

**3rd Meeting of the International Forestry Quarantine Research Group
Meeting
Mexico Room, FAO, Rome Italy**

November 29 - December 1, 2005

Participants

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Ms. Gillian Allard
Dr. Eric Allen
Mr. Harry Arijs
Dr. Kerry Britton
Mr. Roddie Burgess
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Dr. Edgar Deomano
Mr. Nicola Diaferia
Dr. Hugh Evans
Mr. Jacques Gagnon
Dr. Milka Glavendekic
Dr. Robert Haack
Dr. Barbara Illman
Mr. Jonathan Jones
Mr. Vaclovas Kucinskaskas

Mr. Brent Larson
Mr. Ron Mack
Dr. Lidija Necajeva
Dr. Andrei Orlinski
Dr. Michael Ormsby
Dr. Almaz Orozumbekov
Mr. Valerio Rosito
Mr. Luigi Rossetti
Ms. Alice Ruhweza
Mr. Bruce Scholnick
Mr. Thomas Searles
Mr. Shane Sela
Dr. Adnan Uzunovic
Mr. Tom Westcot
Mr. Gregory Wolff
Ms. Lucia Zaza

Abbreviations

CPM - Commission on Phytosanitary Measures

NAPPO - North American Plant Protection Organization

EPPO - European Plant Protection Organization

NPPO - National Plant Protection Organization

EWG - Expert Working Group

SC - Standards Committee of the IPPC

IFQRG - International Forestry Quarantine Research Group

SF - Sulphuryl Flouride

IPPC – International Plant Protection Convention

TPFQ – Technical Panel on Forest Quarantine

MBr - Methyl Bromide

ToR - Terms of Reference

General Discussion

Decisions/action items of IFQRG are identified in a box.

1. Opening

- The meeting was opened by Mr. Niek Van der Graff, IPPC Secretary. Attendees were welcomed to Rome and the importance of activities by IFQRG members was highlighted. The importance of scientific opinion of the group in supporting the IPPC was also highlighted.
- Logistics for the meeting were outlined by Larson
- Allen opened the meeting indicating the importance of avoiding policy discussions in this science forum.
- Introductions were made by meeting participants.
- IFQRG approved the agenda

2. Review minutes of the 2nd meeting.

The meeting minutes were reviewed and action items discussed. A question regarding the process for a new MBr fumigation table was discussed. The Chair reviewed the fact that the TPFQ recommended a modified schedule based on information provided by IFQRG. Some of the specific details provided by IFQRG MBr Committee (e.g. recommending the use of fans, appropriate air circulation, etc.) was omitted from the proposal by TPFQ in order to ensure consideration by ICPM of the need to amend the duration of fumigation.

3. Report from IPPC

Larson provided an update regarding the revision to the MBr schedule (this schedule which primarily focuses on changing the duration of application only will be reviewed by the upcoming CPM. Larson also provided an update on the IPPC EWG on Debarking meeting and on the work carried out by the TPFQ.

4. Report from ICPM 7

Allen provided an update on the last ICPM. Allen reported that the ICPM encouraged member states to support the efforts of IFQRG.

5. Report from Technical Panel on Forest Quarantine

A report was provided by Wolfe. Allen indicated that although a number of TPFQ proposals for standards have not been approved by the IPPC SC, IFQRG should consider the scientific needs for these items, given that they are likely to be recognized by the SC in the future.

6. Review of the IFQRG Terms of Reference

The group was asked to review the ToR independently and to provide any suggestions for change by the completion of the meeting

7. Discussion of phytosanitary risks associated with bark on wood packaging following treatment by HT or MBr.

The strategy for dealing with the issue of debarking as an additional phytosanitary measure to those already prescribed in ISPM No. 15 was discussed the group.

The group agreed that the process of reviewing the current science regarding the need for debarking treated lumber used for wood packaging, then developing a report based on the discussion document developed by Allen was suitable. An ad-hoc sub-committee of IFQRG (Searles, Evans, Gagnon, Britton, Ormsby) was established to draft the report (see point 16, below).

7.a. The Report of the EWG on debarking meeting

Sela provided a presentation on the outcome of the EWG on Debarking meeting.

7.b Results of scientific experiments to assess the likelihood of insect and fungal colonization of wood with bark treated under measures prescribed in ISPM No. 15 was provided.

Evans provided results of experiments undertaken in Germany (by Thomas Schröder) and the UK. The general conclusion of the two reports was that heat treating was not sufficient to prevent the attack (UK) or breeding (Germany) by other bark and wood boring beetles. In the German study, the number of beetles emerging from heat treated lumber was not significantly different between varying pieces of bark, some as small as 48cm².

Allen reported on the work by Lee Humble (Canada). Allen reported that generally, treated lumber with bark had more attack. Additionally treated lumber with higher moisture content was subject to more bark beetle attack. A number of Scolytids were shown to attack fumigated logs with bark. Heat treated wood without bark was not attacked.

