INVESTIGATIONS CONCERNING SOME COTTON SPECIES BEHAVIOUR (GOSSYPIUM HIRSUTUM) IN TIMISOARA WEATHER CONDITIONS IN THE YEAR 2008

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Abstract: *The main purpose of the present work is to emphasize the behaviour of three cotton species (Marismas, Coko and Canada), from Greece and Canada, but in Timisoara weather conditions. The experimental field placed into a plane microrelief with a large area hollow, on a sol of cambic chernozem type. Bifactorial experience was placed in the field after the subdivided parcels method. The established experimental factors were:* ***factor A*** *– agrofund (a_1- $N_0P_0K_0$, a_2- $N_{30}P_{30}K_{30}$, a_3- $N_{60}P_{30}K_{30}$, a_4- $N_{90}P_{60}K_{60}$, a_5- $N_{120}P_{60}K_{60}$, a_6- $N_{30}P_{30}K_{30}$+ foliar fertilization);* ***factor B****- species (b_1- Marismas-Greece, b_2- American provenance, b_3- Coko-Greece). The applied technology for the cotton crop was representative in the big crop. After arising was made in turn density correction. It was realized monitoring and maintenance evolution in vegetation of the experimental factors and of its entire experience. The cropping is made when the capsule are completely opened, at the maturity. The cropping moment in our country is considered the one before the first hoarfrost dropping. After cropping the three cotton species were obtained productions of: blank cotton, fibres and seeds. An important role for production quantity and quality have the three fertilized macroelements: the azoth, phosphorus, and potassium. The effected investigations emphasized those influence on productions of blank cotton, fibres, and seeds. For established objects touching through investigation, the crop fertilization was differently made on the 6 agrofunds (a_1- $N_0P_0K_0$, a_2- $N_{30}P_{30}K_{30}$, a_3- $N_{60}P_{30}K_{30}$, a_4- $N_{90}P_{60}K_{60}$, a_5- $N_{120}P_{60}K_{60}$, a_6- $N_{30}P_{30}K_{30}$ + foliar fertilization). The best production at Marismas species was obtained on agrofund a_4- $N_{90}P_{60}K_{60}$ (relative 2863 kg/area blank cotton production) beside beholder variant a_1-$N_0P_0K_0$. The biggest production for Canada species was obtained on the agrofund a_4- $N_{90}P_{60}K_{60}$ (2457 kg/area blank cotton). The big productions at Coko species was obtained on the agrofund a_4-$N_{90}P_{60}K_{60}$ (2380 kg/area blank cotton). The three cotton species presented a good adaptability to weather conditions from Timisoara. The cotton has the capacity to acclimate itself at a low humidity, from hydrophilic aspect, and it receives fairly quickly xerofit plant features.*

Keywords: *cotton species, behaivor, agrofunds, production*

INTRODUCTION

It is the most important textile plant. It assures over 70-75% from the global production of filable vegetable strings and it contributes in average 50% at the global total production of artificial and natural strings. It has an economical importance equally both exporter countries, and importer ones. The cotton is used in many domains, the main district remaining the textile industry: the alimentary industry being a important source of vegetable protein, due to the high content of protein, 21.2-29.4%; the cotton oil, but quantitative it takes the forth place in the global production of oil; nectarious plant; the fodder domain; the paper and cellulose industry; the dyestuffs and polishes industry; the plastic packages industry; the geotextile industry; the pharmaceutic industry. At over 120 years, the cotton is found as culture plant on Romania territory. In 1925 it appears the first official data concerning the cotton, when it is registered a surface of 125 hectares sowed with this plant.

MATERIAL AND METHODS

The experimental field was placed into a plane relief with large cavity area. The sol where the experiments were done was cambic chernozem, damp phreatic, decarbonate, formed on loesoide stores, dusty-clay on lute-clay. The phreatic water is found at 1.5-2.0 m depth.

