World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:8, No:01, 2014

Cesium 137 Leaching from Soils of Territories, Polluted by Radionuclides

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Abstract : Chernobyl NPP accident is the biggest in history of nuclear energetic. Bryansk region of Russia was exposed by the most intensive radiation pollution. For that, we made some researches in order to find the methods of soil rehabilitation on territories, polluted by radionuclides with the means of Cesium 137 leaching by watering. For experiments we took the soil from the upper more polluted 10 cm layer of different species. Cesium 137 leaching was made by different methods in washing columns. Washout of Cesium was made by periodical cycles in terms of 4-6 days. In experiments with easy argillaceous soil with start specific radioactivity 4158 bk/kg through 17 cycles the effective reducing was achieved and contained 1512 bk/kg. Besides, results of researches showed, that in the first 6-10 cycles we can see reducing of washing rate but after application of intensificators: ultrasound water processing, aerification, application of fertilizers (KCl), lime, freezing, we can see increasing of Cesium 137 leaching. The experimental investigations in washout of Cesium (Cs) – 137 from the soil were carried out in the field and laboratorial conditions during its freezing and melting. The experiments showed, that washout of Cesium (Cs) – 137 from the soil is rather high after freezing, than non-frozen soil is. And it conforms to washout of Cesium, made under the influence of the intensificaters. This fact allows to recommend chip and easy to construct technically arrangement for regulation of the snow-melt runoff for rehabilitation of the radioactive impoundment.

Keywords : pollution, radiation, Cesium 137 leaching, agriculture
Conference Title : ICAEE 2014 : International Conference on Agricultural and Environmental Engineering
Conference Location : London, United Kingdom
Conference Dates : January 20-21, 2014