

**PHYSIOLOGICAL PROCESSES BY SEEDLINGS EMERGED FROM GRAINS
OF TRITICALE GROWN IN ROTATION CROP AND AS CONTINUOUS CROP****Demczuk A.², Grzyś E.², Parylak D.¹, Sacala E.²**¹ *Department of Soil Management and Plant Cultivation,*² *Department of Plant Nutrition,
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Cultivation of cereals in continuous crop might cause decrease in the quantity and quality of grain crops. As a result of decline of seed quality (cultivated in that manner) physiological processes in the seedlings of plants grown from those seeds might be disturbed.

The goal of this research was to examine whether there are any differences in physiological processes of plants seedlings taken from the seeds of triticale cultivated in crop rotation and in continuous crop. The seeds of *Marko* winter triticale, cultivated in 3-year continuous crop (M) and crop rotation (P) were germinated on paper moistened with water and then their germination energy and amylolytic activity was investigated. Afterwards germinated seeds were placed in Richter nutrient solution and cultivated in controlled conditions. After 10 days of cultivation the growth parameters were investigated (length, fresh and dry weights of roots and aboveground parts). The investigation also included the intensity of photosynthesis, content of photosynthetic pigments as well as nitrate reductase activity and nitrate content in roots and leaves of the seedlings.

No considerable differences in seed germination energy and amylase activity in germinated seeds (P) and (M) were proved. Also no differences were observed in roots growth of seedlings (P) and (M). However higher growth intensity was noticed in aboveground parts of seedlings (P) than (M). Total chlorophyll content and photosynthesis intensity were slightly higher in (P) than in (M) seedlings while carotenoid content in investigated seedlings was similar. Nitrate concentration in roots and leaves of the examined plants did not differ significantly, as well as, activity of nitrate reductase in the roots. However, activity of nitrate reductase in leaves of seedlings (P) was considerable higher than in (M) seedlings.

Slight but significant differences in some of the physiological processes, occurring in triticale seedlings taken from seeds of plants cultivated in continuous crop or rotation crop might indicate the occurrence of some substances limiting the initial growth of seedlings (maybe of allelopathic character) in the seeds taken from continuous cultivation.