

## CONTRIBUTIONS ON THE IMPROVEMENT OF AGROTEHNICAL METHODS OF LAND PREPARATION, IN VIEW THE ESTABLISHMENT OF TEMPORARY MEADOWS

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### ABSTRACT

*Perennial forage crops are very demanding to the quality of soil work, a requirement motivated primarily by the need to incorporate the seed at shallow depths, where it is necessary to maintain favorable soil moisture conditions throughout the germination period. It turned out that plowing at 24-25 cm in autumn and in the spring 1-2 threads, the last work in the ring roller, would be the best way to influence a meadow. The results showed that achieve large productions of over 9 tha su and with favorable economic effects.*

### INTRODUCTION

By properly executing the basic soil works, its volume increase by 20-35%, water storage capacity also increasing proportionally. (Moga, I. and al., 1983)  
The quality of the shift has a decisive influence on the production of perennial crops. That is why it is required that its execution is done at a moisture content of the soil that allows a good overturning and crushing of the furrow. (Cotigă C. 2003; Cotigă C. 2012)  
In the spring, the preparation of the germination bed is advisable to start only at the time which soil is good. (Bărbulescu C.; Motcă Gh., 1987)

### MATERIAL AND METHOD

The experiments were placed on the luvisol from S.C.D.A. Șimnic-Craiova, in the spring of 2020. The newly established temporary meadow had in its composition 60% perennial grasses and 40% perennial fodder legumes.

An experiment aimed at the effect of soil work on the production of temporary grassland, with the following graduations:

- a1 - plowing at 24-25 cm (autumn) + discussed 1-2 works, the last in the aggregate with the annular roller (spring before sowing)
- a2 - 24-25 cm (autumn) + combinator 1-2 works (spring before sowing)
- a3 – plowing at 24-25 cm (autumn) + discussed 1-2 works with disc in the unit with harrow with adjustable fangs (spring before sowing)

Another experiment focused on the effect of roller work on production on the newly established temporary meadow and included the following graduations:

- a1 - unrolled
- a2 - rolled after sowing
- a3 – rolled before sowing
- a4 – rolled before and after sowing.

In both experiments the fertilization system P<sub>50</sub> N<sub>120</sub> was adopted for the newly established meadow, with the application of azot sew.

The meadow was harvested in hay.

## RESULTS AND DISCUSSION

If we refer to the way of preparing the soil for the establishment of temporary meadows in arable land and its effect on productivity, respectively the persistence of a well-closed plant carpet, the data in table 1 show the following

Table 1

### The effect of the type of perennial herb mixture and nitrogen doses on d.s. (t / ha) 2021

Soil preparation works	ABSOLUTE PRODUCTION	RELATIVE PRODUCTION%	DIFFERENCE
plowing at 24-25 cm (autumn) + discussed 1-2 works, the last in the aggregate with the annular roller (spring before sowing)	9,3	100	-
24-25 cm (autumn) +combinator 1-2 works (spring before sowing)	9,1	98	-0,2
plowing at 24-25 cm (autumn) + discussed 1-2 works with disc in the unit with harrow with adjustable fangs (spring before sowing)	8,21	88	-1,1

- depending on the variants studied, the production of d.s. of the meadow ranged from 8,2 t / ha d.s. to the variant: plowing at 24-25 cm (autumn) + discussed 1-2 works with the disc in the unit with the harrow with adjustable fangs (spring before sowing), respectively 9,3 t / ha d.s. for the variant: plowing at 24-25 cm (autumn) + discussing 1-2 works, the last in the aggregate with the annular roller (spring before sowing);
- a fairly high level of production, namely 9,1 t / ha d.s. it was also obtained in the variant: plowing at 24-25 cm (autumn) + combine 1-2 works (spring before sowing); this way of preparing the soil, was more efficient as we could see compared to the variant: plowing at 24-25 cm (autumn) + discussed 1-2 works with the disc in the unit with the harrow with adjustable fangs (spring before sowing).

