

## RESERCHS ON PRODUCT ABILITY TO THE 4 WINTER WHEAT VARIETIES BY APPLICATION OF CERTAIN CULTIVATION TECHNOLOGIES, IN CONDITIONS OF ARAD COUNTY

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**Abstract:** *Within the frame of the demographic blow-up in the 2nd half of the 20th century, the global deficit in human alimentation has become progressively acute, concurrently with the extension of malnutrition on continously expanding areas. Given the crucial contribution of cereals in order to provide food, mankind has largely focused upon several cultures: wheat, rice and maize (AHRENDIS J., 1995). In this order, the importance of wheat for human food, livestock nutrition and as raw material in industry, is undeniable. Wheat is of great importance as food product, providing a large extent of the carbohydrates and proteins necessary to humans, and more than half of the calories consumed by mankind (ALEXA ERSILIA, 2004). The shapes under which wheat is used in man's food are very diverse, bread being the most common of them. In fact, there is no other food product to meet the man's nourishing needs as economically as wheat flour bread does. Taking into account both its economic importance and the special role in human nutrition, the main tendency nowadays and in future is to increase the world production. In addition to this direction, other tendencies become more strongly contoured, such as introducing into production varieties with a high protein content, with increased nutritional value, as well as cultivating superior quality bread grains (ADAM AL., 2000). Although yield performance and end-use quality are important traits to consider when selecting winter wheat varieties, other traits should be considered as well. These include winterhardiness, pest and disease resistance, herbicide tolerance, maturity, and plant height. There is no one perfect wheat variety for every location, but it is possible to use varietal trait information to select the best available varieties for a given location or expected conditions. In order to minimize production risks and maximize the chances for optimal economic returns, it is best to grow several varieties. On the basis of the above, the present study has aimed to evaluate certain varieties of local autumn wheat in terms of yield quality and baking characteristics, under the influence of graduate mineral fertilization.*

**Key words:** *Wheat, varieties, cultivation, technology, production*

### INTRODUCTION

The wheat is one of the most important cereals and cultivated plants, which is taking up the biggest areas in the world. The wheat is having a special attention because of the high level of the carbohydrates and the proteins and of the relation between those substances suitable for the human body; for the bread industry and its varieties made it by flour and is the base food for the 35-45% from world population; because the grain of wheat could be kept for a long time and transported for the long distances with no tainted ; because of the cultivation possibilities on the different kind of climates (subtropical, mediteranean, oceanic, continental) providing satisfactory yields; because of the unlimited possibilities of agricultural mechanics, this mean a good and cheap production (GH. BILTEANU AND V. BIRNAUER, 1989).

### MATERIALS AND METHODS

The wheat seed used for tasting its have a high value, according with the actually standards. The wheat seed tasted for 3 years is from the same lot, not from the different lots or

years. The winter wheat varieties studied are: Ciprian (Statiunea de Cercetare-Dezvoltare Agricola Lovrin-Timis) Alex (Statiunea de Cercetare-Dezvoltare Agricola Lovrin-Timis), Boema (I.N.C.D.A.-Fundulea) si Glosa (I.N.C.D.A.-Fundulea).

The wheat native varieties testing for the maximum production is established for three effective production cycles, with no interruption including the 3th year.

The agricultural experience studied is bifactorial, where A factor is represented by the 4 winter wheat varieties and B factor is represented by the germinables grains in one square meter: 200 germinables grains/m<sup>2</sup>; 400 germinables grains/m<sup>2</sup>; 600 germinables grains/m<sup>2</sup>; 800 germinables grains/m<sup>2</sup>.

At the end of the experimental cycles in the three years, it will be able to make references and recommendations, for choosing those wheat varieties for the best according with the pedoclimatics resources in the Curtici-Arad area and the biological particularities of the soil like an essential condition for the big and stable yield.

