# RESEARCH ON BIOLOGICAL ASPECTS AND TECHNOLOGICAL FACTORS AFFECTING SEED PRODUCTION IN PERRENIAL LEGUMINOUS FOR GRASSLAND

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***Abstract:*** *The purpose of the research was to improve the crops technology of perrenial grassland leguminous by optimizing technological elements in interdependence with specific biological aspects of the new varieties. Four species of perennial grassland leguminous were taken in the study namely Medicago sativa Satelit variety , Trifolium pratense Select 1 variety, Onobrychis vicifolia Splendid variety and Lotus corniculatus Alina variety. Research directions discussed in the paper were: -the timing of optimal seeding for the perennial leguminous species taken in the study to obtain high seed production and reduce the period of entry into production of perennial leguminous seed lots from 2 years to 1 year; -determinate the influence of fall-spring grazing by animals of seed lots of perennial leguminous grassland on their seed production; -the study of first cut time on seed production and quality issues in interdependence with the fructification biology of perennial grassland leguminous; -study the influence of roller work in seeding the seed production for the perennial leguminous species of grassland; -determining the distance of seeding between rows, the seed quantity and optimum fertilization of perennial leguminous species of grassland; -determining the optimal duration of exploitation for the seed lots of perennial leguminous grassland; -the influence of technological elements applied to installed nodules in living bacteria of the genus Rhizobium on roots of perennial grassland leguminous. Research results can be applied in developing sectors of agricultural development and research stations and private farms producing seed having similar climatic conditions Transylvania area Practical implementation of results reduces the costs of establishing and operating of the perrenial forage grassland crops with 25-30 % and can extend their economic exploitation by 1-2 years depending on the species.*

***Key words:*** *seed, perennial leguminous, technology*

## INTRODUCTION

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

Four species of perennial grassland leguminous were taken in the study namely Medicago sativa Satelit variety , Trifolium pratense Select 1 variety, Onobrychis vicifolia Splendid variety and Lotus corniculatus Alina variety. These species were discussed in terms of time of sowing trials (spring, autumn), different ways of preparing the germination bed, the optimization of technological elements (planting distance between rows, seeding rate and fertilization rule) and how to install the nodules after emergence. First cut to harvest before blooming and second cut for seed when 85% of seeds were maturated using reaper Wintersteiger. In the field was weighed to sew a green table at the first cut , average samples

were taken which were analized in the laboratory.The results of analysis were processed by modern methods of calculation.

**RESULTS AND DISCUSSION**

The research took place at USAMV Cluj Field Jucu a clay mold poorly supplied in phosphorus, well supplied in potassium situated on the small meadow of Small Somes river at 297 m altitude, experimental years (2005 and 2006) were years with average production favorability seeds. Analyzing the number of nodules / plant in 60 days from emergence (Fig. 1) is found that the highest number was obtained at the loti and the lowest at sainfoin, installation nodules on the roots were favored by 25 or 50 remote seeding cm between rows, seeding with a norm and a moderate fertilization.