From the analysis of the results presented in table 2, regarding the effect of the roller work on the production of d.s. at the temporary meadow, the following are found:

Table 2

**The effect of the rolling work on the production of temporary meadows established in arable land (2021) t/ha d.s.**

SPECIFICATION	ABSOLUTE PRODUCTION	RELATIVE PRODUCTION%	DIFFERENCE	SIGNIFICANCE
unrolled	6,1	100	Mt	-
rolled after sowing	7,4	121	1,3	*
rolled before sowing	8,9	146	2,8	***
rolled before and after sowing	8,7	143	2,6	***

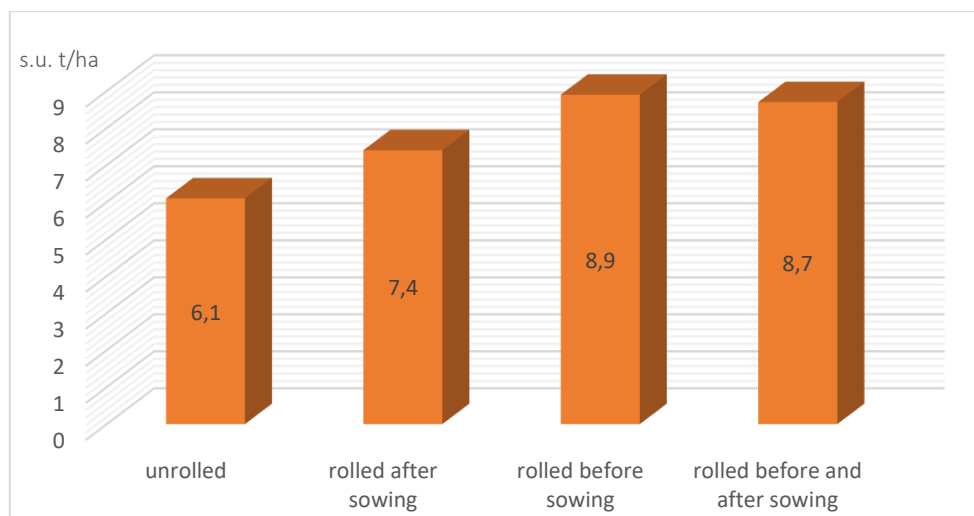
DL 5% 0,91 t/ha d.s.

DL 1% 1,7 t/ha d.s.

DL 0,1% 2,6 t/ha d.s.

- depending on the variants studied, the production of d.s. oscillated between 6,1 t/ha d.s. in the unrolled variant and considered as a control, respectively 8,9 t/ha d.s. in the case of the variant rolled before sowing, in which case the maximum yield increase of 2,8 t/ha d.s. compared to the witness, very statistically significant;
- also a very significant increase in production of 2,6 t/ha d.s. was also obtained in the variant rolled before and after sowing when the harvest reached the value of 8,7 t/ha d.s.;
- a significant increase in production, namely 1,3 t/ha d.s. corresponding to a harvest of 7,4 t/ha d.s. was performed on the variant, rolled after sowing (Fig. 1)

The separate influence of the type of mixture studied on the production of d.s. (Fig.1.) highlights the superiority of the alfalfa-based mixture (*Medicago sativa*) which gave 6,2 t/ha d.s. and a distinctly significant increase over the witness considered.



**Fig.1. The effect of rolling work on the production of d.s. at the temporary meadow (2021)**

## CONCLUSIONS

1. In the conditions in which the springs are deficient in precipitations, the plowing work (autumn) + discussed 1-2 works, the last work with the ring roller (spring) is the most indicated.
2. Pretty good results can be obtained if the soil is plowed in autumn at 24-25 cm depth and in spring before sowing 1-2 works are performed with the combine.
3. Roughing before sowing is an essential method in the case of setting up temporary meadows, because it ensures a uniform sunrise, the seed being incorporated at shallow depth in the soil.

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