

## **BEHAVIOR OF WHEAT (TRITICUM AESTIVUM) UNDER VARYING TEMPERATURE AND HUMIDITY IN THE REGION OF CAREI, SATU MARE COUNTY**

**Covaci Cristian Eugen\***

\*University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048, Oradea, Romania, e-mail: [covacicristian@yahoo.com](mailto:covacicristian@yahoo.com)

### **Abstract**

*The present paper aims to analyze the behavior of wheat (*Triticum aestivum*) under varying temperature and humidity in the region of Carei, Satu Mare county in the agricultural year 2017-2018. The climatic year 2017-2018 was an excellent year due to the fact that sowing was done late in autumn, and the emergence of the plants occurred in early spring, that determined the specific reactions of the wheat varieties, expressed in the productions as well as in morphological characters. The climatic conditions in this period have significant effects on the behavior of wheat varieties. The average production of wheat was between 6500-7000 kg/ha.*

*Weather conditions also determine the occurrence of certain diseases and pests which can definitely have a major influence upon the level of production.*

**Key words:** wheat, temperature, precipitation, production

### **INTRODUCTION**

Wheat is considered, after maize, the main crop plant in Romania. Wheat quality is not constant from one year to another, from one field to another, due to the varieties (genetic potential) and climate changes.

In order to achieve high, stable and superior quality wheat production, it is required the cultivation of many valuable genotypes, with high production capacity, with differentiated superior qualities, resistant to disease and adapted to different environmental conditions.

The influence of climatic conditions is of particular importance in what concerns the crop and its quality. The interactions between the genotype and the environment in the breeding process oblige to the creation of varieties with adaptability to favorable and unfavorable climatic conditions (Muntean, et al., 2003).

In addition to high production capacity and high quality crop, resistance to stress factors that determine production fluctuations are important concerns for breeders. Adaptability of varieties, respectively production of resistance to stress factors, is a major objective of improving wheat.

Due to environmental factors, very different from one year to the next, but also to the characters and attributes of the variety, the interactions between the genotype and the environment prove to be complex.

The stability of cereal production varies widely due to different cultivation conditions.

#### MATERIAL AND METHOD

The present paper aims to analyze the behaviour of wheat (*Triticum aestivum*). The temperature and humidity in the region of Carei, Satu Mare county played an important role in this process. The soil was chernozem (Brejea, 2009).

The climatic conditions of this period have significant effects on the behavior of wheat varieties.

The agricultural year 2017-2018 can be considered a good year in terms of climate especially for autumn sown crops.

Thus in October and especially November 2017, which coincides with the optimal sowing period of wheat, a total rainfall of 94.7 mm (ANM, 2018).

Under these circumstances, the sowing period of the wheat was a good one and the emergence of the plants was carried out in the spring.

*Table 1*

The amount of meteorological parameters in Carei from 2017 to 2018

Year	Month	Monthly average temperatures (gr.C)	Total quantity of precipitations (mm)
2017	10	10,3	33,0
2017	11	5,7	61,7
2017	12	2,6	102,2
2018	1	2,3	31,2
2018	2	0,9	58,5
2018	3	3,4	71,9
2018	4	15,8	25,2
2018	5	19,8	57,4
2018	6	20,9	138,4
2018	7	21,9	53,2

These precipitations were optimal for the autumn sowing. High temperatures in the spring months (March and April) allowed the early resuming of the vegetation period explosive and uniform.

#### RESULTS AND DISCUSSION

In the year 2017-2018 the production of wheat was influenced by the environmental conditions that were optimal for it (Domuta, 2012).

These are the most important five wheat cultures in this region and the production of the following types is in Table 2: the Glosa, the Alcantara, the Akteur, the Combin, the Trublion. These five types represented a real succes in the region of Carei, Satu Mare county.

Table 2

Grain yields obtained from the 5 wheat varieties

Nr. crt	Variant	Average production (kg/ha)
1	Glosa	6840
2	Alcantara	6760
3	Akteur	6670
4	Combin	6610
5	Trublion	6530

From the analysis of Table 2 we can state that in the agricultural year 2018, the largest production was made by the Glosa (6840 kg/ha), which exceeded the Alcantra (6760 kg/ha), followed by the Akteur (6670 kg/ha), and the Combin (6610 kg/ha), the last production was reported from the Trublion (6530 kg/ha).

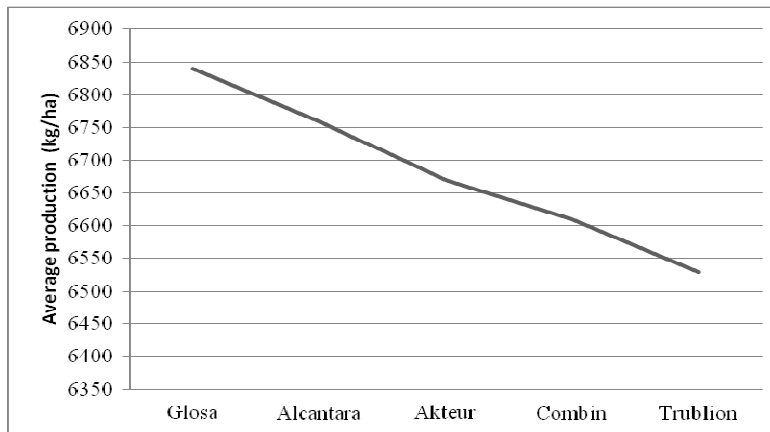


Fig. 1. The evolution of wheat production in year 2017-2018

## CONCLUSIONS

In the agricultural year 2017-2018 climatically exceptional, the sowing took place in late autumn and the emergence of the plants was made in early spring (Povara, 2001).

The average production of wheat varied between 6500-7000 kg/ha. Considering average, in final position of the variety, it is noted that the first place the Glosa variety, on 2nd Alcantara variety, on 3rd place Akteur variety, on 4th place Combin variety, on 5th place Trublion variety.

In what concerns the influence of the climatic conditions on the wheat production of those 5 studied types between the years 2017-2018, years that had different varying temperatures and quantities of rain, all these permitted the highlight of the thermic effect and rainfall in different phases of the vegetation of plants.

According to the climate conditions, the production of wheat was a good one.

#### REFERENCES

1. Boeriu I., Eustatiu M., 1973, Cultua graului. Ed Ceres din Bucuresti
2. Borcean I., Borcean A., David G., 2002, Cultura si protectia plantelor. Ed. Agroprint din Timisoara
3. Brejea R., 2009, Tehnologii de protecție sau refacerea solurilor. Editura Universității din Oradea.
4. Brejea R., 2011, Practicum de tehnologii de protecție a solurilor. Editura Universității din Oradea.
5. Ceapoiu N., 1984, Graul. Ed. Academiei din Bucuresti
6. David G., 2003, Tehnologia plantelor de camp. Ed. Eurobit din Timisoara
7. Domuta C., 2012, Agrotehnica. Ed. Universitatii din Oradea
8. Muntean L. S., Roman G. V., Borcean I., Axinte M., 2003, Fitotehnie. Ed. Ion Ionescu de la Brad din Iasi
9. Oancea I., 2012, Tehnologii agricole performante. Ed. Ceres din Bucuresti
10. Povara R., 2001, Riscul meteorologic in agricultura. Graul de toamna. Ed. Economica din Bucuresti
11. Rusu T., 2005, Agrotehnica. Ed. Risoprint din Cluj-Napoca
12. Saulescu N., 1984, Ameliorarea graului. Ed. Academiei din Bucuresti
13. \*\*\* Valorile meteorologice lunare comunicate de ANM Bucuresti.