Bifactorial experience was placed in the field under subdivided parcel method. The experimental factors established were:

Factor A : agrofield:

a_1 - N_0 P_0K_0

a_2 - $N_{30}P_{30}K_{30}$

a_3 - $N_{60}P_{30}K_{30}$

a_4 - $N9_0P_{60}K_{60}$

a_5 - $N_{120}P_{60}K_{60}$

a_6 - $N_{30}P_{30}K_{30}$ + foliar fertilization

Factor B: species:

b1- Marismas- Greece descent

b2- Canada- American descent

b3- Coko- Greece descent

The applied technology for the cotton culture was the specific one in the great culture. The ancestor plant for the cotton culture was the maize. The plant needs minimum 1500 hours (at least 85 sunny days) of sun shining for the period 1st May- 30 October. The cotton had temperate requests concerning the water, the exudation coefficient being 350-650 units of water for a dry substance unit for our country. The cotton has the capacity to adapt to a lower humidity, from plant of hydrophilic aspect, it quickly receives features of xerophite plant. In function of ancestor plant, the plowing of the ground was made at 25-30 cm depth. The germinating layer was prepared in spring through successive works (2-3) of loosening and grass elimination within seeding period, when it was worked with the combiner, at 4-5 cm depth. The combiner presents the advantage of working only at 5-6 cm depth that assures a good seeding as depth. It was applied treatments to control the grass and the pests at geminating layer. An important function for the quality and quantity production its have the three fertilized macroelements; the azoth, the phosphorus and potassium. To touch the established objects through investigation, the crop fertilization was made different on the 6 agrofields ((a_1 – N_0 P_0K_0, a_2 – $N_{30}P_{30}K_{30}$, a_3 – $N_{60}P_{30}K_{30}$, a_4 – $N9_0P_{60}K_{60}$, a_5 – $N_{120}P_{60}K_{60}$, a_6 – $N_{30}P_{30}K_{30}$ + foliar fertilization). The crop fertilization was made using the complex fertilizer of type N15P15K15. For seeding it was used the cotton seed from crop before the first hoarfrost. The cotton was seeded on 9th May, when the sol temperature was consecutive maintained three days, at 12 degree C; the average air temperature was minimum 13-15 degree C, while the sol temperature at 30 cm depth was 10 degree C. The seeding was realized at 50-60 cm between the rows. It was realized the monitoring and keeping evolution in vegetation of the experimental factors and its entire experience. The cropping began when on each plant were 1-2 capsules opened very well, which were adult. The cropping moment was at the first hoarfrost. The cropping was made between 25 September and 31 October.

RESULTS AND DISCUSSIONS

The cotton loses through drainage at least 11-17% from the initial weight, so that the production weight registration was made only when the cotton fibers to attain humidity of at least 11 – 12%. After cropping the three species of cotton were obtained: gross cotton, fibres and seeds. In this paper are presented the gross cotton productions at the three cotton species.

Thus, for Marismas species the productions are presented in table 1. Not only table 1. and also figure 1. it observed that the gross cotton production at Marismas species positive

influenced of azoth quantity in increasing until 120 kg/ha. The biggest production was obtained on agrofield A4 – N90P60K60, being of 2863 kg/ha, registering a production accession of 597 kg/ha face to voucher. The obtained production on voucher agrofield A1 – N0 P0K0 at Marismas species was about 2266 kg/ha.

The agrofield with the smallest production of gross cotton at Marismas species was A6 – N30P30K30+ foliar fertilization, 2166 kg/ha, face to voucher agrofield.

Table1.

The gross cotton production kg/ha under agrofield influence at Marismas species in the year 2008 in Timisoara weather conditions

Agrofield	Production kg/ha	%	Difference	Signification
A1	2266	100	-	
A2	2557	112	291	
A3	2690	118	424	**
A4	2863	126	597	***
A5	2464	108	198	
A6	2166	95	-100	

Dl 5% - 312 kg/ha - Dl 1% - 416 kg/ha - Dl 0,1% - 547 kg/ha

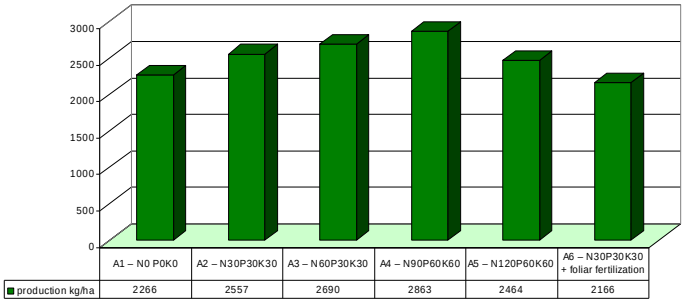

Figure 1. The gross cotton production kg/ha under agrofield influence at Marismas species in the year 2008 in Timisoara weather conditions

