THE EFFECT OF ITALIAN RYEGRASS AND CRIMSOM CLOVER MIXTURE ON THE PRODUCTION CAPACITY IN TIMISOARA CONDITIONS

EFECTUL AMESTECULUI RAIGRAS ARISTAT SI TRIFOI INCARNAT ASUPRA CAPACITATII DE PRODUCTIE IN CONDITIILE DE LA TIMISOARA

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Abstract: *The study of these annual forage mixtures of Crimsom clover with Italian ryegrass has the purpose to establish the best percentages in mixture, from the point of view of dry matter, taking in consideration the number of scythes and production per scythes, knowing the feeble resistance of Italian ryegrass in drought conditions from West Plain. It was observed that the production capacity of crimson clover and Italian ryegrass (Lolium multiflorum) is different, in mixture, in function of total production of each cut, the number of realised cuts and climatic conditions from each year.*

Rezumat: *Studierea acestor amestecuri furajere anuale de trifoi incarnat cu raigras aristat, are drept scop stabilirea celei mai bune proportii de amestec, din punct de vedere al productiei de substanta uscata, in functie de numarul de coase si productia pe coase, cunoscandu-se slaba rezistenta a raigrasului aristat la conditiile de seceta, din Campiei de Vest. S-a observat ca, capacitatea de productie a trifoiului incarnat si a raigrasului aristat este diferita in amestec, in functie de productia totala a fiecarei coase, numarul de coase realizate si conditiile climatice din fiecare an.*

Key words: *crimson clover, Italian ryegrass, mixtures, production*
Cuvinte cheie: *trifoi incarnat, raigras aristat, amestec, productie*

INTRODUCTION

Cultivating in mixture of annual clovers (*Trifolium incarnatum*) with annual gramineae (Italian ryegrass) conducts to the increase of total dry matter production and forage quality, decreases the used quantity of mineral fats, improves the soil quality, is decreasing the diseases, pests and weeds attack, also are assured increased productions for successive cultures (2).

In foraging the animals of big importance is equilibration energo-proteic of forage ration (3). Specific forage for cattle is split for the point of view of chemical composition and of nutritive effect in (4):

- energetic (gramineae);
- proteic (leguminoseae).

MATERIAL AND METHODS

The experience was placed at The Experimental Didactic Station of The University of Agricultural Sciences and Veterinary Medicine of Banat Timisoara. The settlement is in West Plane of Romania, and the soil on witch the experiences have been placed is a cambic chernozem.

After Koppen, the climate of the researched perimeter is situated in the climatic region c.f.b.x., characterized through a temperate climate with precipitations all the year, but with humidity deficit in the summer months.

The average of annual precipitations in our area is 517,6 mm, from which 63% are falling during the vegetation period. The droughtiest months are June and July.

In the vegetation period, the temperatures have been raised, over the multiannual media in the bought experimental years, on the base of low precipitations, which got to different harvest results.

As a biologic material I used Tardivo breed of *Trifolium incarnatum* and Wesley breed of *Lolium multiflorum var. westerwoldicum*.

The realised study was based on the cultures of: *Trifolium incarnatum* (T.i) and *Lolium multiflorum* (L.m.), in mixture, in the fallowing percentages: L.m.75% + T.i.25%, L.m.50% + T.i.50%, L.m.25% + T.i.75%.

In the paper can be found the dry matter productions obtained in 2 cuts in 2006 - 2008 experimental years.

This thing allowed getting a few conclusions on the production of crimson clover in mixture with Italian ryegrass, in the condition of West Plain.

The results interpretations have been done according to the current calculus methods (1).

RESULTS AND DISCUSSION

For a clearer relieve of differences between variants, in this paper we have studied dry matter productions per cuts, in three successive years.

During the experience we have obtained 2 cuts at each type of mixture.

Table 1

The comparison of experimental years for each cut under the aspect of dry matter production at L.m. (75%) + T.i. (25 %)

Experimental years	Averages		Relative values (%)	The difference / Significance
Cut I 2007 – Cut I 2006	4,30	5,55	77,47	$-1,25^{0}$
Cut I 2008 – Cut I 2006	6,80	5,55	122,52	$1,25^{*}$
Cut I 2008– Cut I 2007	6,80	4,30	158,13	$2,50^{**}$
Cut II 2007 – Cut II 2006	0,40	1,20	33,33	-0,80
Cut II 2008 – Cut II 2006	1,85	1,20	154,16	0,65
Cut II 2008– Cut II 2007	1,85	0,40	462,5	$1,45^{*}$

$DL_{5\%}$=1,17 t/ha $DL_{1\%}$=2,02 t/ha $DL_{0,1\%}$=3,57 t/ha

From the table 1 analyze it can be observed that in which it regards the productions of L.m. (75%) + T.i. (25%) mixture, the biggest productions have been obtained in 2008 year, at first cut and at second cut.

