

## THE STUDY OF ECONOMIC LIFE FOR EXPLOITATION AT THE PERENNIAL GRASSLAND LEGUMINOUS SEED LOTS

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### Abstract

*During the years 2005 -2006 have been taken in the study seed lots of Trifolium pratense and Medicago sativa in order to determine the possibilities of extending the economic life of their exploitation. In terms of dry substance production obtained at the first cut, at the two species studied result a higher production from Medicago sativa compared with Trifolium pratense and between levels of fertilization were not significant differences.*

*Regarding seed production obtained on average 2 years, optimum fertilization variant was  $P_{80} K_{80}$  in both species taken in the study.*

*Between dry substance production (tonnes per hectare) and the number of vegetative layers per unit area, respectively seed production (kilograms per hectare) and number of generative layers per unit area, has resulted a very significant positive correlation at the two species studied.*

*Economic efficiency recorded on the two seed lots, can say that Medicago sativa can be maintained in culture until the 5th year of vegetation and under optimal fertilization in the 3rd year of vegetation Trifolium pratense worth maintain in culture for a minimal profit.*

**Key words:** perennial grassland leguminous, seed lots, economical efficiency, seed.

### INTRODUCTION

Ensuring animal feed base is necessary to establish some important areas of seed lots for seed sown species in perennial grassland leguminous, seed lots that will provide seeds for the establishment of forage crop.

Extend their economic exploitation is an important goal in order to improve the cultivation of perennial grassland leguminous for seed.

While seed lots of perennial leguminous grassland are an important source of nectar and pollen for beekeeping, bees are an important pollinator and the main factor of maximizing yields production of perennial leguminous seeds.

### MATERIAL AND METHODS

Experiments were installed in spring 2005 using the method blocks on seed lots of *Medicago sativa* (fourth year of vegetation) and *Trifolium pratense* (second year of vegetation). Seed lots were planted at a distance of 25 cm between rows with a complex aggregate "Amazonia" composed of cutter rotary drill, roller having a working width of 3 m and the unit being worn by a 140 hp John Deere tractor. Standard of sowing was 12 kg useful seed / ha. In spring fertilization was performed and in early June was

harvested first cut for green table, followed by sewing the second harvest for seed. At the 2nd cut was used foliar fertilization and three micronutrients foliar treatments (before buds, at the beginning and mid of flowering ). Also after harvesting the first cut for feed use, was conducted an herbiciding with Fusilade (antigramineous) 1.5 l / ha and Pivot (antidycotiledons).

#### EXPERIMENTAL FACTORS

A - fertilization ;

a<sub>1</sub> - P<sub>0</sub>K<sub>0</sub> ;

a<sub>2</sub> - P<sub>30</sub>K<sub>30</sub> ;

a<sub>3</sub> - P<sub>60</sub>k<sub>60</sub> ;

a<sub>4</sub> - P<sub>80</sub>k<sub>80</sub> ;

a<sub>5</sub> - P<sub>100</sub>K<sub>100</sub> ;

a<sub>6</sub>—foliar fertilizer+micronutrients(copper, molybdenum)

In order to study the possibility of extending the economic life of exploitation in old seed lots of perennial grassland leguminous for seed, economic efficiency was calculated for year 2006 (3rd year red clover and 5th year lucerne ). Data from the process charts were those obtained using optimal productions: hay from first cut, seed from the 2nd and straw of hay for each of the species studied, but prices for materials and farming were those used in the usual practice in agriculture.

Experimental data obtained in the field were processed in the laboratory and interpreted by modern methods of calculation.

#### RESULTS AND DISCUSSION

Considering the dry matter production of the first cut obtained from the two species studied results a higher production value from *Medicago sativa* species in comparison with *Trifolium pretense* and between variants of fertilization were not significant differences. Regarding seed production achieved on average 2 years, was the best choice P<sub>80</sub>K<sub>80</sub> fertilization in both species taken in the study (Fig. 1).