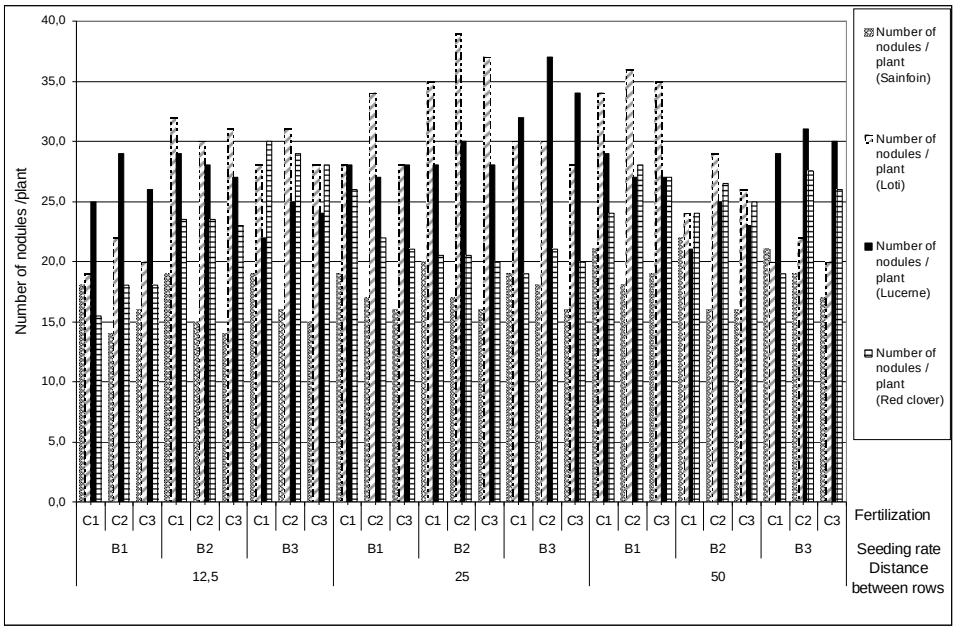


Figure 1 Number of nodules / plant depending on planting distance between rows, seeding rate and fertilization rule applied

Delayed seeding red clover in spring (Fig. 2) induces a very significant decrease of seed production one can get to reach compromise culture if late fall seeding after the first decade of September. It is remarkable that we obtain similar production of seed in the fall for the seeding year and in the second year of vegetation in spring, as it reduces production time to enter the seed lots from 2 years to 1 year.

It was found distinctly significant positive correlation between the number of vegetative layer per unit area and dry matter production in red clover mowing at the first cut (Fig. 3)**.**

Rollers use in preparing the germination bed for perennial leguminous bring significant increases seed production (Fig. 4). Germination bed to prepare optimal variant of leguminous seed lots is using annular roller before sowing and plain roller after sowing the loti, lucerne and red clover ring that use Rollers to sainfoin before and after sowing.

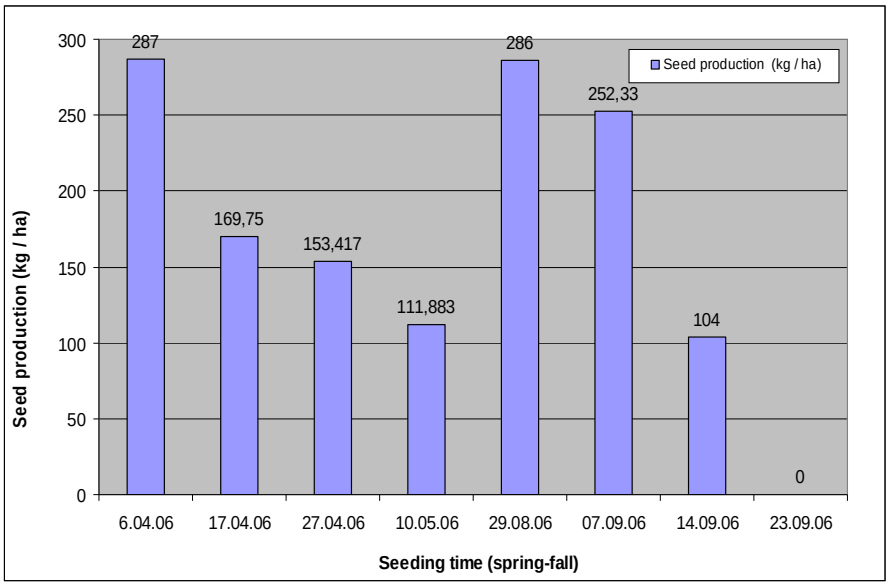


Figure 2.Influence of seeding time (spring - fall) on seed production (kg / ha) at the species Trifolium pratense

