

Overview of alternatives for the disinfestation of solid-wood packing material (SWPM)

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Reasons for introductions of forestry pests with SWPM

- > **Intensive cargo handling between countries with similar climatic conditions**
- > **Increase of containerization in the transport of general cargo:**
96.1% of transshipment of general cargo in Hamburg in 2003 were transported in containers
- > **Poor wood quality of SWPM used for transport of certain goods**
e.g. stone products, cast iron and steel products, ceramic articles
- > **Treatments of SWPM in countries of origin sometimes not effective**

Container transshipment in Hamburg in 2003

Total: ca. **6,1 mio. TEU**¹

(increase in comparison with 2002: 14,2%)

Far East: ca. **2,7 mio. TEU**

P.R. China: ca. **1,35 mio. TEU**

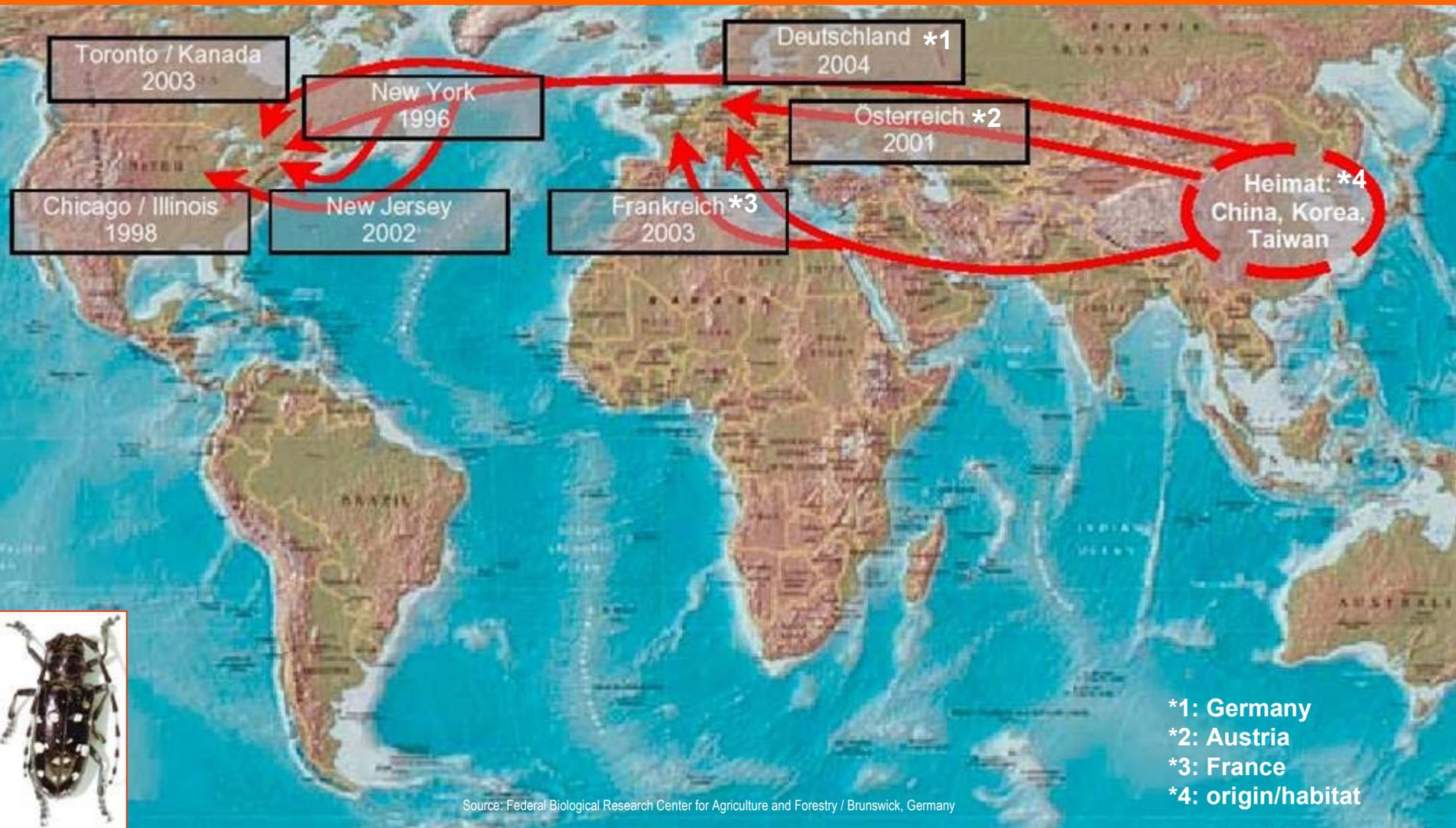
(increase in comparison with 2002: **30%**)