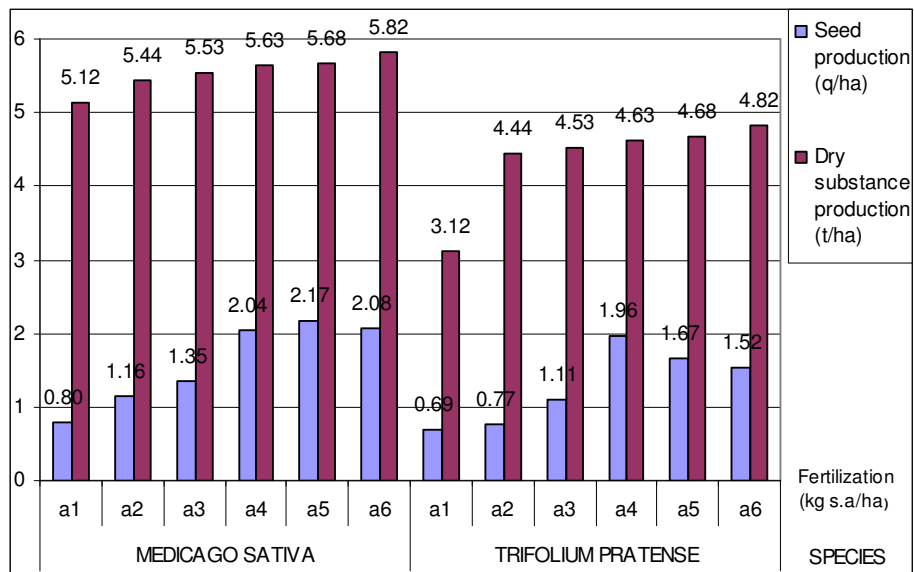


Fig. 1: Production of dry substance (1st cut) and seed production (2nd cut) at different levels of fertilization in seed lots of perennial grassland leguminous (*Medicago sativa*-average 4,5 years of vegetation and *Trifolium pratense* average 2,3 years of vegetation Jucu-Cluj 2005-2006).

Between dry substance production (tonnes per hectare) and the number of vegetative layers per unit surface caused a very significant positive correlation in the two species studied (Figure 2).

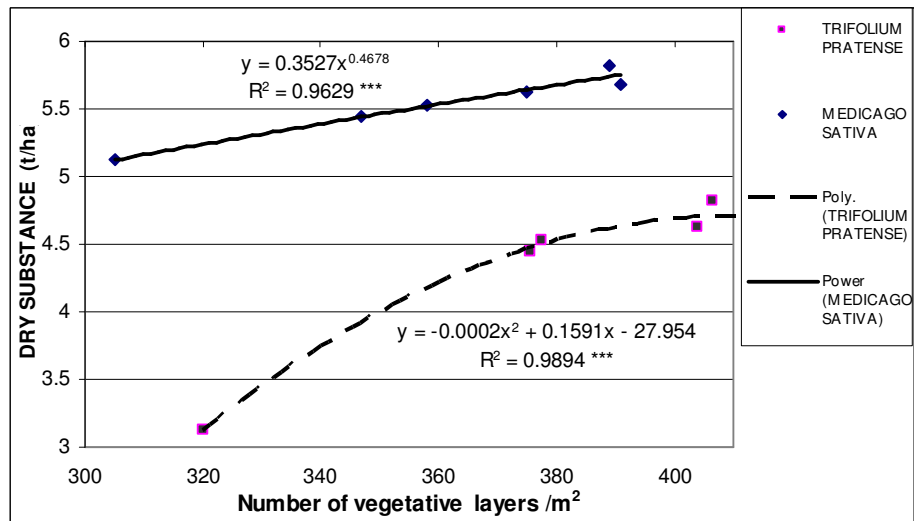


Fig. 2 Correlation between seed production (t/ha) and the number of vegetative layers /m<sup>2</sup> two years average at the species *Trifolium pratense* and *Medicago sativa*.

