

INCREASING FOODER PRODUCTION THROUGH AGROTECHNICAL MEASURES FOR LUCERNE CULTIVATED IN THE HILLY AREA OF OLTENIA

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ABSTRACT

In the specialized literature are made recommendations on lucerne harrowing without relying on rigorous experimental data. Our research partially confirms this aspect. If is applied and a chemical control of weed, the results are considerable.

INTRODUCTION

It is confirmed the fact that through lucerne harrowing the soil is ventilated which will allow a more vigorous germination with repercussions on the level of harvest. Also through and appropriate chemical control will be obtained an increased and qualitative production of fooder (Berca, M., 1996; Cotigă, C., 2011; Moisuc A., Coste I., 2000).

MATERIAL AND METHOD

The researches were conducted during the period 2011-2012 at the S.C.D.A. – Șimnic Craiova, the versions taken for the research in the first experimental were:

V₁ = nonharrowed

V₂ = harrowed (years I and II)/ in spring

V₃ = harrowed (years I and II)/ in spring and after each mowing

Other experimental had the following versions:

V₁ = non-herbicide

V₂ = Pulsar 40 (EC) post. 1 l/ha

V₃ = Kerb 50 W post. 4 kg/ha

V₄ = Basagran forte (EC) post. 2 l/ha

V₅ = Pantera 40 (EC) post. 0,7 l/ha

V₆ = Leopard 5 (EC) post 0,7 l/ha

V₇ = Agil 100 (EC) post. 2 l/ha

RESULTS AND DISCUSSIONS

The results obtained and presented in table 1 concerning the effect of harrow on the production of lucerne dry matter (d.m.) show that, averaged on two years the yields of biomass increased from 8,3 t/ha d.m. for the nonharrowed version reaching 10,6 t/ha d.m. for harrowed version in the I-st and II-nd years early in the spring.

The production increase was of 2,3 t/ha d.m. compared with the testifier taken into consideration, increase statistically significantly distinct.

For the harrowed version years I and II and after each mowing the production level has a decreasing trend fact explained by the destruction of a good part of lucerne shoots by the mechanical machine.

Table 1

The effects of harrowing as a mechanical maintenance work for lucerne, on the production of dry matter (average 2011-2012)

Version	Absolute production d.m. t/ha		Average 2011-2012 d.m. t/ha	Relative production %	Difference	Significance
	2011	2012				
Nonharrowed	8,2	8,3	8,3	100	MT	-
Harrowed (years I and II)/ In spring	9,4	11,7	10,6	128	2,3	**
Harrowed (years I and II)/ In spring and after each mowing	8,1	9,4	8,8	106	0,5	-

1,1 1,3 1,2 t/ha D.M.
 2,1 2,4 2,3 t/ha D.M.
 2,9 3,7 3,3 t/ha D.M.

In the table 2 are presented the weed species and their number in the lucerne sown at S.C.D.A. – Șimnic.

Table 2

Weed species

Weed Species	No. Of weeds per SQ.M
<i>Chenopodium album</i>	48-366
<i>Setaria glauca și Setaria viridis</i>	126-421
<i>Convolvulus arvensis</i>	8-47
<i>Xanthium strumarium</i>	0-23
<i>Solanum nigrum</i>	0-16
<i>Amaranthus retroflexus</i>	0-19
<i>Digitaria sanguinalis</i>	0-27
<i>Echinochloa crus galli</i>	0-14
<i>Capsela bursa pastoris</i>	1-17
<i>Poligonum aviculare</i>	3-28
<i>Ghypsophila muralis</i>	0-3
<i>Cynodon dactylon</i>	0-4

From the data obtained and presented in table 3 regarding the herbicides effect on weeds found in the lucerne crops it has been observed:

Used

- All herbicides contributed substantially to weed control compared to the version which did not received any tratament.
- For the version non-herbiced, the total production of biomass was 58,3 t/ha pf which 25,7 t/ha were weeds and 32,6 t/ha were lucerne (in yearI), and in

Table 3

The effects of herbicides on the weeds from the lucerne crops at the S.C.D.A. – Șimnic during the period 2011–2012 (m.v.t./ha)

Version	Dose l/ha *kg/ha	Age of application	2011				2012			
			M.V. Total (T)	Of which weeds	Weeds (%)	Lucerne (T)	M.V. Total (T)	Of which weeds	Weeds (%)	Lucerne (T)
Non-herbiced	-	Post	58,3	25,7	44	32,6	51,0	20,5	40	30,5
Pulsar 40 (E.C.)	1,0	Post	55,6	7,4	13	48,2	58,5	3,1	5	55,4
Kerb 50W	4,0*	Post	52,6	8,9	17	43,7	57,0	4,2	7	52,8
Basagran Forte (E.C.)	2,0	Post	48,4	8,8	18	39,6	51,5	4,1	8	47,4
Pantera 40 (E.C.)	0,7	Post	45,7	9,6	21	36,1	49,4	4,7	9	44,7
Leopard 5 (E.C.)	0,7	Post	45,6	9,9	22	35,7	48,7	4,9	10	43,8
Agil 100 (E.C.)	2,0	Post	42,5	9,8	23	32,7	43,8	4,6	11	39,2

- year II weeds production has a decreasing trend from 44% (2011) to 40% (2012).
- In year II (2012) the percentage of weeds in the lucerne crops for the herbicides versions diminished considerably with oscillations between 5–11% which was experienced on the production of lucerne.

The most effective herbicides were: Pulsar 40 (E.C.) at a dose of 1 l/ha which reduced weeds from 13% in 2011 to 5% in 2012, and the herbicide Kerb 50 W 4 kg/ha which reduced weeds from 17% in 2011 to 7% in 2012 (table 3).

CONCLUSIONS

Lucerne harrowing in the years I and II exploited early in spring brings increased production of over 2,3 t/ha d.m. as a result of soil aeration at the parcel level which allows a vigorous germination.

Due to the high number of weeds in the lucerne crops, it is recommended that since its setting up to be combated chemically (Ciorlaus, A. et al, 1968; Moisuc A., Coste I., 2000; Moisuc A., Samfira I., 2002).

The most effective herbicides for weeds control from the lucerne crops are: Pulsar 40 (E.C.) 1 l/ha and Kerb 50 W (4 kg/ha).

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