

THE INFLUENCE OF THE INTERACTION OF SOME TECHNOLOGICAL FACTORS UPON THE ONION CROP, SOWN IN 2015

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Abstract

The experimental group for the onion crop was sown in Mihai Viteazu area, Cluj County, in the perimeter of a private property. In the experimental field conditions (482.4 m²), the productions of the four onion varieties, reported to t/ha, in 2015, was a quantity of 49.02 t/ha. This year, the irrigation influenced in a positive very significant way the obtained onion production, regardless the biological material or the fertilization method.

Key words: onion, interaction, irrigation, organic fertilization, basic and foliar fertilization

The application of the organic fertilizer for the vegetable crops was practiced by Chinese since 4000 years BC, the irrigations were used in Egypt and Mesopotamia since 2000 years BC and certain cereals and vegetables date back 8000 years BC (Măniuțiu D.N., 2008; Vaughan J.G and Geissler C.A., 2009). The onion is appreciated by consumers for its high content of carbohydrates, calcium and phosphorus salt, albuminoidal substances and vitamins, especially A and C and has beneficial effects in treating colds, bronchitis and flu. Frostbite, respiratory and rheumatic diseases, hair loss, dandruff or headaches can be effectively treated using fresh onion juice (Mencinicopschi G. *et al*, 2009; Păucean A., 2011). The main feature of drip watering consists in distributing slow water near the plant roots (Luca E. *et al*, 2013).

MATERIAL AND METHOD

The experimental group for the onion crop was sown in Mihai Viteazu area, Cluj County, in the perimeter of a private property. There were used four varieties of onion: Rosie de Aries, Brunswick, Density and Stuttgart, three types of fertilization: basic fertilization, organic fertilization and basic+foliar fertilization and the irrigation was applied using drip strips.

RESULTS AND DISCUSSION

In the experimental field conditions (482.4 m²), the production of the four onion varieties reported to t/ha, in 2015, was a quantity of 49.02 t/ha.

The irrigated variant of the Brunswick variety, basic+foliar fertilization, has a distinct significant increase of the production, compared with the non-irrigated variant of the same variety, basic fertilization (blank). In all the other variants, the differences of the production are positive very significant, in favor of irrigated variants (*figure 1*).

In the fertilized variant, it can be observed a negative insignificant difference of production, for the Brunswick variety, non-irrigated, compared with the production obtained by basic fertilization, non-irrigated, for the same variety (blank). For all the other organic fertilized variants, there can be observed negative very significant differences of production, compared with the blanks. The production obtained from the basic+foliar fertilized variants, compared with the production obtained from the basic fertilized variants is positive very significant for the Brunswick and Stuttgart varieties, both for the irrigated and non-irrigated variants and positive insignificant for all the other variants (*figure 2*).

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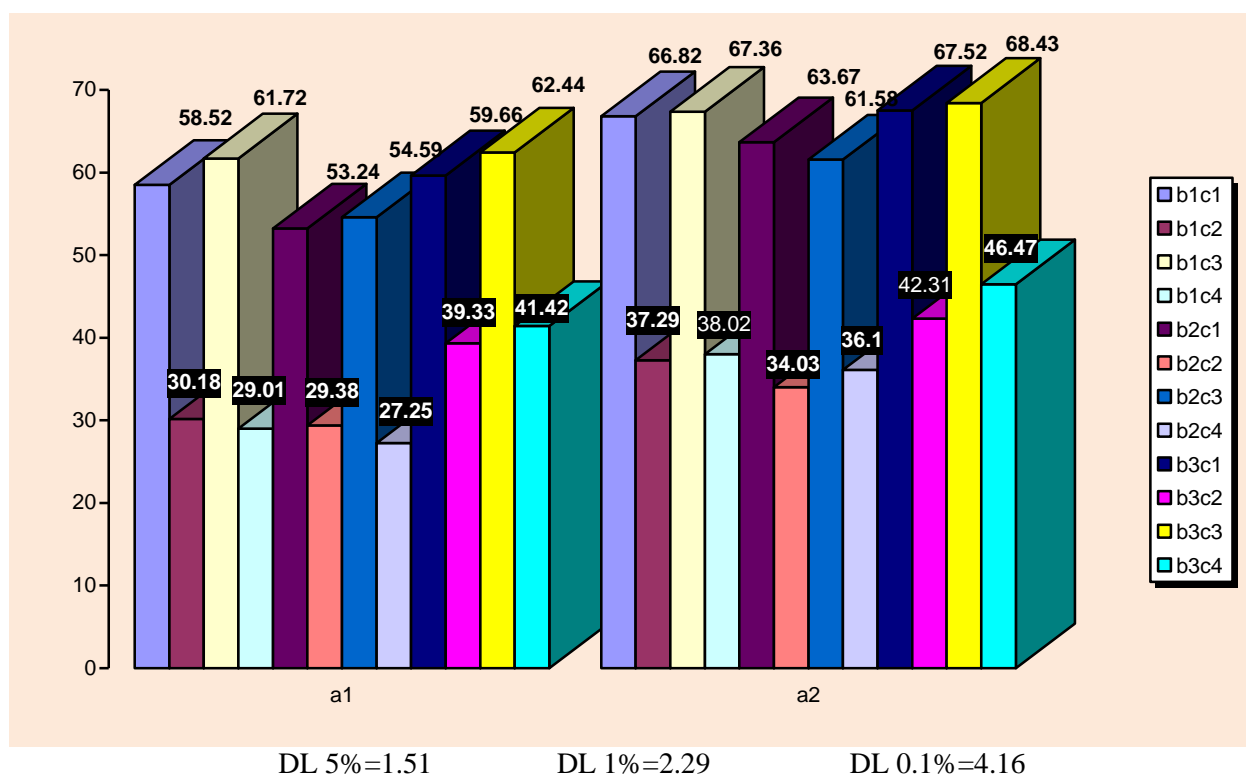


