RESEARCHES ON THE APPLYING TIME OF FERTILIZERS AND THEIR TYPE ON SOWN PASTURES FROM CENTRAL AREA OF OLTENIA

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ABSTRACT

Proper use of fertilizers on pastures assumes the detailed knowing of technical aspects related with the type of the fertilizer, the combination, the rate, the splitting, the time of applying, all these things making the object of extensive researches. Regarding the chemical fertilization, on sown pastures there can be used, both, simple fertilizers (ammonium nitrate, nitrocalcar, superphosphate, potassium salt, etc.) and complex ones in different formulas.

INTRODUCTION

The need of fertilizers on sown pastures results from the high quantities of nutrients that are extracted by crops each year. In this respect there is well known that for a ton of dry matter are extracted from the soil, on average, 20-23 kg N, 3-4 kg P and 20-25 kg K (Hera Cr. et al., 1980; Moga I. et al., Pop M. 1984). There results that with the intensification of production the quantum of exported nutrients reaches substantial values proving that the soil natural reserve is not sufficient (Cotigă C. 2012).

MATERIAL AND METHOD

The researches have been carried out on the luvisoil from ARDS (Agricultural Research and Development Station) Simnic within 2015-2017 period. The biological material needed for establishing the experiment has been bought from INCDA Fundulea, respectively, ARDS Caracal.

The grasses mixture consisted of: Medicago sativa 40 % + Dactylis glomerata 20 % + Festuca arundinacea 20 % + Lolium perene 20 %.

RESULTS AND DISCUSSIONS

The experimental results obtained and presented in table 1 that refers to the influence of the time of applying of the first dose of nitrogen on the yield of the sown pasture shows that, on average for three years, the yield level has oscillated between 6.84 t/ha dry matter (d.m.) with the case of applying of the first dose of nitrogen at the end of the vegetation period (October) and 8.15 t/ha d.m. when the applying was made on frozen soil (February). A significant yield was obtained at the beginning of the vegetation period (march), namely, 7.68 t/ha d.m. (table 1).

Table 1

The influence of the time of applying of the first nitrogen dose on the yield of sown pasture on the luvisoil from ARDS Simnic (average of three years)

Time of applying	Yield t/ha s.u.	Yield %	Difference	Significance
The end of the vegetation period (october)	6.84	100	-	-
On frozen soil (February)	8.15	119	1.31	xx
At the begining of vegetation (March)	7.68	112	0.84	x

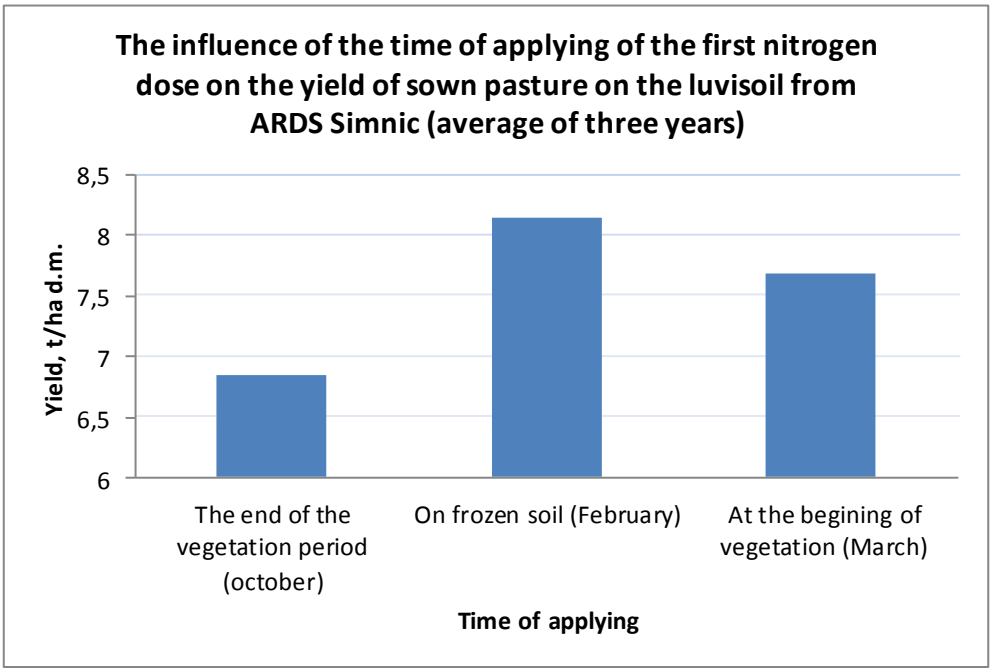

Figure 1. The influence of the time of applying of the first nitrogen dose on the yield of sown pasture on the luvisoil from ARDS Simnic (average of three years)

According to these results yet to observations made during the three years experiment the best time of applying the first dose of nitrogen is on frozen soil in order not to destroy the freshly grown vegetation.

The applying of the first nitrogen dose at the end of the vegetation period can be recommended because of incomplete use of fertilizer in improper temperature and rainfall.

Often, the yield of fertilized sown pastures does not reach the expectations because of imbalanced ratios between macronutrients involved in the growing process (N, P, K).

In this respect, if we analyze the results obtained and presented in the table 2 on the influence of the fertilizer type and the time of applying of the first nitrogen dose on the pasture yield of dry matter we can conclude:

- the highest outputs of yield have been recorded by the applying of nitrogen fertilizer upon frozen land (February) both of first nitrogen dose (8.34 t/ha d.m.) and complex fertilizers of 20:20:0 (8.12 t/ha d.m.);

- good results have been obtained with the applying of fertilizers when the vegetation started to grow (March), too. They were 7.49-7.56 t/ha d.m.) in function of the type of fertilizer;

Table 2

The influence of the fertilizer type and the applying time on the sown pasture yield on luvisoil from ARDS Simnic (average of three years)

Treatment		Yield t/ha s.u.	Yield %	Difference
Applying time	Fertilizer type			
The end of the vegetation (october)	Ammonium nitrate	6.86	100	-
	Complex fertilizer of 20-20-0 type	6.78	99	0.08
Upon frozen soil (February)	Ammonium nitrate	8.34	122	1.48
	C20-20-0	8.12	118	1.26
At the beginning of vegetation (March)	Ammonium nitrate	7.56	110	0.70
	C20-20-0	7.49	109	0.63

CONCLUSIONS

Complex fertilizers have, practically, the same effect as simple fertilizers yet the most recommended are complex fertilizer of 20:20:0 type which is the most indicated for pastures both as regard the composition and the ratio between elements.

The applying of complex fertilizers has other positive implications, as: it economically sound, reduced storage volume, the applying is easy and uniform.

Regarding the applying time of the first nitrogen dose on pastures there is recommended to be applied during february upon frozen soil in order to capitalize soil moisture that was accumulated during winter time.

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