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The Behavior of the Radish (*Raphanus sativus* L.) and Red Beet (*Beta vulgaris* L. var. *conditiva* Alef) in the Successive Crops, following the Lettuce (*Lactuca sativa* L.), Spinach (*Spinacia oleracea* L.), Small Radish (*Raphanus sativus* L. var. *sativus*) and Spring Onion (*Allium cepa* L.)

Cristina CONDOR, Dumitru INDREA, Silviu APAHIDEAN

University of Agricultural Sciences and Veterinary Medicine, Faculty of Horticulture,
3-5 Manastur Street, 400372, Cluj-Napoca, Romania; condoreii@yahoo.com

SUMMARY

Successive crops can increase the productivity and the economic efficiency of the vegetable production. Their success depends on the correct choice of suitable species and varieties in each area. Many authors have shown positive associations between the crops in succession but they also shown some types of crops that presents incompatibilities, caused by plants health issues, insufficient mineral supply, or allelopathic effects. In particular, it can be discussed on the negative relationship between species of the *Chenopodiaceae* Family (Becker-Dillingen, 1965, Hösslin *et al.*, 1964) as well as the positive allelopathic effects between the species of the *Brassicaceae* Family (Jimenez-Ossorino and Gliesman, 1987). There have been studied two root crops: radish and red beet. These kinds of crops are finding favorable growing conditions in the pedoclimate of Bistrita County, and they were preceded in the same season by lettuce, spinach, small radish and spring onion. Thus there were eight experimental variants, arranged in randomized blocks of three repetitions each. The experiments were conducted between 2000 and 2001 on the experimental crop area owned by Bistrita's Agricultural College. Compared with the control (lettuce + radish) the commercial production of the radish grows distinctly significant if it is cultivate after the spinach and significant after the spring onion, and it will very significant decrease when cultivate after the small radish. The commercial production of the red beet increases with 22.1 percent when it is cultivate after the small radish and with 33.5 percent when cultivate after the spring onion. The production of red beet will drop significantly after the spinach, by almost a half (59.3%), compared with the control (lettuce + red beet). The two year average cumulative production has its highest level at combinations between lettuce + red beet (48.2 t/ha) and spring onion + red beet (47.43 t/ha), as well as the formula lettuce + radish (38.82 t/ha) and spinach + radish (34.17 t/ha), but the highest economic efficiency is achieved in the combination between small radish + red beet and in the one between spinach + radish.

Keywords: vegetables, *Chenopodiaceae*, *Brassicaceae*, intolerance, allelopaty

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