Figure 1 The influence of the interaction of irrigation with fertilization and biological material upon the onion production obtained in 2015. in Mihai Viteazu area. Cluj County

Legend: a₁=non-irrigated. a₂=irrigated; b₁=basic fertilization; b₂=organic fertilization; b₃=basic fertilization+foliar fertilization; c₁=Rosie de Aries; c₂=Brunswick; c₃=Density; c₄=Stuttgart.

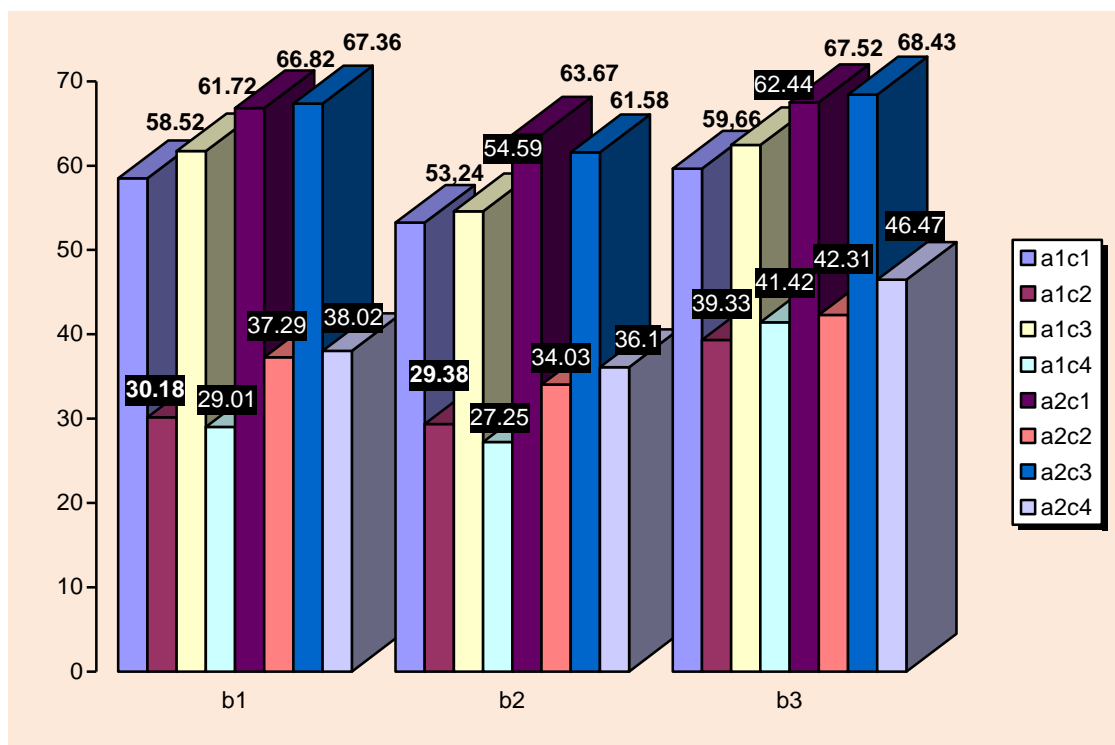


Figure 2 The influence of the interaction of fertilization with irrigation and biological material upon the onion production obtained in 2015. in Mihai Viteazu area. Cluj County

Legend: b₁=basic=fertilization; b₂=organic fertilization; b₃=basic fertilization+foliar fertilization; a₁=non-irrigated. a₂=irrigated; c₁=Rosie de Aries; c₂=Brunswick; c₃=Density; c₄=Stuttgart.

