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M. A. BONDAR, A. P. KREMENA, N. F. SVIRIDENKO

FIRE IN THRESHING ROOM OF GRAIN HARVESTER: SIMULATION OF FIRE DEVELOPMENT AND SUPPRESSION WITH DISPERSED WATER

Methodical support for solving the practically significant problem of improvements in fire safety of grain harvesters is developed using the efficient method for the fire suppression with dispersed water when a fire emerges in the threshing room. This methodical support includes the mathematical model of the fire development for estimating the current fire parameters and that of firefighting as a relation between the parameters and characteristics of the fire load, the fire, the dispersed water stream and the time for firefighting. The validity of the developed models is confirmed by experiments, including the results of firefighting in the threshing room of the SK-4 grain harvester. These methodical support and recommendations can be used to select the justified parameters of the dispersed water stream for firefighting in the threshing room in a definite time with some water storing in the harvester and to create the active systems of grain harvester fire safety resulting in the efficiency, the reliability and the adaptability to manufacture.

Keywords: *grain harvester, threshing room, coarse heap, fire, development, firefighting, dispersed water, flow parameters.*

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