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"Young people and multidisciplinary  
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## Research on the influence of nitrogen doses and variety on the production of spring two-rowed barley (conv. *Hordeum distichum*) in the Western part of the country

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**Abstract:** The main objective of the research was to bring a contribution in determining the influence of doses and of the variety on production, leading to the achievement of economically efficient harvests with superior quality attributes. The effect of nitrogen doses, and of the variety on spring two-rowed barley, has been tested in a bifactorial experience, located on a cambic chernozem soil, phreatic moist.

The results point out that nitrogen fertilization has influenced production, the highest value of 2733 kg/ha was obtained by the N100 fertilization variant, with a production increase of 8 % compared to the control variant N40 (2532 kg/ha), and a harvest difference of 201 kg/ha, statistically ensured as a significant. By increasing the nitrogen dose from N40 to N80 production increased by 7%, with a significant harvest difference between the two variants of 196 kg/ha.

### • Introduction

Cereal cultivation is a basic source of food for the population and the animals raised by man, being spread over an area of 760 million ha, which represents 50% of the arable land of our planet. (Pirsan P, 2005) With the exception of Antarctica, cereals are grown basically on all continents, their distribution being influenced by ecological and economic-historical factors. Major grain crops produced around the world are: wheat, rice, corn and barley. (Chaven and Kadam, 1989).

There are concentrations of certain cereal crops on continents such as: Europe and North America producing 70% of the world's wheat production, monsoon Asia producing 90% of the world's rice production, and North and South America providing 60% of the world wide maize's production.

It is currently not possible to conceive a production at the level of the productive potential of the varieties, without the application of high doses of fertilizers.

### • Material and method

The research was carried out on the territory of the Didactic Station of the Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara.

The main objective of the research was to bring a contribution in determining the influence of doses and of the variety on production, leading to the achievement of economically efficient harvests with superior quality attributes.

The effect of nitrogen doses, and of the variety on spring two-rowed barley, has been tested in a bifactorial experience organized according to the subdivided parcel method with the following experimental factors.

**Factor A – total nitrogen dose (Kg/ha) with gradations:**

- a1 - N40
- a2 - N60
- a3 - N80
- a4 - N100

**Factor B - variety, with gradations:**

- b1- Annabell
- b2- Crystalline
- b3- Compact

### • Results and discussions

A factor Nitrogen dose	B factor Variety		
	Annabell	Cristalia	Kompakt
N40	2422	2532	2643
N60	2478	2588	2699
N80	2589	2699	2811
N100	2617	2727	2839

B factor means			
Specificare	Annabell	Cristalia	Kompakt
Produsie kg/ha	2526	2637	2772
%	100	103	105
Diferenta		111	246
Semnificatia			XX

DL 5% = 112; DL 1% = 185; DL 0,1% = 345

Table 1. Results on the influence of nitrogen doses and variety on production

A factor Nitrogen dose	B factor Variety		
	Annabell	Cristalia	Kompakt
N40	10,84	10,74	10,45
N60	11,20	11,00	10,71
N80	11,73	11,52	11,21
N100	11,86	11,65	11,35

B factor means			
Specificare	Annabell	Cristalia	Kompakt
Conținutul de proteină %	11,43	11,22	10,92
%	100	98	96
Diferenta		-0,23	-0,51
Semnificatia			00

DL 5% = 0,10; DL 1% = 0,25; DL 0,1% = 0,80

Table 2. Results on the influence of nitrogen doses and variety on protein content (%)

A factor Nitrogen dose	B factor Variety		
	Annabell	Cristalia	Kompakt
N40	60,27	60,76	61,54
N60	61,50	62,00	62,80
N80	63,86	64,48	65,31
N100	64,58	65,10	65,84

B factor means			
Specificare	Annabell	Cristalia	Kompakt
Conținutul de amidon %	62,57	63,08	63,89
%	100	101	102
Diferenta		0,51	1,32
Semnificatia			X

DL 5% = 0,54; DL 1% = 1,21; DL 0,1% = 3,86

Table 3. Results on the influence of nitrogen doses and variety on starch content (%)

### • Conclusions

Nitrogen-fertilization influenced production, the highest value of 2733 kg/ha was obtained in the N<sub>100</sub> fertilization variant, with a production increase of 8 % compared to the control variant N<sub>40</sub> (2532 kg/ha), with a harvest difference of 201 kg/ha, statistically ensured as a significant. By increasing the nitrogen dose from N<sub>40</sub> to N<sub>80</sub> production increased by 7%, with a harvest difference between the two variants of 201 kg/ha.

From the data presented on the protein content obtained under the conditions of Timisoara, it appears that the lowest value of the protein content was obtained in the fertilization variant N<sub>40</sub>, in the Kompakt variety (10.68%), followed by the Cristalia variety (11.07 %) and the Annabell variety (11.39 %).

The main conclusions that emerge from the scientific paperwork, bring an added originality in terms of fertilization and the adaptability of some varieties of spring two-rowed barley, representing a viable source of information for spring two-rowed barley growers, who want to obtain high productions, but also qualitative.