Britton reported on the work of Dave Dwinell (USA). Dwinell's studies showed that heat treated pine wood with bark (50% edge bark) was attacked by pine sawyer beetles and pine wood nematode. Other insects were noted to also attack the wood.

Haack (USA) reported on studies conducted on heat treated bolts allowed to be attacked by a range of beetles. In Haack's studies, some of the heat treated logs were more heavily attacked than non-treated.

The group discussed the aspect of available moisture content to support attack and breeding of wood insect pests.

Allen reported on a non-scientific review of the distance between wood packaging facilities and potential sources of pests. In some cases, pallet manufactures are very close to sources of pests (forests).

7.c. Review of wood packaging imports that are infested

The EU, Australia, and Canada reported on the occurrence of pests in imports of treated wood packaging. There were many similarities in the statistics of the three. In Australia, about 0.5% of consignments with the ISPM No. 15 mark were found infested. Also the occurrence of pests on treated wood with bark was relatively small (3% or less). The EU reported that 0.3% of wood packaging inspected was infested with pests.

7.d. Review of the debarking strategy of addressing the questions provided in the the document "IFQRG Debarking Discussion " (by Allen).

The group provided a number of additional questions. A number of questions related to the structure of data available were agreed to be tabled. (See Annex 1 - revised discussion document).

The following is a summary of comments made by participants reporting information on debarking during the plenary discussion.

- IFQRG believes that the risks of quarantine pests associated with wood packaging are significantly lower following ISPM No. 15 treatment although no data has been provided to statistically validate this assumption.
- Data presented to the meeting, indicates that bark beetles and a few wood borers and perhaps a few fungi attack and breed in wood that has been treated either by MBr or HT.
- In wood that has been HT or MBr treated, there appears to be a direct relationship between size of bark and the frequency of pests. Wood with individual pieces of bark 25 cm² can become infested with pests but the lower limit to bark piece sized to which infestation may occur was not reported. At the same time some studies showed that thin pieces of bark are less likely to be attacked.
- Most of the experiments focussed on ensuring that pests were present to colonize the wood. Many participants felt that this may not accurately reflect real life wood packaging situations. Allen reported that his review of wood packaging locations suggest that some facilities may produce wood packaging in the

proximity of neighbouring forested lands.

- There is very little inspection information available concerning the presence of pests on wood with bark, which has been treated. Australia's information suggests about ~0.3% of inspected imports had insects and bark.
- There is a great deal of international confusion regarding definitions of bark, debarked wood, etc with regards particularly to the inspection data provided to the meeting, since inspection services are using differing understandings of bark. The recent expert working group definitions should be adopted for use in future studies.
- The presence or absence of bark does affect the efficacy of heat treatment. With regards to methyl bromide application, the presence of substantial quantities of bark may affect moisture content and thereby affect the efficacy of treatment.
- There is some evidence that the size of bark affects the recurrence of pests on treated wood with bark, although lower size limits have not been established
- EU audit data suggests that more than 97% of imports comply with a less than 1% (of the natural round surface area) tolerance for bark being present on the wood packaging.
- The risk posed by organisms that may attack or breed on treated, compliant wood packaging is not adequately quantified by the current scientific or inspection data.

Larson presented a general review of the potential process for modifying ISPM No. 15, particularly in relation to any specification needed to address bark risks. The debarking report drafted by IFQRG will be submitted to the TPFQ.

8. Report by the Heat Treatment Committee

Evans reported that the development of a paint sensitive indicator for assessing heat treatment was generally successful in a recent EU study. The paint appears to be effective in identifying treatment when wood is not fresh, but less efficacious when the wood is treated within hours of harvest. The actual cost of application is low and it is feasible to add dual colour changes to prevent tampering. Similar research is being done in the U.S.

Evans also reported on development of heat treatment parameters for wood. Canadian and U.S. generic systems for the HT of wood likely overcook the wood because these include a substantial margin for error.

Uzonovic reported on examining the HT tolerance of fungi in mountain pine beetle infested wood. A draft standardized protocol to investigate the tolerance of fungi to HT has been developed by Uzonovic et al., and a request made for input from IFQRG scientists and for collaborative research in this area.

8. Report by the Methyl Bromide Committee

Larson provided an update on revising the MBr schedule. In general the revised schedule had been provided to the SC. The SC has forwarded the schedule as proposed by the TPFQ for approval by the CPM. It is expected that suggestions from countries to amend the schedule to include better administrative requirements (fans, efficacy of tarping, etc.) will be reviewed by the IPPC TPFQ in 2006.

Mack reported on studies of efficacy of Mbr on controlling fungi. To date it appears that MBr performs better than SF on decay and a few pathogenic fungi. SF proved to be effective at higher temperatures but efficacy dropped with winter harvested wood. IFQRG members advocated standardizing the experiment methodology with others doing similar activities.

