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**АНАЛИЗ НА ОСНОВНИТЕ ФАКТОРИ И ТЕНДЕНЦИИ  
ЗА ПОВИШАВАНЕ НА КОНКУРЕНТОСПОСОБНОСТТА НА  
ЗЕЛЕНЧУКОПРОИЗВОДСТВОТО  
MAIN FACTORS AND TENDENCIES ANALYSIS  
FOR COMPETITIVENESS INCREASING  
OF THE VEGETABLE PRODUCTION**

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**Abstract**

One of the most important conditions for the development of the modern Bulgarian vegetable production is the ability of a certain agricultural farm to produce high-quality production based on entirely new standards. These new standards have to be in accordance with the latest trends in the Bulgarian and the world agricultural modernization, which in their own way can increase significantly the quality and the quantity of the produced vegetables. One of the goals of this article is to determine the different directions of production intensification, which are connected with climate and socio-economic conditions and the new trends in the agricultural mechanization as well.

**Key words:** Competitiveness, vegetable production, trends

**INTRODUCTION**

The development of vegetable growing in contemporary circumstances must first of all be connected with the search for opportunities to enhance the production of high quality agricultural products on a completely new basis. The application of the latest achievements of the local and foreign science and practice can exert a significant influence on the enhancement of vegetable growing competitiveness and contribute not only to overcome crisis economic events but also to bolster the country's positions on the global market.

Nowadays, Bulgarian agriculture's competitiveness keeps declining as compared with the identical benchmarks of foreign countries, which testifies the aggravation of the crisis processes in the economy of the country.

**The purpose of this article is to point out the major factors for enhancing vegetable growing competitiveness by accentuating the necessity for coping with crisis events and the search for new sources of growth.**

## **MATERIALS AND METHODS**

The analysis of the main economic indicators of field vegetable growing incorporates official statistics provided by the Ministry of Agriculture and Food (MAF), The National Statistical Institute (NSI), as well as EUROSTAT and FAOSTAT online databases. The information about the methods for intensification and enhancement of competitiveness has been based on the analysis of three main articles – “Agricultural intensification escalates future conservation costs” (Phelps, Carrasco, Webb, Koh, Pascual, 2012), “Intensification as a main factor for the increasing of competitiveness of the vegetable production” (Lyavina, 2011), “Ways of increasing the production of vegetable production” (Sisin, Suhanova, 2009).

## **RESULTS AND DISCUSSION**

Intensification can be an essential factor for the enhancement of the economic effectiveness of vegetable growing in the country. The prevalence of intensive growth and development factors connected with lowering the material intensity of production, implementing the latest technologies for production and placement, improving the process of management and organization allows for a significant increase of the competitiveness of this industry, as well as the regional agriculture.

Various trends of production intensification, adjusted to the climatic and socio-economic conditions, must be used in order to increase the competitiveness of vegetable growing. The implementation of intensive technologies for production placement must also be kept in mind. At present, it is the process of vegetable growing placement and the selection of schemes and technologies that determine the extent of the enterprise's successful operations on the market and its competitiveness.

**Table 1****Main economic indicators for Bulgarian field vegetable production**

Indicators/Years	2006	2007	2008	2009	2010	2006 to 2010 in %
Vegetable production thousands/ha	15,0	16,5	16,1	16,2	17,3	115,3
Yield in Bulgarian vegetable production tons/ha	129,0	176,0	183,0	187,4	185,9	144,1
Overall production in thousands tons	193,0	290,2	296,3	303,8	320,8	166,2

(EUROSTAT & FAOSTAT, 2013)

The analysis of field vegetable growing for 2006-2010 shows that crop fields have been expanded by 15.3% (table 1), which stands out as an extensive factor for the development of the sector.

For the last couple of years, the load of agriculture machinery has been increasing: in 2006 there was a total of 3.3 tractors per 1000 hectares of arable lands owned by agricultural enterprises, whereas in 2010 – there were only 2.76 tractors per 1000 ha (MFA, 2011). This is caused by the gradual export and decommissioning of machinery.

