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ANTINEMATODE EFFECT (*HETERODERA SCHACHTII*) AND YIELDS OF SELECTED WHITE MUSTARD LINES AND VARIETIES CULTIVATED AS STUBBLE CATCH CROP ON BLACK EARTH IN POLAND

ABSTRACT

The aim of the investigation performed in 2013 and 2014 was to evaluate the antinematode effect and yields of double low white mustard lines, derived from the national breeding programme. Mustard lines were cultivated as a stubble catch crop, which is broadly exploited in crop rotation with root crops as green manure, antinematode factor and mulch. Four breeding lines of white mustard: PN1 (847/12), PN2 (518/12), PN3 (554/12), PN4 (563/12) and three cultivars: Nakielska, Sirola and Warta were included in the testing procedure. The field experiment was performed in a randomized complete block design, with four replications, on black earth with high beet cyst nematode density (1300-2400 eggs and larvae in 100 g of soil). White mustard was sown (20 kg seeds per ha) in the first week of August and harvested during the last week of October. On experimental site pre-sowing fertilization was applied in the following doses: 50 kg N per ha and 70 kg K per ha. Before plant sowing and during harvest soil samples were collected in order to determine the number of eggs and larvae of *Heterodera schachtii*.

The analysis of the average results from two years showed that in the white mustard lines group the line PN1 produced the highest fresh and dry matter yield of shoots and roots. The yields mentioned were similar to the yields of white mustard cultivar Warta, however smaller than the yields of cultivars Nakielska and Sirola. The population of beet cyst nematode in soil was most efficiently reduced by white mustard line PN4.