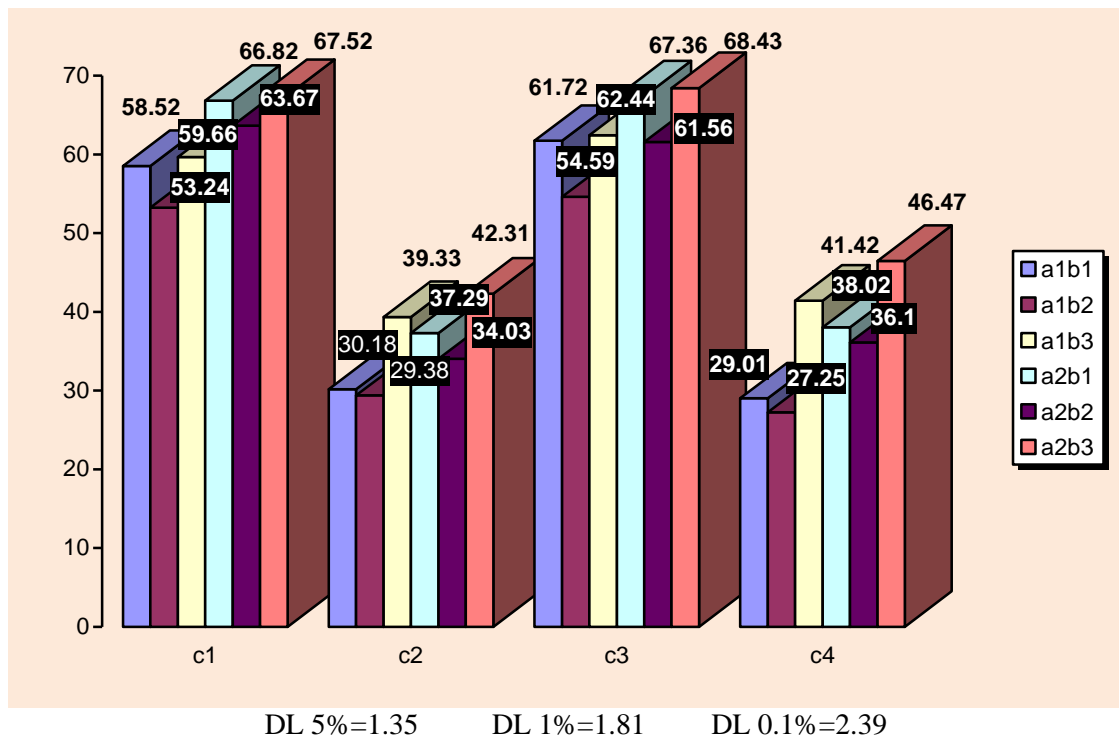


Figure 3 The influence of the interaction of biological material with irrigation and fertilization upon the onion production obtained in 2015. in Mihai Viteazu area. Cluj County

Legend: c₁=Rosie de Aries; c₂=Brunswick; c₃=Density; c₄=Stuttgart; a₁=non-irrigated. a₂=irrigated; b₁=basic fertilization; b₂=organic fertilization; b₃=basic fertilization+foliar fertilization.

