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THE PECULIARITIES OF THE RADIATION CONTAMINATION OF THE WOOD IN SE «BILOKOROVYCHY FORESTRY»

SE "Bilokorovychi Forestry" is situated in the northern part of Zhytomyr region and the highest rates of soil radiation contamination density are detected there.

The forestry consists of eight forest districts (Table. 1). The density of 137Cs soil radiation contamination on the territory of these districts varies from 1 to 30 Ci/km^2.

Table 1

Zones of radiation contamination in the SE "Bilokorovychy Forestry", Ci/km^2

The forestry	Total area, ha	Areas (ha) with the density of radiation contamination					
		Zone 1	Zone 2			Zone 3	
		>15,1	Subzone			Subzone	
			а	б	в	а	б
			5,1-7	7,1-10,0	10,1-15,0	1,1-2	2,1-5
Bilokorovychy	8006	442	705	871	933	1171	3884
Zhubrovychy	7271	-	-	-	-	6530	741
Zamyslovychy	8582	-	-	-	-	6279	2303
Ozeriany	7897	-	76	-	-	5446	2375
Poiasky	6982	-	-	-	-	6039	943
Radovel’	6764	-	42	259	112	3300	3051
Zubkovychy	8607	-	-	-	-	5069	3538
Tepenytsya	5750	-	-	-	-	4455	1295
Total:	**59859**	**442**	**823**	**1130**	**1045**	**38289**	**1813**

There are 442 ha of forests with the density of ^{137}Cs soil contamination ranging from 15.1 to 30.0 Ci/km^2 on the territory of the enterprise. Any management activity and the use of wood resources are prohibited here. The area of 1045 ha with the density of soil radiation contamination ranging from 10.1 to 15.0 Ci/km^2 was imposed strict regulations on the use of wood. The wood from these areas can be used for certain specific purposes.

The use of wood for fuel is banned in the forests with the density of 137Cs soil contamination of more than 7.0 Ci/km^2 (3440 ha). The territories with the value of this indicator of more than 2.0 Ci / km^2 (21,570 ha) are banned to use non-timber forest products (Fig. 1).

The total area of forest plantations contaminated by radionuclides is 59859 ha.

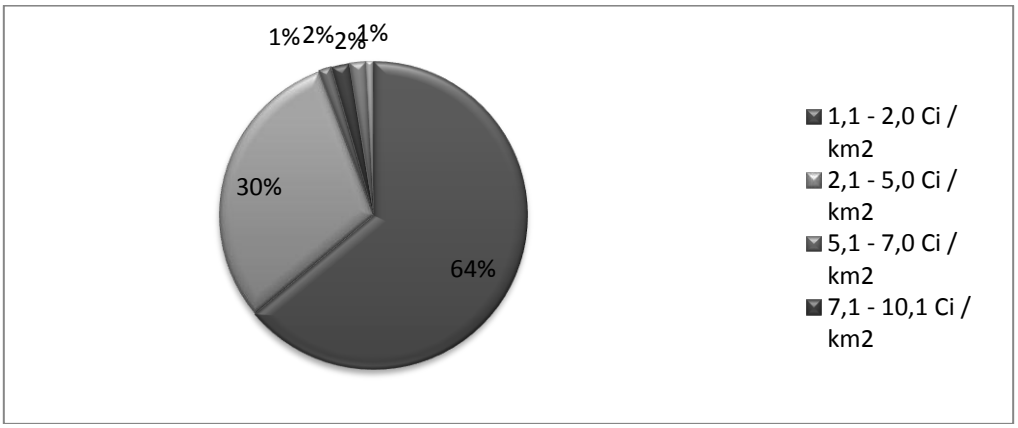

Fig.1The distribution of the forest areas with different densities of soil radiation contamination in SE "Bilokorovychy Forestry"

The study of ^{137}Cs content in tissues and organs of tree species in all types of forest vegetable conditions allow drawing some conclusions.

According to the intensity of ^{137}Cs accumulation, tissues and organs of trees can be put in the following range: leaves, pins> bark>branches>timber in the bark >timber. There is an increase of radioactive contamination in the bark with the increasing height of the trunk of the tree.

The levels of radioactive contamination of tissues and organs of Scotch pine which is the main forest forming species in SE "Bilokorovychy Forestry" were analyzed. The investigation was carried out on the typical test plot ETP-88, which is located in wet suhrudy (C3). The intensity of radionuclide accumulation was assessed by standard relative measure, i.e., radionuclide transfer factor in the chain: soil - woody plant (tissue, organ) (Fig. 2).

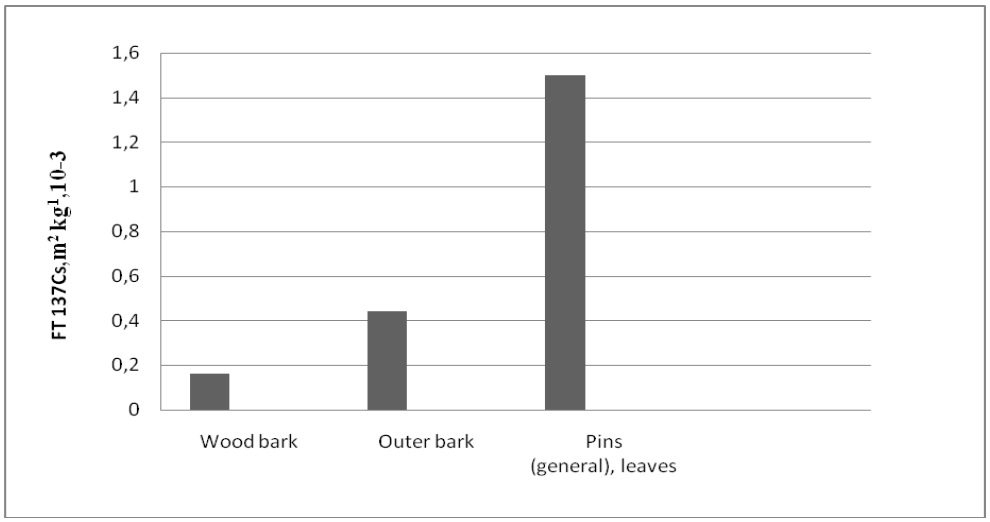

Fig. 2. The average values of ^{137}Cs TF in the tissues and organs of the tree species on the ETP-88 in wet suhrudy

Pins are the most physiologically active part of trees and the highest values of transfer factor are inherent for them. The most active metabolism processes occur in pins. Pins get a significant amount of potassium, the chemical element which is the analogue of cesium. The smallest value of transfer factor is determined for wood, but the nature of the radioactive contamination is cumulative.

The generalized results of radiological monitoring within 1991-2010 years show that the rates of wood radiation contamination are very specific. Scientists consider it possible to restore the wood use in the areas where it was restricted or banned.