Also, it can be observed that at the second cut, in all experimental years have been obtained very small productions, this thing is due first of all to the fact that the Italian ryegrass production at the second cut is very small and secondly due to the very small production of participation at total production of Crimsom clover.

The biggest production difference it was enlisted at second cut, between 2008-2007 experimental years, of 462,5 %.

Table 2

The comparison of experimental years for each cut under the aspect of dry matter production at L.m (50%) + T.i. (50 %)

Experimental years	Averages		Relative values (%)	The difference / Significance
Cut I 2007 – Cut I 2006	4,80	6,15	78,04	-1,35^{00}
Cut I 2008 – Cut I 2006	7,90	6,15	128,45	1,75**
Cut I 2008– Cut I 2007	7,90	4,80	164,58	3,10***
Cut II 2007 – Cut II 2006	0,85	1,80	47,22	-1,05^{0}
Cut II 2008 – Cut II 2006	2,40	1,80	133,33	0,60
Cut II 2008– Cut II 2007	2,40	0,85	282,35	1,55**

$DL_{5\%}$=0,75 t/ha $DL_{1\%}$=1,15 t/ha $DL_{0,1\%}$=1,88 t/ha

In which it regards the productions of L.m. (50 %) + T. i. (50 %) mixture, even at this one the biggest productions have been obtained in year 2008, with an average production of 7,9 t/he D.M.

In which it regards the second cut, in all experimental years have been obtained very small productions in comparison with first cut, but bigger than in case of L.m (75 %) + T.i. (25 %) mixture, this thing due to higher percentage of Crimsom clover in mixture.

Table 3

The comparison of experimental years for each cut under the aspect of dry matter production at L.m (25%) + T.i. (75 %)

Experimental years	Averages		Relative values (%)	The difference / Significance
Cut I 2007 – Cut I 2006	3,30	4,40	75	-1,10
Cut I 2008 – Cut I 2006	5,1	4,40	115,9	0,70
Cut I 2008– Cut I 2007	5,1	3,30	154,54	2,90**
Cut II 2007 – Cut II 2006	1,1	1,9	57,89	-0,80
Cut II 2008 – Cut II 2006	2,55	1,9	134,21	0,65
Cut II 2008– Cut II 2007	2,55	1,1	231,81	1,45*

$DL_{5\%}$=1,29 t/ha $DL_{1\%}$=2,09 t/ha $DL_{0,1\%}$=3,76 t/ha

From the analyze of table 3, it can be observed that in which it regards the productions of L.m. (25 %) + T.i. (75%) mixture, the biggest productions have been obtained in year 2008, at first cut and at second cut.

Also, it can be observed that at the second cut in all experimental years have been obtained the highest productions from all the mixtures types, this thing due to the raised

proportion of participation of Crimsom clover in the mixture and of very low production of Italian ryegrass.

CONCLUSION

From the comparative study of the experimental variants we conclude:

- In year 2008 have been obtained the biggest total production, at all experimental variants.
- The production distribution per cuts is different. The biggest production at the first cut have been enlisted at L.m. (50 %) +T.i. (50 %) mixture in year 2008 of 7,9 t/he D.M.
- At first cut the biggest production have been enlisted at L.m. (50 %) + T.i. (50 %) mixture in year 2008 of 7,9 t/he D.M., and the smallest production have been enlisted in year 2007 at L.m. (25 %) + T.i. (75 %) mixture, of 3,3 t/he D.M.
- At second cut the biggest production have been enlisted at L.m. (25 %) +T.i. (75 %) mixture in year 2008 of 2,55 t/he D.M. and the smallest production have been enlisted in year 2007 at L.m. (75%) + T.i. (25%) mixture of 0,4 t/he D.M.
- The smallest productions have been enlisted in experimental year 2007, also at first cut and at second cut, due to the drought from that year and to the low resistance of Italian ryegrass at drought conditions.

BIBLIOGRAPHY:

1. BOSWALL P., 2004 -Yield and composition of short term clovers grown alone and with Westerwolds ryegrass, PEI Agriculture, Fisheries and Aquaculture PO Box 1600, Charlottetown, PE C1A 7N3;
2. CIULCA S. – 2007, Metodologii de experimentare in agricultura si biologie, Ed. Agroprint, Timisoara
3. FULKERSON W. J. , NEAL J. S., CLARK C. F., HORADAGODA A., NANDRA K. S. AND BARCHIA I. 2008 - Nutritiv value of forage species grown in the warn temperate climate of Australia for dairz cows: Grasses and legumes. Livestock science, volum 107, pg. 253 – 264
4. MOISUC A., DUKIC D., 2002 Cultura plantelor furajere, Editura Orizonturi Universitare Timişoara, România,pg 50-52, 97-101.