

**ALLELOPATHIC POTENTIAL OF WINTER TRITICALE VOLUNTEERS AND  
CATCH CROP (WHITE MUSTARD) FOR SPRING TRITICALE AND WHEAT****Parylak D.***Department of Soil Management and Plant Cultivation, Agriculture University, Wroclaw, Poland*

In the recent years a rapid increase of small grains in sowing area has been noticed. It is said that crop residues and volunteers have significant influence on the decrease of productivity of cereals cultivated in that manner. Lower tolerance of small grains for continuous cropping occurs probably as a result of the presence of chemical substances produced during decomposition of crop residues, straw or volunteers, and also as a result of auto-toxic characteristics of self-exudates, so called autokolines. These substances which are secondary metabolites are released into environment by living plants, as well as by dead tissues. This negative effect can be limited by short-term cultivation of other crop, i.e. catch crop.

The objective of the research was to estimate the allelopathic influence of winter triticale volunteers and catch crop on the initial growth of spring forms of triticale and wheat. The investigation was made on the basis of 3-year pot experiment, done by completely randomized design method in three replications. *Gabo* spring triticale and *Igna* spring wheat were sown into pots filled with soil taken from a field managed diversely, after previous crop harvest. After winter triticale harvest part of the field was sown by white mustard (catch crop), other part was left for triticale volunteers growing after harvest cultivation, and the rest of the field was kept in bare fallow conditions (controlled, without crops). The field was ploughed before winter. In spring, samples of the soil were taken from particular parts of the field and put into pots. Fifteen seeds of spring triticale and wheat were sown per pot. The soil humidity was kept on a constant level.

The research comprised the emergence dynamics and the length and weight of aboveground plant parts, as well as root biomass in first and second leaf phase. Five months after incorporation winter triticale volunteers or white mustard biomass into soil their influence on emergence dynamics of triticale and wheat was observed. Further development of spring small grains depended on the presence and type of decaying crop residues in the soil. An increase in length and dry weight of aboveground parts and root biomass was observed after white mustard as compared to plants grown on fallow.

No visible negative influence of volunteers on the initial phase of leaves development was noticed. However a reduction in roots mass was observed. Spring triticale response to volunteers or catch crop presence was stronger than response of wheat.