,1% = 9.23

IV. CONCLUSION

According to our experiments mentioned above, the agro technique treatment, that is the manual and mechanical tilling devices had a very high efficiency. Weeds have a strong impact on peach trees, by influencing their growth and ripening stages, being the unique rival for their nutritive substances. Manual and mechanical tilling devices are ecological ways of treatment, they protect the environment and are non-polluting, in comparison with the herbicides, which unfortunately are very polluting. The only inconvenience is that the manual and mechanical tilling devices require people to work for the weed control.

The degree observed in all 3 years of experimentation, was influenced by clima, precipitations and by differentiated methods used for stopping weed degree.

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