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FOREST FIRE AND NATURAL ACTION TO REMOVE COMBUSTIBLE MATERIALS IN FOREST ECOSYSTEMS

Yavorovskyi P.P. - *Doctor of Agricultural Science*

It is shown that from 2714 to 7036 forest fires occurred annually in Ukraine from 1990 to 2010; an area of 35,900 ha of forestlands was affected by fires, 23,970 ha of stands were lost, more than 2,460,000 m³ of forest products were destroyed and damaged. Coniferous forests grow on almost 43.7 % of the land covered with forest vegetation, including 79.0 % of pinewoods, more than half of them (over 55.0 %) is occupied by the most inflammable saplings and middle-aged forest stands. The comparison of data 1990 and 2010 shows an increase in the number of forest fires in Ukraine their areas, forest plantations, who died or were damaged by fire and the amount of burned forest products in 94, 54, 170 %, and 13.5 times, and the years 2005 – 2010, compared with 1990 by 75 % and 2.5 and 3.45 times. Fire resistance of forest stands, to a great extent, depends not only on the level of natural fire hazard of stands, but also on the presence on their territory of natural fuels (NF), which may be removed before the fire season with their subsequent use for the production of fuel granules (pellets) or if it is economically impractical to eliminate them by controlled burning. Destruction of natural combustible materials from the forest reduced the level of natural fire hazard because they are not flammable substances and agents of the burning. The total stock of natural fuels in Ukraine is 126.88 million tons and their compaction under conditions of their processing into the pellets and taking into account possibilities and economic feasibility of harvesting natural fuels even at half wooded area, the mass of fuel pellets will be more than 6.3 million tons. According to the Ukrainian newspaper «Derevoobrobnik» combustion 2 tons of fuel pellets allocated the same heat as when burning 975 m³ natural gas or 1 ton diesel fuel or 1.37 thousand liters of fuel oil and for year heating house 150 m² should only 7.5 m³ fuel pellets. In the case of controlled burning natural fuels – optimal weather conditions to carry it out are

the relative humidity – 20 – 35 %, wind speed – 1.5 – 4.5 m/s and air temperature – 18 – 22° C. Cleaning natural fuels in the forest in the first place it is need in the forest that grow in very dry and dry conditions soil moisture, i. e. forest I – III classes of natural fire danger. Controlled burning of natural fuels in a forest where their preparation for processing into fuel pellets are not economically profitable should be done in one day and repeated after 4 to 5 years after their accumulation to a critical level, when possible occurrence of forest fires. Under such environmental conditions it is possible to control fire in previously defined boundaries, regulate the intensity of burning and the speed of the fire edge moving. Natural fuels mapping allows us to estimate the stocks, determine the potential fire hazard for each quadrant and stratum and with account taken of the level of NF drying, and the date of the last rain, evaluate the possibility and the time of vehicles movement in the course of harvesting natural resources for the production of fuel pellets, controlled burning or suppression of fires.

Forest fires, natural fuels (NF), mapping natural fuels, fuel pellets, controlled burning.