

Phytosanitary efficacy of kiln drying (PEKID)



Funding

Virtual Common Pot, via a competitive call. Each funder only paid for the participation of their own national researchers. The total funding of the project was € 150,000

Goals

To determine whether organisms of phytosanitary concern, particularly those mentioned in Directive 2000/29/EC, can survive the current kiln drying (K.D.) requirements (reduction of the wood moisture content to < 20%) and if this is linked to particular life stages or strategies of pest organisms (key insects, nematodes, fungi).

Objectives

- Determine efficacy limits of a K.D. treatment, taking into account treatment temperature, moisture content of the wood and life stage of the tested organisms.
- Investigate efficacy of kiln drying on killing Insects, nematodes and fungi.
- Investigate the phytosanitary mode of action: desiccation of the wood or temperature used within the drying process or a combination of both.
- Develop appropriate test sample systems, artificial inoculation procedures and host/pest systems for model organisms.
- Dissemination of the results to the public and interested parties.

Note: Infestation or re-infestation of already dried wood by harmful organisms, such as dry wood insects, was not part of the project.

Research consortium

Austria: BFW; Germany: JKI; Italy: CRA-ABP; Slovenia: Slovenian Forestry Institute

Contact information

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Key outputs and results

- A constant temperature of 30°C was sufficient to achieve the target moisture level of <20% but this treatment did not always eliminate quarantine pests.
- ISPM No. 15 treatment (56°C for 30 minutes in the core) was effective against the tested nematode and insect species but did not eliminate all fungi.
- Longhorn beetles, a buprestid species and the bark beetle species *Ips sexdentatus* and *I. typographus* survived a K.D. treatment at 35°C followed by a heat treatment at a temperature less than that specified in ISPM No. 15.
- *Bursaphelenchus xylophilus* and *B. mucronatus* survived a K.D. treatment of 35°C in the laboratory and the field.
- Populations of the bark beetle *Pityogenes chalcographus* were reduced at a K.D. temperature of 30°C but the rate of development of the surviving beetles increased.
- Results suggest that the minimum requirement for K.D. treatments must not fall below the specifications in ISMP No. 15 to eliminate quarantine insects and nematodes.