

A Large-Scale Shoot Blight in Young Plantations of Scots Pine (*Pinus sylvestris* L.) in Moscow Region

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The article presents the results of the study of a large-scale shoot blight of Scots pine (*Pinus sylvestris* L.), revealed in forest cultures of the 1st class of age in the Moscow region in 2017. The authors provide data on the total recorded area of affected plantations at the end of 2018 (1991,9 ha). Previously such cases of a wide scale affection of pine in the region had not been reported.

The main part of the article describes the disease symptoms and the results of the plant condition assessment in the affected young plantations. There is a high incidence of diseased plants (on the average above 90%). The condition of forest cultures is estimated as weakened, however, the death of plants as a result of the disease is noted in rare cases. The greatest harm consists in the loss of the main leader shoot, the deformation of stems, the formation of bushy crowns. According to the results of laboratory diagnostics with the mycological method of the wet chamber and subsequent microscopy of the formed sporulation, as well as by DNA analysis, the main causative agent of the disease is the fungus *Sphaeropsis sapinea* Dyko & B. Sutton. The pathogen develops in conjunction with the causative agent of shoot and needle blight, *Sclerophoma pithya* (Sacc.) Died., and a number of other species that are less widespread.

The article also provides an analysis of the conditions that contribute to the emergence of epidemic. The authors concluded that a number of factors (a large quantity of infection, accumulation of susceptible plants in large

areas and favorable weather conditions for pathogens) had contributed to the development of the disease.

At the end of the article the authors conclude that currently in the Moscow region there is a local epidemic of Sphaeropsis and Sclerophoma shoot blight of Scots pine in forest cultures of the 1st class of age. In conclusion, the authors note that to predict the development of the disease and plan scientifically-based protective measures, it is important to study the biological and ecological characteristics of the pathogenic fungi in the Moscow region.