The low level of technical supply, the lack of own funds and the unavailability of bank loans forced agricultural producers to violate the agricultural technology. They either procrastinate or do not fulfill at all the necessary measures demanded by the intensive technology used in vegetable growing. Operations, such as processing crops against diseases and pests are only partially made, whereas the pick-up of the production of field vegetable growing is made by hand due to the impossibility for renovations of the pick-up machinery fleet. All of the above being said, it turns out that there is a gradual transition towards rudimentary processing technologies (Lyavina, 2012).

The formation of market relations in vegetable growing takes place in complex economic and social conditions. There is a significant decrease in production, a sharp increase in the cost of growing and placement of vegetable production. Today, the search for ways to increase the volume of production, to cut expenses, to increase competitiveness of vegetable production and to satisfy completely the population's demand for vegetables is of utmost importance.

The task for increasing the volume of vegetable production output can be solved only by means of incorporating the latest technological achievements.

As the local and global experiences show, the sharp increase of the output and quality of vegetable production can be achieved by means of drip irrigation. Drip irrigation is the basis of contemporary agriculture technologies for the cultivation of vegetables, which can significantly contribute for the increase of yields and lowering the cost of vegetable production (Garnett, 2009).

Thanks to the controlled emission of irrigation water containing nutrients and micro elements directly into the feeding zone of each plant according to its biological needs, drip irrigation allows the output of vegetable crops to increase by 1.5 times, while their quality improves (Sisin, Suhanova, 2009).

Unlike traditional methods of irrigation where the whole plot gets damp, drip irrigation damps the soil in the form of stripes. The measures of the damp stripes (width and depth) are determined by the pattern of cropping, the physical properties and natural dampness of the soil, the position of irrigation tubings as compared with the seed beds, the stage of their development, the size of the irrigation rate (Garnevska, 2010).

The high efficiency of micro irrigation contributed to the fact that in a relatively short period (about 30 years) the species structure of crops, which are grown by means of this technology, expanded significantly. Compared with traditional irrigation (sprinkling or furrow irrigation) drip irrigation has the following main advantages:

- Water saving - 3 to 5 times. The effectiveness of irrigation reaches 85-90% because water enters directly into the root system of the plants;
- Ensuring optimal water and fertilizer usage depending on the physiological needs of the plants on the basis of creating a favorable water and nutrient composition of the soil.
- Increasing the yield of irrigated crops by 30-50% and improving the quality of production;
- Reducing the cost for fertilizers, as fertilizers and water enter directly into the root system of the plants;
- Reducing the means for plant protection, as it significantly reduces the number of weeds ( the soil between the seed beds remains dry) and the impact of diseases (as compared with traditional irrigation systems which dampens the leaves' surface);
- Reducing operational costs, in contrast to the energy wasting in other forms of irrigation (by 50-70%);
- Method which reduces labor costs; it is ever more difficult to attract labor hands to perform the arduous field work;
- The impact of wind on the irrigation process is disregarded;
- Reducing the requirements for the drainage system;
- A possibility for the use of mineralized waters which are unsuitable for other methods of irrigation;
- Minimizing or completely discarding the harmful impact of the environment;

- A possibility for the use of sloping lands up to 30° , as well as unfertile lands (poor, sandy, clay, recultivated lands);
- Reducing the labor costs for construction, operation and technical maintenance of micro irrigation systems thanks to the high workability of the units and the fully automated process of irrigation.

However, the positive result of implementing drip irrigation can be achieved only under strict compliance with both the drip irrigation technology and the other technological concepts of vegetable growing. Hence, it is extremely promising to use drip irrigation systems simultaneously for watering and fertigation, which increases their utility by 25-30% on average and reduces the aggregate usage of fertilizers by 20-40%. Fertigation ensures the maintenance of optimal concentration of food elements in the soil solution during the whole vegetation period of plants. Stable and high yields can be achieved only by the use of organo-mineral system for fertilizing. In addition, the introduction of fertilizers should be adjusted according to the presence of their mobile forms in the soil and the planned yield capacity (Phelps, 2012).

### **CONCLUSION**

At the moment Bulgaria is threatened by a loss of food safety, a statement which is affected by several key factors. First, the quality and assortment of vegetable supply is deteriorating, which directly affects the consumption of the population. Likewise, the import of goods and undercutting the price of Bulgarian producers undermines the national production, which is a factor for the decline in the investment appetite in the sector. All of the above being said, the country must create an effective strategy for the implementation of intensive technologies which can enhance the competitiveness of Bulgarian vegetable growing.

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