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FEATURES of ^{137}Cs ACCUMULATION BY MAIN SPECIES (plants) OF OVERGROUND COVERAGE IN PINE PLANTATIONS OF FRESH SUBORS IN ZHYTOMYR POLISSYA

As a result of the Chernobyl nuclear disaster, radioactive contamination of large areas of forests in Ukraine took place. Forests fulfilled their natural functions and protected settlements and farmland from radioactive contamination. The largest number of contaminated forest acreage is concentrated in Zhytomyr region. Exactly in these forests before the Chernobyl catastrophe the picking-up of berries was carried out. Such kinds of berries as whortleberry, moorberry, raspberry, cowberry grow in the forests of Ukrainian Polissya. About 90 % of wild berries picking-up was conducted on the contaminated territories. The most widespread in a region is a whortleberry (*Vaccinium myrtillus* L.): in Zhytomyr region an area of its growth is 87,2 % of the area of all berry patches. A whortleberry is a strong store of ^{137}Cs , that is why its picking-up must be conducted taking into account the level of radio-active contamination of the territory. It is possible to pick up fresh berries of whortleberry at the soil contamination of 1,6 Ci/km².

After the Chernobyl Nuclear Power Plant disaster, wide radioecological researches were started (Krasnov, 1998; Scheglov, 1999; Bulavik, 1999) which engulfed all of the components of forest ecosystems. However, only a few researches were directly devoted to plants (Krasnov and others, 1995; Orlov and others, 1995; Eliashevich, 1998).

Field researches and collection of experimental materials will be conducted on the territory of Bazarsky forestry of DP «Narodickiy lisgosp APK», which has considerable contamination of soil of ^{137}Cs (6-393 kBk/m²). 10 trial areas are going to be laid on the areas with the most characteristic forest plant terms in the region.

Taking into account the state of the problem, the following steps are included in the program of works:

- study of regularity of forests spatial radiocontamination in the region of researches;
- determining of the feature of distributing of ^{137}Cs in forest soils;
- study of intensity of radiocontamination of whortleberry;
- determining of the dependence between the content of ^{137}Cs in soil and in fitomass of whortleberry (*Vaccinium myrtillus* L.);
- generalization of the obtained data.

Using the results of the conducted researches two indexes will be determined – specific activity of ^{137}Cs in fitomass of whortleberry (both vegetative and berries) and calculation values of the coefficient of transition (CT) of ^{137}Cs . It is conditioned by the fact that both parameters are closely related to availability of radionuclide for the root

feed of whortleberry, and also that CT is a relative index, and for its calculation the parameters which have wide enough amplitude of values are used.

For example, it is known from the previous researches, that the coefficient of varying of specific activity of ^{137}Cs in the sprouts of whortleberry was 45,7%, in berries – 32,7%, and for the coefficient of transition of the sprouts – 40,1%. We will calculate the dependences of content of ^{137}Cs in whortleberry on the constituents of radiation situation on the trial areas. The analysis of accumulation of ^{137}Cs by the different organs of whortleberry will be conducted. The samples will be selected, which will be carried out in the different points of the trial area, homogeneous on the character of relief, vegetation and agrotechnical state. In the laboratory with the help of gamma-spectrometric setting specific activity will be determined and the coefficient of transition of ^{137}Cs from soil into the plants of whortleberry will be calculated according to the formula 1:

$$KP = \frac{Am}{As} \quad (1)$$

where: Am is a specific activity of ^{137}Cs in one unit of mass of dry whortleberry (Bk/kg);

As is contamination of soil of ^{137}Cs (Bk/m²).

The contamination of soil was calculated using the formula 2:

$$As = h * \rho * Am \quad (2)$$

where: h is the depth of sampling, m;

ρ is a middle closeness of layer of soil, kg/m³;

Am is a specific activity of ^{137}Cs in one unit of mass of dry soil (Bk/kg).

Then all selected samples will be dried out to the air dry state, will be ground down and analysed in the laboratory on a spectrometer. The results of the researches will be processed on the personal computer with the use of application packages of EXCEL and STATISTIKA. The obtained results will be possible to use in practice for prognostication of radiation contamination of the harvest of berries.