9. Report by Technical Panel on Phytosanitary Treatments

Ormsby provided a summary of the process developed by the Technical Panel for the approval of phytosanitary treatments. The process for submitting and considering proposed phytosanitary treatments has been detailed in a draft standard prepared by the TPPT. This standard requires further development but should still be considered as the process required for having treatments considered by the TPPT. The draft standard requires that proposed treatments for inclusion in standards can only be submitted to the TPPT (through the IPPC secretariat) via national or regional plant protection organizations.

Larson indicated that the process developed by the TPPT has not been approved by the CPM.

Ormsby also indicated that this Panel has recognized the work of IFQRG in reviewing new treatments for ISMP No. 15. However, the rigor by which new treatments are acceptable for phytosanitary purposes should meet the specifications detailed in the draft standard developed by the TPPT.

10. Report by EMitech regarding microwave irradiation

Burgess reported that EMitech has undertaken research supporting the use of microwaves to achieve the parameters of heat treatment (56°C for 30 minutes) achieved by applying three pulses of energy during the treatment process to maintain wood temperature at above 56°C throughout the cross section.

Additionally, Burgess proposed that perhaps the application of microwaves applied to 56°C throughout the cross section of the wood alone may be sufficient to render the wood packaging free of pests.

EMitech representatives provided a presentation on the process used in applying microwaves to remove pests for commercial purposes. In tests conducted by EMitech, 100% mortality of insects was achieved after 6 minutes at 3-4.5KW and total mortality of several nematodes after 6 minutes of application at 4.5-6KW.

Larson commented that the validation of heat treatment as prescribed within ISPM No. 15 remain the jurisdiction of the NPPO. Therefore provided export certification authorities recognize this process as meeting the 56°C for 30 minutes requirement, wood packaging can be certified under this process. However, for acceptance of a reduced treatment time, Amendment of ISPM No. 15 must be sought through the processes of IPPC.

The use of microwaves, heats the wood from the core outward. Should treatment processes focus specifically on the parameters within ISPM No. 15 by applying heat at 56°C at the core for 30 minutes, this may result in wood treated by microwaves not reaching 56°C at the surface. Perhaps the standard should specify *“56°C through the cross-section of the wood for 30 minutes”*
Action Item: IFQRG recommends that TPFQ revise this particular area.

Larson also indicated to IFQRG participants that IFQRG members should consult with IPPC national contact points regarding the importance in supporting the revision of the standard at the upcoming CPM meeting.

Similar microwave research is also being conducted in the U.S.

11. Report on chemical pressure impregnation

Uzonovic reported that Forintek Canada is beginning research on the impact of several CPI treatments for pinewood nematode and fungi associated with mountain pine beetle.

12. Report on other alternative treatments

A number of reports indicated that studies are being conducted on phosphine, ethylene dinitrile, etc.

The Chair proposed that a document be developed outlining the progress in these alternatives.
Action Item: Mack/Ormsby/Uzonovic agreed to proceed on developing a document by March 2006.

The removal of MBr from the standard was raised. IFQRG is a scientific organization that evaluates efficacy of treatments in mitigating pest risks without consideration for other social and economic factors.

13. Report on the electronic discussion board

Burgess reported that the electronic discussion board has remained relatively inactive since the International Wood Packaging Workshop in Vancouver. There has been some interest recently with regards to hitch-hiking fungal organisms (particularly mould). Burgess indicated that he would continue to manage the board provided IFQRG felt that this continued to be a need.

IFQRG continues to support the on-going use of the electronic discussion board given that issues continue to be raised by the international community and this medium serves as an effective forum for discussion.

14. Research Needs

Sela provided an update of the tasks of the NAPPO Forestry Panel. The group discussed the issue of trying to control pests moving into countries before technical justification is available to support regulation.

Orlinski provided an update on EPPO projects.

Uzonovic provided an update on quarantine fungi research. The issue of risks of moulds on wood packaging has been raised a number of times as a potential risk.

The group concluded that moulds on wood packaging are not a quarantine but cosmetic risk.

Allen provided a presentation on log submersion as a potential phytosanitary treatment. Allen reported that three one metre bolts submerged in fresh water for 30 days had viable *Ophistoma*/pinewood nematode/*Dendroctonus*. After 45 days the fungi and pinewood nematode was present. It appears that insect activity appears to have dropped off. A German scientist has concluded that water soaking for 30 days is efficacious.

Action Item: The Chair proposed that additional research be conducted on the efficacy of submersion.

Orlinski raised the phytosanitary concern related to the international movement of large trees. Many countries prohibit the import of soil so the entry of large trees is not permitted.

