THE BEHAVIOR OF CORN HYBRIDS IN THE PEDO-CLIMATIC CONDITIONS OF THE TIMIS PLAIN

G.BRATEIU, L. BOTOȘ, V. ȘURLEA, F. CRISTA
Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timișoara, Romania, brateiu.gheorghe@gmail.com

Abstract: *The research has been conducted in the village of Banloc, Timis County , in 2013 and 2014. The experiments were structured based on the double repetition strip method. The biological material was composed of two semi-late hybrids: P0216, PR36V74 and a semi-early hybrid: NK FURIO. The average annual temperature in the area in which the experiment was conducted has a value of 10,7 degrees Celsius and the average annual rainfall is 604,7 mm. The experimental plot in the area was located on typical chernozemic soil, with a moist chroma, a medium-fine texture, weak alkaline reaction, medium humus content and high concentrations of mobile phosphorus and potassium. The average plot yield for the 3 tested hybrids of over 11700 kg/ha enables to highlight the fact that maize is a crop capable of harnessing the pedo-climatic potential of this area in an economically effective manner. Out of the 3 hybrids considered for this study, the P0216 hybrid managed to obtain increased harvest compared to the other hybrids analyzed in this research.*

Key words: *Corn, hybrid, crop, zoning , climate*

INTRODUCTION

Corn is one of the most important crop on our planet. The seeds of this plant are used in human nutrition, and animal food industry.

In the economy of our country agriculture, corn holds the most important, with the largest contribution of the total cultivated area, although the corn represents only 49-52% of the total acreage.

In our country, corn is grown on about 3 000 000 hectares, the area and production as the first place of field crops.

` The main maize growing area in the world remains the American continent (about 57 million hectares), followed by Asia, Africa and Europe.

Large corn growing countries are the US, China, Brazil, Mexico, India, South African Republic, Argentina, the Philippines, Romania and Indonesia.

In 2014, Romania has achieved a production of 11.73 million tons of maize, from a cultivated area of 2.43 million hectares, which represents a yield of 4813 kilograms per hectare.

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MATERIALS AND METHOD

The research was conducted in the area Banloc Timiș County in 2013 and 2014.

The biological material consisted of two hybrids of mid late maturity: P0216, and a hybrid earlier maturing PR36V74: NK FURIO.

Previous plant was autumn wheat.

The specific technology applied was the wheat-corn rotation culture.

After releasing the straw from the land, were given complex fertilizers DAP PK 18: 46: 0-250 kg / ha and 60% potassium salt - 100 and after that was plowed to a depth of 25 -27 cm. In the spring, after the land was dried enough, followed a adjustable teeth harrow. Before sowing was carried out a preparation perpendicular to sow with a cultivator.

Sowing, depending on where investigations were conducted and when the soil temperature has stabilized, was carried out during April. As density we used, 60,000 plants harvested / hectare for late maturity hybrids and plants harvested 55 000 / hectare in early maturity hybrid.

With mechanical weeding we administered 200 kg / ha of urea.

Banloc climate zone, where they conducted research is temperate with moderate winters, shorter and milder, being frequently under the influence of active cyclones and air masses from the Mediterranean and Adriatic seas. The annual average temperature stands at 10.7 ° C and average annual rainfall of 604.7 mm.

The main chemical properties of the soil experimental field from Banloc was:

The experimental field in this area was placed on a typically cambic mold soil, wet phreatic, with medium fine texture.

The following table present the main chemical properties of the soil in the experimental field. Phreatic water level is located at 3-5 m depth.

Table 1

Chemical properties of soil

	Horizon (cm)		
	5-15	25-35	40-50
pH in H_2O (%)	6,03	6,09	6,05
Carbonates ($CaCO_3$)	1,1	1,3	1,3
Humus (%)	0,97	0,95	0,73
P_3O_5 (ppm)	70,6	69,2	65
K_3O (ppm)	190,4	187,1	130,2

It follows that the soil reaction is slightly acid, humus content is low, phosphorus and potassium content is favourable

