

Growing Chinese Cabbage: Indoor or Outdoor?

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Abstract. Chinese cabbage (*Brassica campestris* var. *pekinensis* (Lour.) Olson) is a vegetable which can be cultivated with success in Transylvanian Tableland specific conditions. Even if in our country it is considered a rare vegetable, probably because it is cultivated only by amateur gardeners, or is imported from other countries, it is appreciated by those who ate this tasteful vegetable. An other problem is the price of Chinese cabbage, which is five or six time higher than the white headed cabbage price. The present research took place, in 2011, on the experimental field which belongs to the Vegetable Growing Department from the Faculty of Horticulture from the University of Agricultural Sciences and Veterinary Medicine from Cluj-Napoca, in the spring. Five cultivars of Chinese cabbage were used to see if this almost unknown vegetable from our country can be cultivated with better results in open field or in protected culture. The experiments results showed that this type of cabbage can be cultivated with maximum success in protected areas, such as greenhouses or polyethylene tunnels. Even if the price of culture establishment is higher in case of the protected culture, the higher quality of the final products and the higher yield make these cultures more profitable ones compared with the open field cultures.

Keywords: Chinese cabbage, open field culture, polyethylene tunnel, quality, protected crop

Introduction. The spring Chinese cabbage culture is one of the most profitable culture, because of its short vegetative period, high yield, and of the high demand for fresh vegetable from this time of the year (Kalisz, 2005). Yields of up to 100 t/ha are possible, with good commercial yields in the range of 50 to 70 t/ha (Burt *et al.*, 2006; Clarke, 2004), the weight of the cabbage heads can vary between 1.4-4.5 kg (Larcom, 2008).

Highest yield can be obtained when the planting density is higher (Krunz and Basnayake, 1987; Hill, 1991). Regarding the plants diameter, these are higher when fertilization is made with higher doses of fertilizers (Hill, 1991).

Aims. This research had as main purpose to study the pedoclimatic conditions in open field and in protected areas, the growth and development of plants, and also the quality and quantity of the Chinese cabbage yield.

Material and method. The research took place on the experimental field which belongs to the Vegetable Growing Department from the Faculty of Horticulture from the University of Agricultural Sciences and Veterinary Medicine from Cluj-Napoca, in the spring of 2011. A total number of five Chinese cabbage cultivars were cultivated, in open field and also in polyethylene tunnels. The experiences were monofactorials, the experimental factor being represented by the cultivar.

The five cultivars were: Granat, Michihli, Kingdom 80, Vitimo F1 and Nepa F1. Some of these cultivars were bought from Romania, being commercialized and acclimatized in this area, the rest of them were bought from abroad. The cultivation of these last cultivars had as secondary purpose the verification of their behavior in Transylvanian Tableland specific conditions.

Results and Discussion. The average yield from open field was much lower than that obtained from protected crop, and also the quality of the cabbage heads from the polyethylene tunnels was better than the quality of the cabbage heads from the open field.

In the experiences which were made at the University of Agricultural Sciences and Veterinary Medicine from Cluj-Napoca, the yields varied between 72.40 t/ha and 110.40 t/ha, in protected cultures, while in open field only between 41.00 t/ha and 63.15 t/ha, the average yield being 49.66 t/ha in the case of open filed culture and 85.63 t/ha in case of polyethylene tunnel culture, the difference between the two culture system being very significant.

In protected the planting is made earlier, so the price of the final product is higher than in the case of the open field culture.

Conclusion

Even if the costs of a protected crop are higher compared to those of an open field culture, it is better to cultivate Chinese cabbage in protected crop conditions because the quality and quantity of the yield can generate a high profit.

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