## RESULTS AND DISCUSSIONS

### **The winter wheat varieties tested in the Curtici-Arad conditions obtained according to the cultivated varieties in the experimental year 2009-2010**

The production potential of the wheat varieties cultivated in Romania is about 8-10 t/ha. This potential satisfied the requirements of one of the intensive cultivation (BILTEANU GH., 2003).

In figure 1 are the results of the wheat varieties according to the sowing variety, where the A factor is the sowing variety.

For the agricultural experience, in 2010, in the Curtici-Arad area, the productions obtained for the winter wheat varieties sowed, it has the next particularities: the highest production is for the Boema variety with an average with 5077 kg/ha, followed with **Alex** variety with an average of 4926 kg/ha, and the Glosa variety with 4893 kg/ha. The production results for 2010 in the Curtici-Arad area are considered to be the good ones.

### **The winter wheat varieties productions obtained according to the sowing density for the experimental year 2009-2010 to Curtici-Arad**

The B factor is represented by the sowing density (bg/m<sup>2</sup>) which present the 4 graduation experiment plan.

In figure 2 is a graphical average wheat productions obtained in according to influence of the sowing density in 2010, to Curtici-Arad. The highest average production, 5459 kg/ha, is obtained for the 800 b.g., followed by 600 b.g. With 5427 kg/ha, and 400 b.g. With 4456 kg/ha.

The climate conditions in 2010 was very favorable for the wheat cultivation, in the April, the monthly precipitations sum in the experimental field it was 47.2 l/m<sup>2</sup> and in June it was 83.8 l/m<sup>2</sup>.

The crops for the wheat varieties cultivated reported to sowing density it was between 4099 kg/ha (200 bg/m<sup>2</sup>) – 5459 kg/ha (800 bg/m<sup>2</sup>), the statistic increase it is very significantly. (table 1).

The biggest crop it was with variety 800 bg/m<sup>2</sup>, 5459 kg/ha, bigger than the crop obtained with 5427 kg/ha (600 bg/m<sup>2</sup>), and bigger than 4465 kg/ha (400 bg/m<sup>2</sup>).

For the 2010 the crop results obtained from the both wheat varieties cultivated had 4587 kg/ha and 4926 kg/ha. The biggest wheat production obtained in 2010 according to the sowing wheat varieties is from the Boema variety (5077 kg/ha) with an increase of 184 kg/ha this is the difference by the witness variety Glosa is being very significant.

In the Curtici-Arad conditions for the experimental year 2010, for the Wheat variety

Ciprian the 300 kg/ha production difference is being statistically very negative significant.

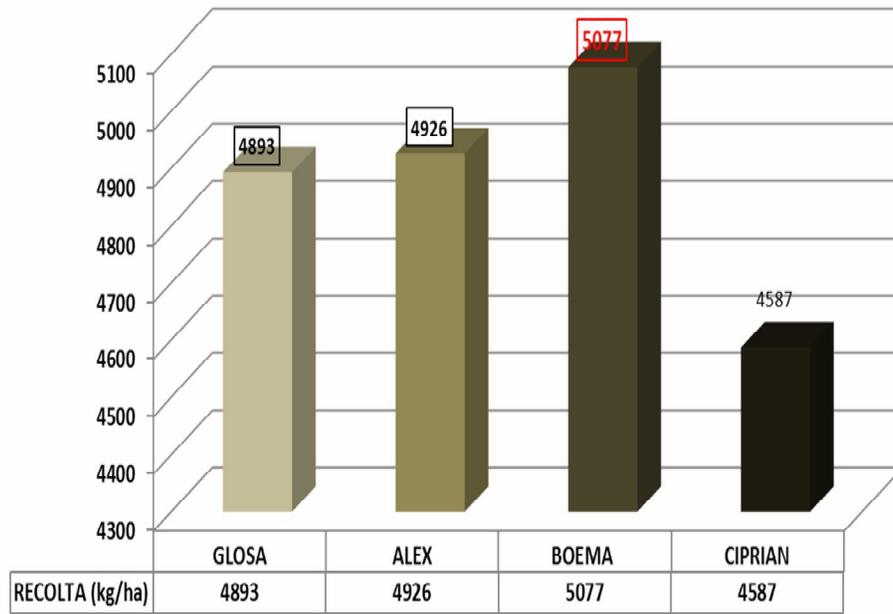


Figure 1 The wheat production results obtained according to the winter wheat (Curtici-Arad area, 2010)

