

Effect of chicken manure derived biochar on crop yields

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Currently, applying organic farming methods is a hot topic for the whole world. The rejection of traditional fertilizers, in particular pesticides and heavy metals, is one of the most important goals. The use of environmentally friendly and biodegradable fertilizers in the best way meets the preservation of the soil and soil communities. One of the representatives of such fertilizers is a biochar. This is an environmentally friendly fertilizer with a high content of nutrients, obtained by the method of biomass pyrolysis (manures, green mass and mushrooms). Articles the occurrence of chicken manure biochar is comparatively rare. Biochar not only reduces costs when growing food crops, but also helps to solve problems with the disposal of poultry manures, which is a source of pollution. The main objective of this work was to research the effect of biochar on the growth and the crop of cultivated plants in field experiment. In this study used a biochar obtained by pyrolysis of chick-en manures. Field experiment has been made on a farm field with a gray forest soil. A biochar dose of 30 tons on hectare was applied. This amount is comparable with the standard fertilizer application rate. It show that the application of this type of fertilizer leads to an increase in plant biomass. It in turn has a positive effect on crop. Using the example of wheat and barley, it was shown that biochar was applied into the soil: the wheat biomass increase was $71\% \pm 4\%$, and in the case of barley - $39\% \pm 6\%$. When analyzing the grain obtained using biochar in the field, the results were obtained with better quality indicators than the results of the grain of control areas. In particular, an increase in the protein content and an increase in the falling number. The 1000 kernels weight in wheat samples increase was 8%, and in the case of barley - 11%, correspondingly. Increase 1000 kernels weight indicates a more complete filling and ripening of grain.

Chicken manure biochar is a slow release fertilizer, it is a reason for controlling plants and crop in the next year.