IFQRG participants raised the issue as to whether sufficient study has been undertaken to support the existing exemption of veneer peeler cores from requirements in ISPM No. 15. Additionally, the issue of certain conveyances such as whiskey barrels etc. being required to be treated, given that these undergo charring during the manufacture process should be considered by TPFQ should the standard be revised.

15. Report on the IUFRO Working Party S7.03.12 on Invasive Species and International Trade.

Evans indicated that the inaugural meeting of IUFRO Working Party on Invasive Species and International Trade will be held at: The Regional Directorate of State Forests in Radom, Poland, July 3-7, 2006. This meeting will include discussions on all aspects of invasive pests, pathogens and plants and anyone interested in further information or attending the meeting should contact hugh.evans@forestry.gsi.gov.uk. Further information is posted at: http://web.bfw.ac.at/rz/iufro.division_show1?in_divi=7.03.12

16. IFQRG Debarking Report

The debarking report sub-committee (Searles, Evans, Gagnon, Britton, Ormsby) suggested that in the interest of time IFQRG focus on developing a position statement based on the final question: **What is the evidence that the removal of bark increases the phytosanitary security of ISPM-15 marked wood packaging?** (Annex 2). The answers to the first 16 questions will be finalized through email discussion and posted early in 2006.

17. Next meeting:

The date and location of the next IFQRG meeting were not determined. Meeting information will be posted on the IFQRG website (www.forestry-quarantine.org) when available.

Annex 1: Debarking discussion questions

- Q1: What is wood packaging?
- Q2: What pests are associated with untreated wood packaging material and to what level?
- Q3: What is the level of pests following ISPM 15 treatment?
- Q3b: What is the incidence of infestation on wood packaging material imported into countries requiring ISPM 15 compliance?
- Q4: What is the evidence of infestation of treated wood with bark when compared with treated wood without bark?
- Q5: What are the post-treatment levels of infestation (with and without bark) compared with pre-treatment levels?
- Q6: Do pests both attack and breed in wood with bark?
- Q7: What organisms have been observed to attack (and breed) in ISPM 15-treated wood?
- Q8: When wood has been treated, what is the importance of bark piece size on infestation and breeding success rates?
- Q9: How long is treated wood (with or without bark) suitable for colonization by quarantine pests?
- Q10: What is the importance of decreasing moisture levels, how long does wood packaging take to reach equilibrium moisture content?
- Q11: In international trade, what levels of pests are found in ISPM 15-treated wood packaging with attached bark (audit results)?
- Q12: How much bark (of what size) is moving with wood packaging (audit data)?
- Q13: What impact does bark on wood have on the efficacy of treatments?
- Q14: What is the potential for fungal re-infestation of ISPM-15 compliant WPM with bark?
- Q15: What types/forms of WPM are likely to have a significantly higher level of infestation pre-treatment or re-infestation post-treatment due to the presence of bark?
- Q16: Is there a difference in the infestation rate of the two types of bark freedom defined by the Expert Working Group on Debarking?
- Q Last: What evidence is there to support the hypothesis that the removal of bark would add to phytosanitary security on ISPM-15 marked wood packaging material?

IFQRG Position Statement on Bark and ISPM No. 15

The International Forestry Quarantine Research Group (IFQRG) reviewed scientific and inspection data regarding pests and their relationship with bark on ISPM No. 15 treated wood. The following is a summary of the conclusions developed by IFQRG at the 3rd annual meeting in Rome, IT. Additional supporting information to the question below is being developed by IFQRG and will be posted on IFQRG website as soon as it is available.

What is the evidence that the removal of bark increases the phytosanitary security of ISPM-15 marked wood packaging?

Experiments conducted in 2004 and 2005 were designed to ensure that the treated wood used in the experiments would be exposed to pest attack. Material used in the research was freshly cut, green wood. These experiments clearly demonstrate that wood with individual pieces of bark as little as 25 cm² and treated under ISPM-15 requirements could be infested by pests that are of phytosanitary concern. Many of these same pests were not found to infest wood that had all bark removed.

Information collected by Australia indicated that 0.5% of ISPM-15 marked material inspected at the point of entry was infested by organisms of phytosanitary concern. This analysis suggested that material with 10 cm² or more bark had a higher level of infestation than material with small or no amounts of bark. The European Union and Canada have also reported similar levels of interceptions to Australia on marked wood. Due to uncertainty in this information of whether or not infestation occurred post treatment, a causal relationship cannot be determined between the presence of bark and infestation of ISPM-15 compliant material.

Additional research and inspection data, using harmonised approaches, would enable estimation of the likelihood of ISPM-15 marked material in use being infested by pests of phytosanitary concern. For example, additional research or inspections could investigate: the significance of presence and size of bark; the significance of moisture content; the effect of different categories of wood packaging with bark; the influence of heat treatment on the attractiveness of wood with bark; etc. on the likelihood of pest infestation.