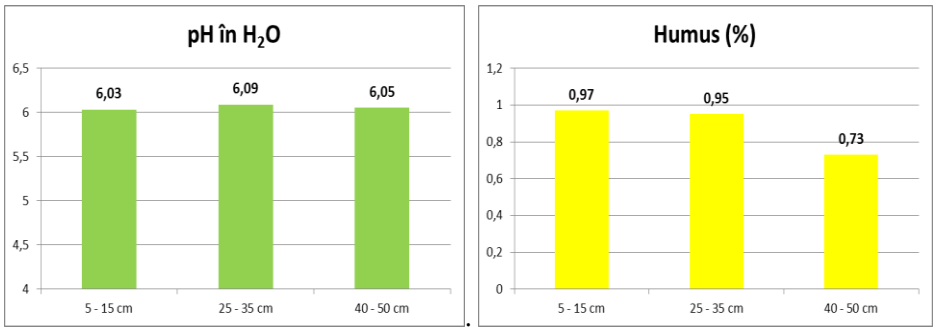

Fig.1. Graphical representation of soil pH and humus content

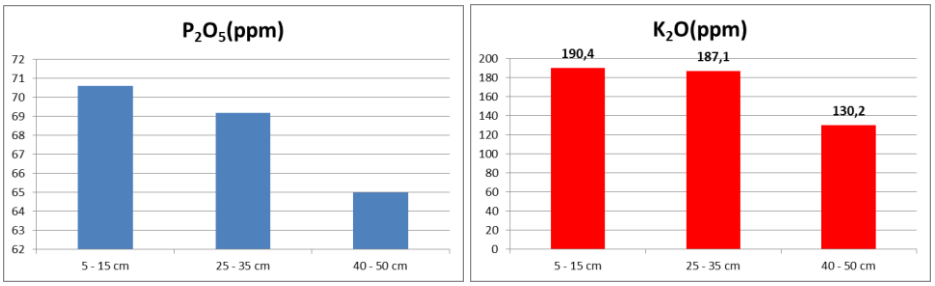

Fig.2. Graphical representation of soil content in phosphorus and potassium

RESULTS AND DISCUSSIONS

Average yield for the 3 hybrids in the study year 2013 is 11368 kg / ha, highlights both good ability to study experimental hybrids and favorable conditions in this area for maize.

The lowest yield was recorded crop hybrid PR36V74.

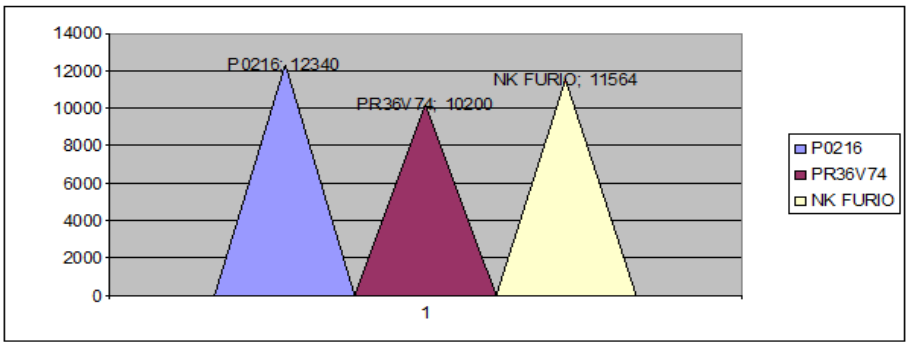

Fig.3. Graphical representation of yield hybrids

After the results from 2014 study year, it reveals that the average value of the experimental field is higher by approx. 1000 kg / ha compared to the previous year, due exclusively to more favorable climatic conditions.

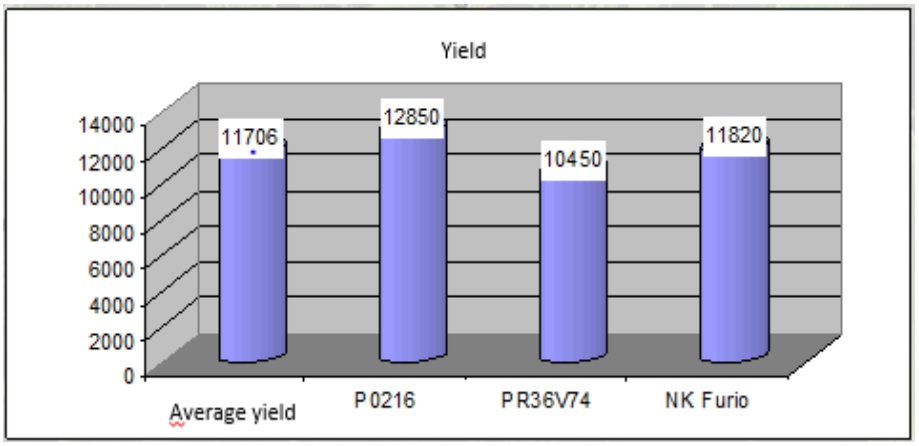

Fig.4. Graphical representation of average yields

CONCLUSIONS:

In conclusion it appears that the hybrid P0216 has achieved high yields compared to other hybrids in the study, with a high resistance to blight.

Noteworthy is the fact that hybrid PR36V74 lose water rapidly to maturity.

Of the three hybrids in the study, the recommended hybrid for Banloc area is P0216.

The level of production of each hybrid is conditioned by the genetic potential and the climatic conditions of growth and development.

Exceptional physiological characteristics make these hybrids harvested mechanically in good condition.

Because it produces high yields, maize hybrids studied ensures high profitability and economic efficiency.

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