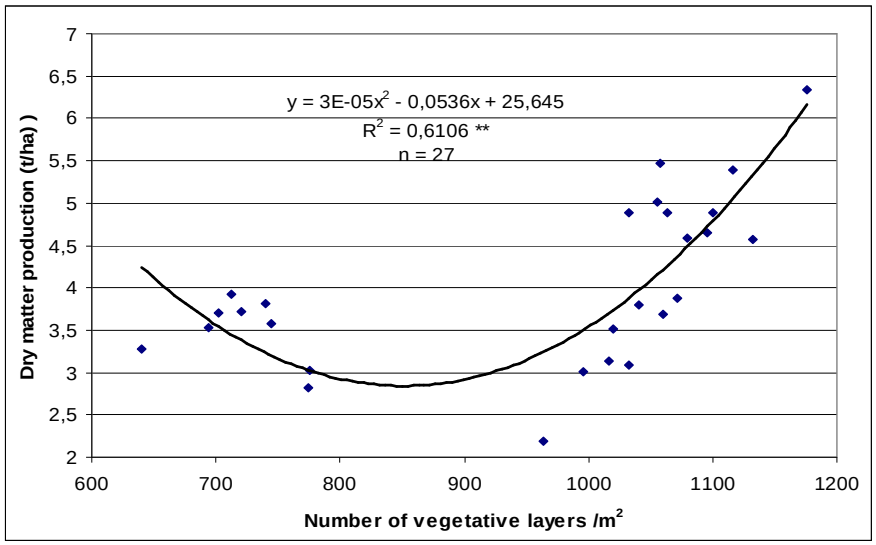


Figure 3 Correlation between dry matter production (t/ha) and number of vegetative layers at the first cut for the species Trifolium pratense

Between seed production and number of heads in red clover for the square meter was calculated separately significant positive correlation (5 Fig).

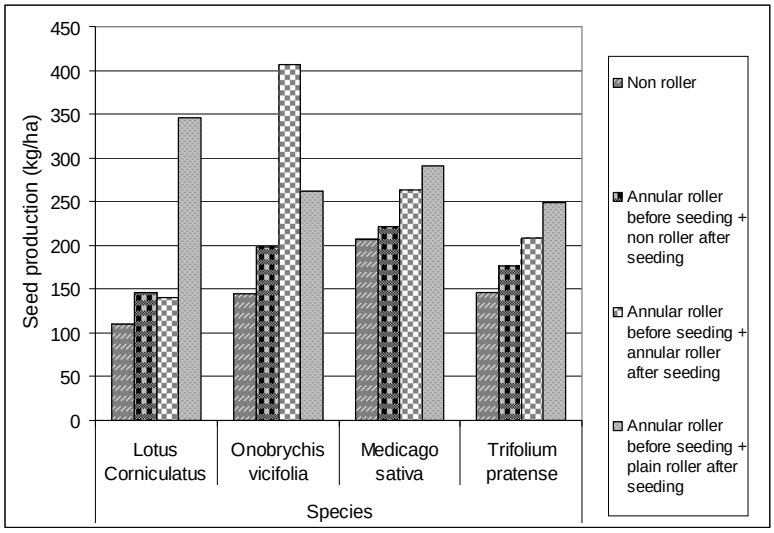


Figure 4 Rolling of the ground influence in preparing the germination bed on seed production

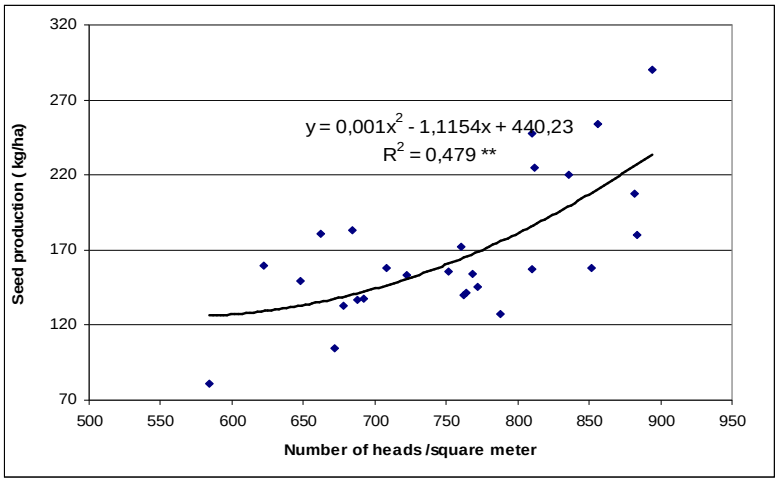


Figure 5 Correlation between seed production and number of heads from the red clover for the square meter at the species Trifolium pratense

## CONCLUSIONS

1. Installation nodules on the roots were favored by 25 or 50 remote seeding cm between rows, seeding with a norm and a moderate fertilization.
2. We obtain similar production of seed in the fall for the seeding year and in the second year of vegetation in spring, as it reduces production time to enter the seed lots from 2 years to 1 year.
3. It was found distinctly significant positive correlation between the number of vegetative layer per unit area and dry matter production in red clover mowing at the first cut

4. Germination bed to prepare optimal variant of leguminous seed lots is using annular roller before sowing and plain roller after sowing the loti, lucerne and red clover ring that use Rollers to sainfoin before and after sowing.
5. Between seed production and number of heads in red clover for the square meter was calculated separately significant positive correlation

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