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## APPLICATION OF FLY ASH AS AMENDMENT IN AGRICULTURAL FIELD OF *Avena sativa*

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### Abstract

Intensive cereal crops planted on soils from the Western part of Romania determine, annually, significant losses of essential microelements and macronutrients for plant development from the agricultural soil, which lead to the depletion of such lands. Fly ash (FA) resulted from coal combustion at the CET Timisoara power plant, can be used as supplement to an organic fertilizer, such as manure (M) to restore the balance of micro- and macronutrients, important to obtain healthy cereal crops and high productions. FA application has immediate, direct and long lasting effects on the improvement of the physical-chemical characteristics of the agricultural soils, on the uptake of the nutrients from the soil by plants, and obtaining of high yielded cereal crops. Four treatments, each consisting of three replicates, were realized in randomized block design. The experimental variants were: control, 40t·ha<sup>-1</sup> FA, 40t·ha<sup>-1</sup> FA in combination with manure 25t·ha<sup>-1</sup> respectively, 50t·ha<sup>-1</sup>. Applying fly ash in combination with an organic source of macronutrients, manure (FA + M), determined an increase of straw quantity with 43-57% and of grain with 48-80% for *Avena sativa* species, compared with the control. Analysis of the heavy metal content from grains and straw resulted from the experimental variants treated with FA+M, represents the *sine-qua-non* condition for crop security knowing that these components enter the food chain. The obtained results show that fly ash could be applied safely to oat crops in agro ecosystems, on chernozem, specific to lowlands of Banat Plain, proper for cereal crops.

**Key words:** agriculture, *Avena sativa*, fly ash, metals bioaccumulation modified

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