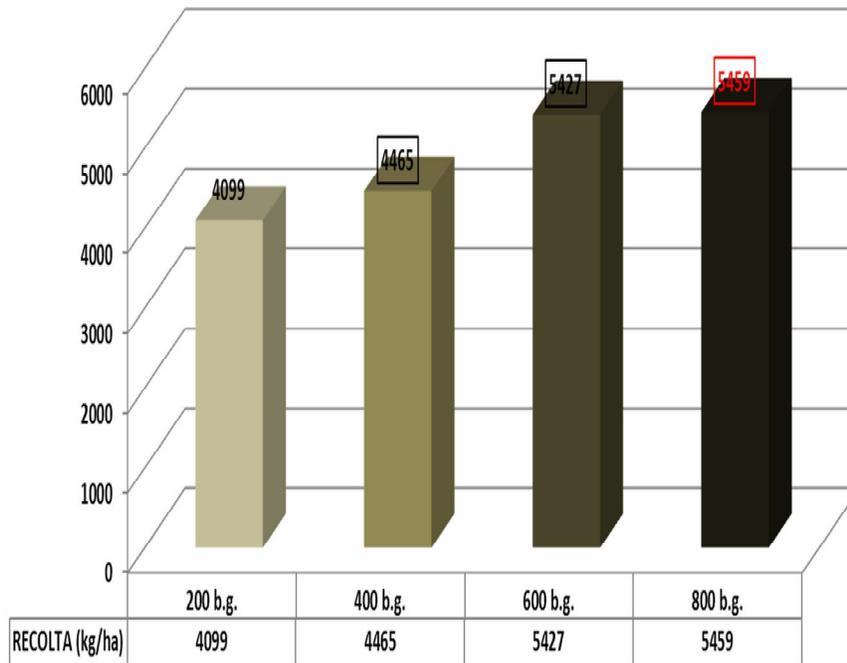


Figure 2 The wheat production results obtained according to the sowing density (Curtici-Arad area, 2010)

Table 1

The winter wheat varieties productions obtained according to the sowing density for the experimental year 2009-2010 to Curtici-Arad

Factorul A - Variety	Factorul B - fertilization				Yield (kg/ha)	%	Difference (kg/ha)	Signification
	200 bg	400 bg	600 bg	800 bg				
GLOSA	4250	4731	5291	5301	4893	100	-	
CIPRIAN	3761	4215	5202	5170	4587	94	-306	000
ALEX	4134	4591	5481	5500	4926	101	33	xx
BOEMA	4249	4321	5876	5868	5077	104	184	xxx

DL5%- 71 kg/ha; DL1%- 95 kg/ha; DL0,1%- 125 kg/ha

Yield (kg/ha)	4099	4465	5427	5459
%	100	109	132	133
Difference (kg/ha)	-	366	1328	1360
Signification		xxx	xxx	xxx

DL5%- 36 kg/ha; DL1%- 47 kg/ha; DL0,1%- 62 kg/ha

### CONCLUSIONS

The results obtained in the experimental year 2010, in the Curtici area, Arad county, about behavior of a sort of 4 winter wheat varieties in four different density is demonstrating a very good potential of the area for the wheat cultivation and the special importance of the wheat varieties.

According with the research studies published in the annual report of the Institutul National de Cercetare-Dezvoltare Agricola Fundulea (2010) about "Preliminary characterization of the varieties in comparative crops specials in terms of production capacity and quality", the 4 wheat varieties productions tested in Curtici are close in the values (the kg/ha average productions) (<http://www.madr.ro/pages/cercetare/ps2/ps-212-faza-9.pd>).

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