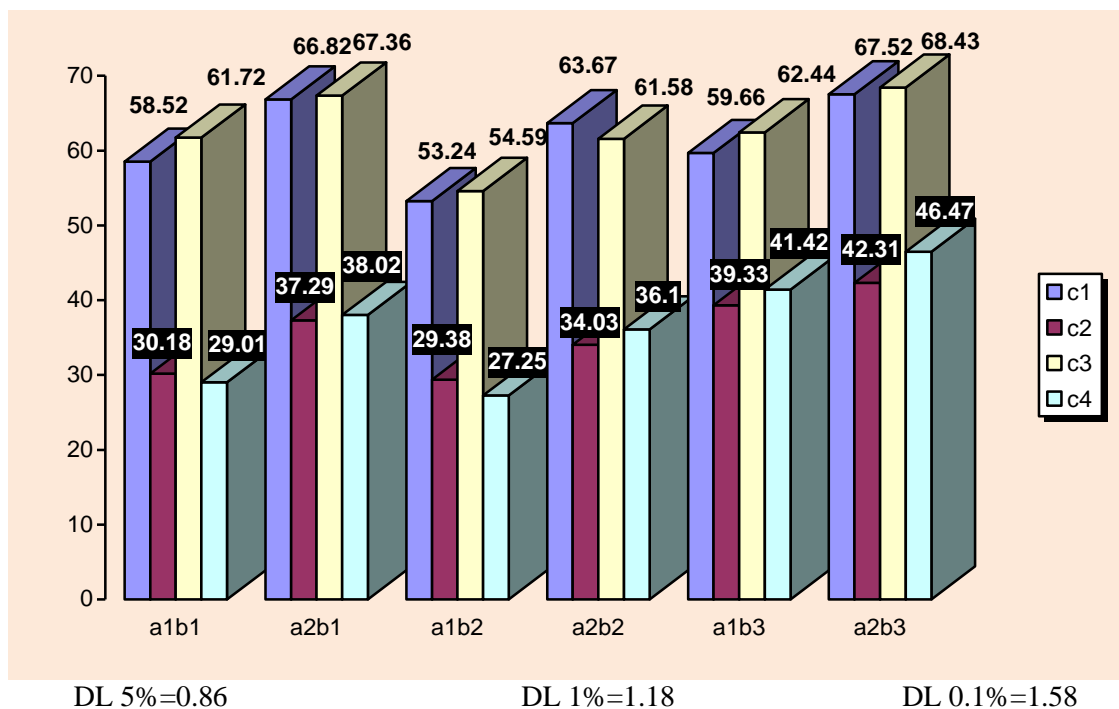


Figure 4 The combined influence of factors upon the yield of onion. 2015. in Mihai Viteazu area. Cluj County (control a₁b₁c₁).

Legend: a₁=non-irrigated. a₂=irrigated; b₁=basic fertilization; b₂=organic fertilization; b₃=basic fertilization+foliar fertilization; c₁=Rosie de Aries; c₂=Brunswick; c₃=Density; c₄=Stuttgart.

In all the experimental variants. the differences between the obtained productions. for Brunswick and Stuttgart varieties and Rosie de Aries variety (blank) are negative very significant. The production obtained from Density variety is

positive insignificant for the irrigated, basic and basic+foliar fertilized variants and the non-irrigated, organic fertilized variant, negative distinct significant for the irrigated, organic fertilized variant and positive very significant for

the non-irrigated, basic and basic+foliar fertilized variants, compared with the production obtained from the blank, in the same variants (*figure 3*).

In all the experimental variants, the differences between the productions obtained from Brunswick and Stuttgart varieties and Rosie de Aries variety, non-irrigated, basic fertilized variant (blank) are negative very significant. The production obtained from Density variety is negative very significant, for the non-irrigated, organic fertilized variant, positive very significant for the non-irrigated, basic and basic+foliar fertilized variants and for the irrigated, basic, basic+foliar and organic fertilized variants, compared with the production obtained from Rosie de Aries variety, non-irrigated, basic fertilized variant (blank). Regarding the productions obtained from Rosie de Aries variety, compared with the production obtained from the same variety, in the non-irrigated, basic fertilized variant, $a_1b_1c_1$ (blank), it can be observed a positive significant difference for the non-irrigated basic+foliar fertilized variant, positive very significant for the irrigated organic, basic and basic+foliar fertilized variants and a negative very significant difference for the non-irrigated organic fertilized variant (*figure 4*).

CONCLUSIONS

In 2015, the irrigation influenced positive very significant the obtained production of onion,

regardless the biological material or the fertilization method, except Brunswick variety, in basic+foliar fertilized variant, for which the increase of the obtained production for the irrigated variant is positive distinct significant, compared with the production obtained from the non-irrigated variant. Regarding the fertilization method, it can be observed a negative significant difference of production for Brunswick variety, in the non-irrigated organic fertilized variant, compared with the production obtained from the same variety, in the non-irrigated basic fertilized variant (blank). The variety has a major influence upon the obtained production. So, compared with the production obtained from Rosie de Aries variety (blank), the difference of production obtained from Brunswick and Stuttgart varieties is negative very significant in all the variants.

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