Also, between seed production (kilograms per hectare) and number of generative layers to the unit area was calculated very significant positive correlation in red clover and lucerne (Figure 3).

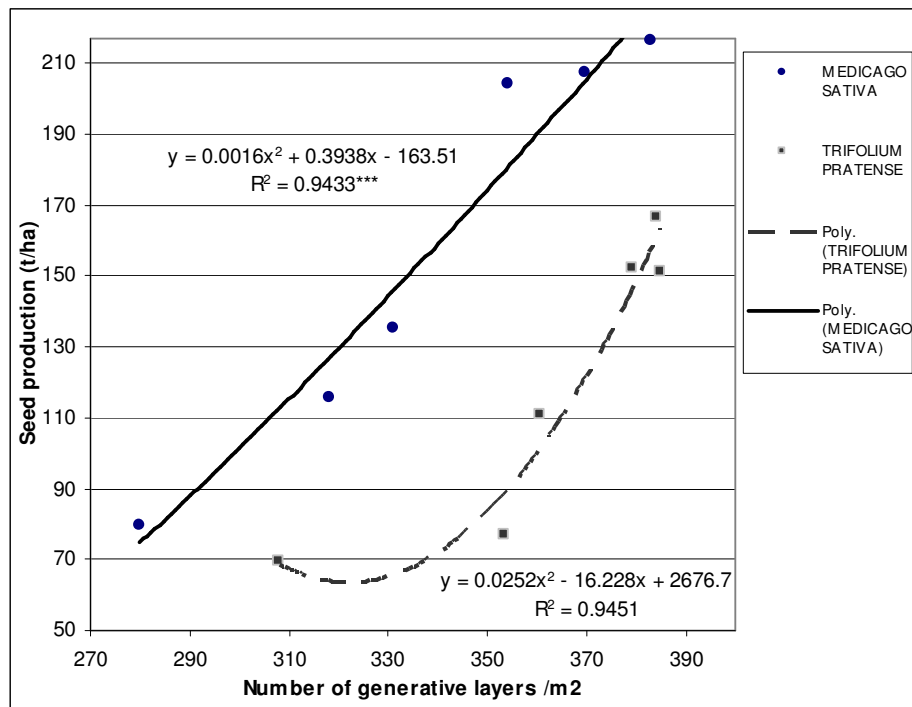


Fig. 3 Correlation between seed production (t/ha) and the number of generative layers /m<sup>2</sup> two years average at the species *Medicago sativa* and *Trifolium pratense*(Jucu 2005-2006)

In order to study the longer economic to operate red clover and lucerne seed lots was calculated their economic efficiency in the third year of vegetation in red clover and lucerne fifth year taking into account the optimal yields obtained respectively: the first cut hay , seed second cut and straw of hay production in each species studied presented in Figure 4.

