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University of Veterinary Medicine
Research Institute of Veterinary Medicine
Hlinkova 1/A
040 01 Košice
Slovak Republic

THE UTILIZATION OF TOBACCO DUST AS A SOURCE OF NITROGEN FOR PLANTS AND OF CARBON FOR THE FORMATION OF HUMUS COMPOUNDS IN THE SOIL

Czekała Jacek, Jakubus Monika, Mocek Andrzej, Owczarzak Wojciech

Department of Soil Science, Agricultural University of Poznań
Mazowiecka 42, 60-623 Poznań
e-mail: monja@owl.au.poznan.pl
fax: (61) 848-72-13

Tobacco industry generates large amounts of organic wastes produced during the processing of tobacco leaves. The most valuable of them are ground parts of the main veins of tobacco leaves. This type of waste is characterized by a high content of total nitrogen (on average 24.1 N/kg of d.m.) and the C : N ratio = 13.5 : 17.9. This makes it possible to use the waste directly in agriculture, primarily as a source of nitrogen for plants.

For this reason studies were initiated aiming at the determination of the fertilizing action of the waste and its effect on humus compounds in the soil. Both plant container and field experiments were conducted. In the plant container tests the waste was applied in the amounts corresponding to 0 to 2 g of N per container. The fertilizing action of the waste was investigated on the basis of the main crop (maize) and the aftercrop (mustard). Moreover, quantitative and qualitative changes in the humus compounds in the soil were also analyzed. It was found, among other things, that:

- Nitrogen in the waste exhibited high manurial value expressed in terms of crop yields and the degree of its utilization
- The waste had an advantageous effect on the content of humus compounds in the soil, the amount of which increased along with the growing doses of the waste.

In the field experiment the waste was applied in the doses of 0, 5, 10, 20, and 40 t/ha for maize and spring wheat. It was shown that the yield of fresh matter of maize increased along with the increasing doses of the waste and was comparable with the yield obtained at the application of mineral fertilizer (100 kg N/ha). It was also accompanied by significant uptake of nitrogen together with the crop, which was however lower than in the combinations with the waste.