CERCETĂRI PRIVIND INFLUENȚA UNOR FACTORI BIOLOGICI ŞI TEHNOLOGICI ASUPRA PRODUCȚIEI ŞI CALITĂȚII CARTOFULUI, ÎN CONDIȚIILE ECOLOGICE DIN CÂMPIA MOLDOVEI, PENTRU O AGRICULTURĂ DURABILĂ

RESEARCH REGARDING THE INFLUENCE OF BIOLOGICAL AND TEHNOLOGICAL FACTORS, CONCERNING PRODUCTION AND QUALITY OF POTATO, IN THE ECOLOGICAL CONDITIONS OF THE MOLDAVIAN PLAIN, FOR SUSTAINABLE AGRICULTURE

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Abstract: *In our researches, we studied the influence of organic manures on starch content for some potato varieties: Barna, Cleopatra, and Fabula. Another objective of experimentation was to find the influence the planting density has on the content of starch of various kinds of potatoes.*

Rezumat: *În această lucrare am urmărit influența aplicării îngrăşămintelor organice şi chimice asupra conținutului de amidon din tuberculii a trei soiuri de cartof: Barna, Cleopatra şi Fabula. Alt obiectiv al experimentărilor a fost stabilirea influenței diferitelor densități de plantare asupra conținutului de amidon din tuberculi.*

Key words: *potato, organic fertilization, density, cultivar, starch*
Cuvintele cheie: *cartof, fertilizare organică, desime, soi, amidon*

INTRODUCTION

The potato presents different degrees of importance as food for people. Matei Berindei adds: "The potato is the second bread of Romania".

In the alimentation of people, the potato is used as fresh or dry products and TV dinners. It is the basic nourishment for people, or complementary food for a large part of the population in Europe and all over the world.

It is used successfully in animal feed, and in industry. Due to its pleasant taste, digestibility and high nutritious value, the products obtained from potato satisfy the food requirements for all categories of the population. It can be eaten boiled, baked or fried, substituting bread many times. It is considered a dietetic aliment. The power value of potato is very high, because of the high starch content and vitamins (special ascorbic acid), proteins and lipids.

MATERIAL AND METHOD

The research method was one of divided plots. Were used three cultivars of potato: Barna, Cleopatra and Fabula. We used different kinds of organic and chemical manures (ovine manure, swine manure, cow manure, manure of pollards and N120P120K120), to decide which formula manures and density are the best to increase production of tubers and starch content.

EXPERIENCED FACTORS:

FACTOR A- Fertilization with gradues:
- a_1- N0P0K120,
- a_2- N120P120K120,
- a_3- manure of swine, 20 t/ha,

a $_4$- manure of poulards, 5 t/ha,
a $_5$- cow manure, 25 t/ha,
a $_6$- ovine manure, 15 /ha.

FACTOR B- Cultivars
b $_1$- CLEOPATRA,
b $_2$- FABULA,
b $_3$- BARNA.

FACTOR C- Density plant:
c $_1$- 40 000 pl/ha,
c $_2$ - 70 000 pl/ha.

RESULTS AND DISCUSSION

The determination of harvest experimental plots, based merely on production natural nests, that ones dont they lost to the frontal brims of plots and were not neighbouring empty same row. The determination content of starch was performed by basic laboratory analyses with the help of balances.

Table 1

The influence of fertilization on tubers starch content, 2007

Fertilisation	Starch content %	% control variant	Differences t/ha	The signification
Ovine manure	13.7	103.79	0.5	Xxx
Manure of pollards	13.6	103.03	0.4	Xxx
cow manure	13.5	102.27	0.3	Xxx
N0P0K0	13.2	100.00	Testifier	
N120P120K120	12.3	93.18	-0.9	000
Manure of suine	12.1	91.67	-1.1	000

DL 5% : 0.1% starch
DL1% : 0.2 % starch
DL 0.1% : 0.3 % starch

Analysing the influence of fertilization on tubers starch content, in the 2007 year, we found that the high content on starch, 13.7%, was registered on tubers fertilized with ovine manure. The second value, 13.6 % starch, was registered on tubers fertilized with manure of pollards. The lowest content on starch, 12.1%, was obtained on the plot fertilized with swine manure, where we registered a starch content of 12.1%, as compared to the control, unfertilised variant, the tubers of which had 13.2% starch content. The differences from the control variant were ensured statistically.

Table 2

The influence of density on tubers starch content, 2007

Density Thousandth pl/ha	Starch content %	% control variant	Differences t/ha	The signification
70	13.02	100.0	Control variant	-
40	13.02	100.0	0.0	-

DL 5% : 0.1% starch

DL1% : 0.2 % starch
DL 0.1% : 0.2 % starch

The content on starch remains constant, 13.02%, on both plant densities.

Table 3

The influence of cultivar on tubers starch content, 2007

Cultivar	Starch content %	% control variant	Differences t/ha	The signification
BARNA	13.80	103.76	0.5	X
CLEOPATRA	13.30	100.0	Testifier	-
FABULA	11.96	89.82	-1.34	00

DL 5% : 0.3 % starch
DL1% : 0.5 % starch
DL 0.1% : 1.0 % starch

The highest starch content, 13.80%, was obtained on Barna cultivar. At the control variant, Cleopatra cultivar, the starch content is 13.30%, and the lowest value registered on cultivar Fabula, 11.96%.

CONCLUSIONS:

Experimental researches in 2007, regarding the influence of fertilization and density of plants on potato harvest, showed the following conclusions:

1. The climatic conditions of year 2007, have influenced significantly the production of tubers (no irrigations applied) and content on tubers starch.
2. After the application of organic and chemical manure on potato, we observed an increase in the starch content, 13.7%, on tubers coming from plots fertilized with ovine manure, against the unfertilized plot, with a starch content of 13.2%.
3. The content on starch remained constant, 13.02%, on both plant densities.
4. The highest content on starch, 13.80%, obtained on Barna cultivar. At the control variant, Cleopatra cultivar, the starch content is 13.30.
5. The lowest value was registered on Fabula cultivar, 11.96%.

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