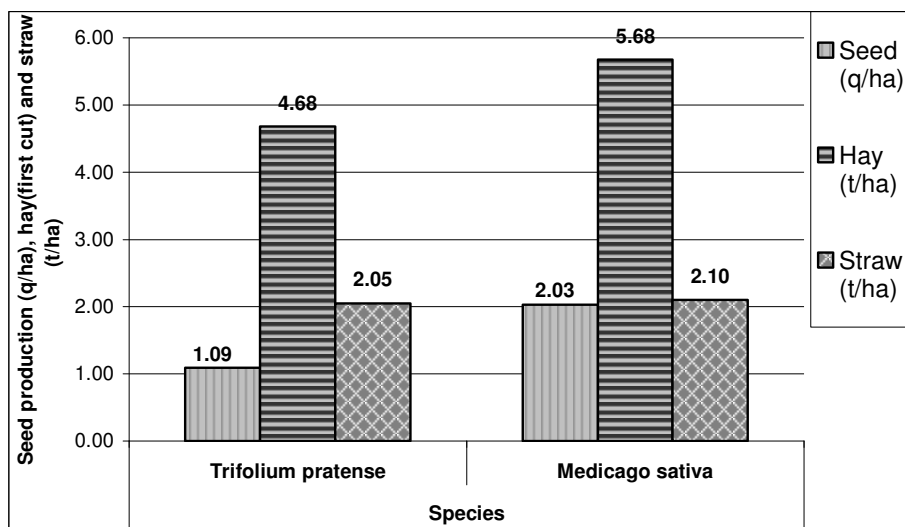


Fig. 4 Seed production(2<sup>nd</sup> cut), hay(1<sup>st</sup> cut) and straw of hay obtained from perennial grassland leguminous studied in the 3<sup>rd</sup> year of vegetation for *Trifolium pratense* and the 5<sup>th</sup> year for *Medicago sativa*, Jucu-Cluj 2006

Considering economic efficiency recorded, it can be said that the lucerne seed lot can be maintained in culture in the fifth year of vegetation, red clover seed lot in the 3<sup>rd</sup> year worth maintained in culture with an optimal fertilization for an minimal profit in which case the seed production is not less than 105 kg (Figure 5).

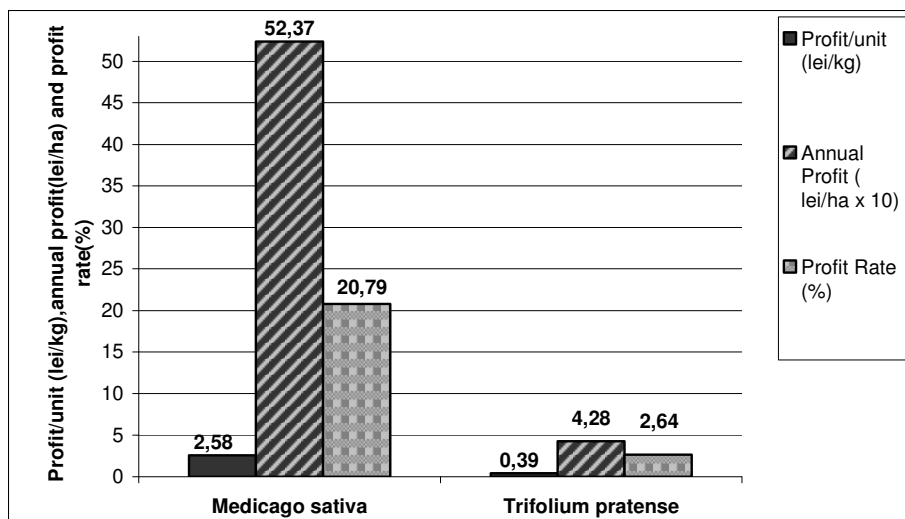


Fig. 5 Economic efficiency of perennial grassland leguminous for the species *Trifolium pratense*(3<sup>rd</sup> year) and *Medicago sativa* (5<sup>th</sup> year) (Jucu-Cluj 2006)

## CONCLUSION

1. Taking into account the dry matter production of the first sewing obtained from the two species studied to see a higher yield from lucerne in comparison to red clover, when in the same time between variants of fertilization were not significant differences.

2. Regarding seed production obtained on two year average, the best option was fertilization with  $P_{80}K_{80}$  in both species studied.

3. Between dry weight production (tonnes per hectare) and the number of vegetative shoots per unit surface caused a very significant positive correlation in the two species studied.

4. Also, between seed production (kilograms per hectare) and number of generative layers to the unit area was calculated very significant positive correlation in red clover and lucerne.

5. Considering economic efficiency recorded, it can be said that the lucerne seed lot can be maintained until the 5<sup>th</sup> year of vegetation, and red clover seed lot with an minimum profit but worth maintained in culture even in the 3<sup>rd</sup> year in terms of optimal fertilization, in which case the seed production is not less than 105kg.

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