Susceptibility of *Pinus sylvestris* and *Picea abies* to infection by *Heterobasidion* spores

**Zaluma, A., Kenigsvalde, K., Brauners, I., Brūna, L., Kenigsvalde, A., Gžibovska, Z., Korhonen, K., Gaitnieks, T.**

**Latvian State Forest Research Institute “Silava”, Rīgas str. 111, Salaspils, LV-2169, Latvia**

Email: talis.gaitnieks@silava.lv

*Heterobasidion* spp. causes root and but rot of conifer trees. In Latvia 23% of spruce trees are decayed. The aim of the work was to estimate the susceptibility of *Pinus sylvestris* and *Picea abies* to primary infection by *Heterobasidion* spp.

Seasonal dynamics of stump infection by *Heterobasidion* spp. was evaluated in two mixed stands of *P. sylvestris* and *P. abies* in eastern Latvia. In each stand approx. 40 trees were cut in 2013 (June, September, December) and in 2014 (March, June). In total 214 spruce and 210 pine stumps were analysed. The stumps were sampled when the temperature sum reached 2000 °C since tree felling. *Heterobasidion* spp. infected 2% of pine stumps and 53% of spruce stumps; mean area occupied was 3% and 9%, respectively. The results suggest that *Heterobasidion* spp. infection were more frequent in *P. abies* stumps in all analysed fellings except in December.

Currently, small diameter stumps are not treated with biological preparation during precommercial thinning, since the importance of small diameter stumps for the spread of *Heterobasidion* spp. is considered insignificant. The aim of this study was to evaluate the role of small diameter *P. abies* and *P. sylvestris* stumps left after precommercial thinning in the spread of *Heterobasidion* spp.

More than 4500 stumps of *P. abies* and *P. sylvestris* were sampled during 2010 – 2013. Primary infection of *Heterobasidion* spp. was present in 48% of *P. abies* stumps and 12% of *P. sylvestris* stumps. Part of stumps were marked and investigated also 1 – 3 years later. *Heterobasidion* spp. was not found in *P. sylvestris* stumps.

In another experiment wood discs of *P. sylvestris* and *P. abies* were exposed to natural infection of *Heterobasidion* sp. in heavily infested sites. Some of the discs were also artificially inoculated using conidiospores of *Heterobasidion* sp. In this experiment it was concluded that discs of *P. sylvestris* were more susceptible to natural and artificial infection of *Heterobasidion* sp. than discs of *P. abies*.

Experiments were also established using log pieces of *P. sylvestris* and *P. abies*. Billets were exposed to basidiospores of *H. annosum* and *H. parviporum* for 5 days in two forest sites and then incubated for a month on the field (in forest nursery). After incubation, the logs were cut into discs. Results obtained in this experiment show that primary infection of *H. annosum* and *H. parviporum* is higher in wood of *P. abies*.

Summarizing all previously mentioned results it could be concluded that susceptibility to primary infection of *Heterobasidion* spp. is higher in *P. sylvestris* than *P. abies*, but infection is affected
by different factors (individual properties of each tree, moisture content, spore background in the stand etc.) and can be variable in different experiments.

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