In table 2. and fig.2 were presented the productions for Canada species obtained on six agrofields. Canada species production is positive influenced by azoth until the quantity of 120 kg/ha. It is amazing that through the foliar fertilization the gross cotton production at Canada species touched the level of 2023 kg/ha realizing an accession of production face to the voucher of 39 kg/ha. The obtained production on voucher agrofield A1 – N0 P0K0 was of 1984 kg/ha. The biggest production was obtained on agrofield A4 – N90P60K60, obtaining an accession of production about 473 kg/ha.

Tabel 2.

The gross cotton production kg/ha under agrofield influence at Canada species in the year 2008 in Timisoara weather conditions

Agrofield	Production kg/ha	%	Difference	Signification
A1	1984	100	-	
A2	2183	110	199	
A3	2253	113	269	
A4	2457	123	473	**
A5	2445	123	461	
A6	2023	101	39	

Dl 5% - 351 kg/ha - Dl 1% - 468 kg/ha - Dl 0,1% - 615 kg/ha

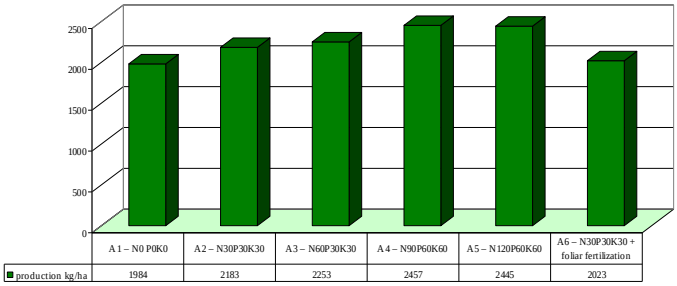

Figure 2. The gross cotton production kg/ha under agrofield influence at Canada species in the year 2008 in Timisoara weather conditions

Not only in table 3 and also in figure 3. were emphasized the productions for Coko species. The biggest production was registered on agrofield A4–N90P60K60, registering an accession of production about 331 kg/ha face to the voucher A1–N0 P0K0 (2049 kg/ha). The obtained production on voucher agrofield A1 – N0 P0K0 was of 2049 kg/ha. Through foliar fertilization the gross cotton production Coko touched a level of production of 2025 kg/ha.

Table 3.

The gross cotton production kg/ha under agrofield influence at Coko species in the year 2008 in Timisoara weather conditions

Agrofield	Production kg/ha	%	Difference	Signification
A1	2049	100	-	
A2	2050	100	1	
A3	2132	104	83	
A4	2380	116	331	**
A5	2206	107	157	
A6	2025	98	–24	

Dl 5% - 194 kg/ha - Dl 1% - 259 kg/ha - Dl 0,1% - 340 kg/ha

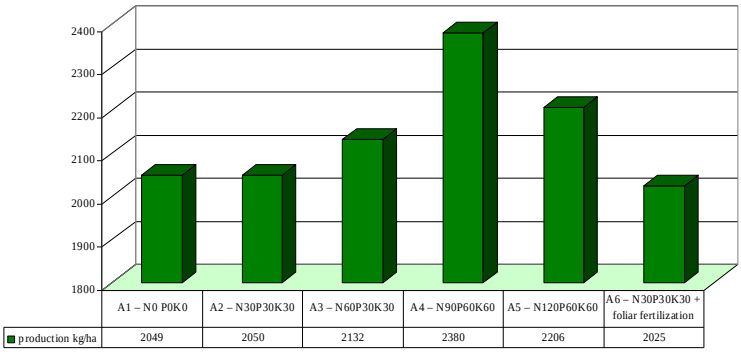

Figure 3. The gross cotton production kg/ha under agrofield influence at Coko species in the year 2008 in Timisoara weather conditions

CONCLUSIONS

1. The three species of cotton presented a good adaptability in Timisoara weather conditions;
2. The biggest productions were registered to all the three species on agrofield A4- N90P60K60 face to the voucher variant A1- N0P0K0;

3. The dryness followed by a lot of rains during the summer time determined low productions at Coko species face to Marismas and Canada species;
4. The foliar fertilization didn't determine significant accessions of productions.

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