**22 % of transshipped containers
in Hamburg were handled with
the P.R. China.**



¹TEU = Twenty Feet Equivalents Units

Infestations of *Anoplophora glabripennis* (Asian Longhorned Beetle)





Amtlliche Pflanzenbeschau Hamburg



Amtlliche Pflanzenbeschau Hamburg



Amtlliche Pflanzenbeschau Hamburg

Completly and professionally carried out phytosanitary inspection is only possible after unloading of containers



Amtliche Pflanzenbeschau Hamburg



Amtliche Pflanzenbeschau Hamburg

SWPM



Amtliche Pflanzenbeschau Hamburg



Amtliche Pflanzenbeschau Hamburg



Antliche Pflanzenbeschau Hamburg



Antliche Pflanzenbeschau Hamburg

Infestations



Antliche Pflanzenbeschau Hamburg



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Xylophageous organisms in solid wood packing material and dunnage: Number of findings in the port of Hamburg between 1991 and 07/2004

COLEOPTERA

ANOBIIDAE

Ernobius mollis 3

BOSTRYCHIDAE

n.det. 2

Bostrychoplits spec. 1

Dinoderus minutus 3

Dinoderus sp. 2

Sinoxylon spec. 17

LYCTIDAE

n. det. 3

Lyctoxylon dentatum 1

Lyctus africanus 1

Lyctus brunneus 3

Minthea rugicollis 1

OEDEMERIDAE

Nacerda melanura 1

PLATYPODIDAE

Crossotarsus sp. 1

SCOLYTIDAE

n. det. 2

Ipinae 1

CERAMBYCIDAE²

ASEMINEAE³

Arhopalus (Criocephalus) sp. 4

Asemum sp. 1

LEPTURINAE

Leptura rubra 1

CERAMBYCINAE

Aeolesthes sp. 1

Aromia sp. 1

Chlorophorus sp. 3

Clytus arietis 1

Hoplocerambyx sp. 1

Xylotrechus sp. 1

LAMIINAE

n. det. 3

Anoplophora glabripennis 1

Anoplophora sp., Larven 1

Apriona germari 1

Apriona sp. 1

Batocera lineolata 1

Monochamus alternatus 2

n. det. (mostly larvae) ca **25**

ISOPTERA

RHINOTERMITIDAE 1

HYMENOPTERA

SIRICIDAE

n. det. 2

Sirex cyaneus 1

NEMATODA

PARASITAPHELENCHIDAE

Bursaphenenchus mucronatus 1

n.det. (1x phytophageous, 1x saprophytic) 2

Red: quarantine pests in the EU

1: Most findings of Bostrychidae in packing wood from India.

2: Most findings of Cerambycidae in packing wood from China.

3: Aseminae: also classified as the tribe "Asemini" in the subfamily Spondyliinae

Anoplophora glabripennis (China?)



Amtliche Pflanzenbeschau Hamburg

Batocera lineolata (China)



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Monochamus alternatus (China)



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Aromia sp. (China)



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Xylophageous beetles found in SWPM in Hamburg



Apriona germari (China)

Amtliche Pflanzenbeschau Hamburg



1

Amtliche Pflanzenbeschau Hamburg



2

Amtliche Pflanzenbeschau Hamburg



3

Amtliche Pflanzenbeschau Hamburg

- 1 = *Xylotrechus* sp. (CN)
- 2 = *Chlorophorus* sp. (CN)
- 3 = *Aeolesthes* sp. (CN)
- 4 = *Sinoxylon* sp. (India)

Strong magnification in relationship to other shown pictures



4

Amtliche Pflanzenbeschau Hamburg

"Guidelines for regulating wood packaging material in international trade"

General aim of ISPM standards:

International harmonization of phytosanitary measures, with the aim to facilitate trade and avoid the use of unjustifiable measures as barriers to trade.

Aim of ISPM No. 15:

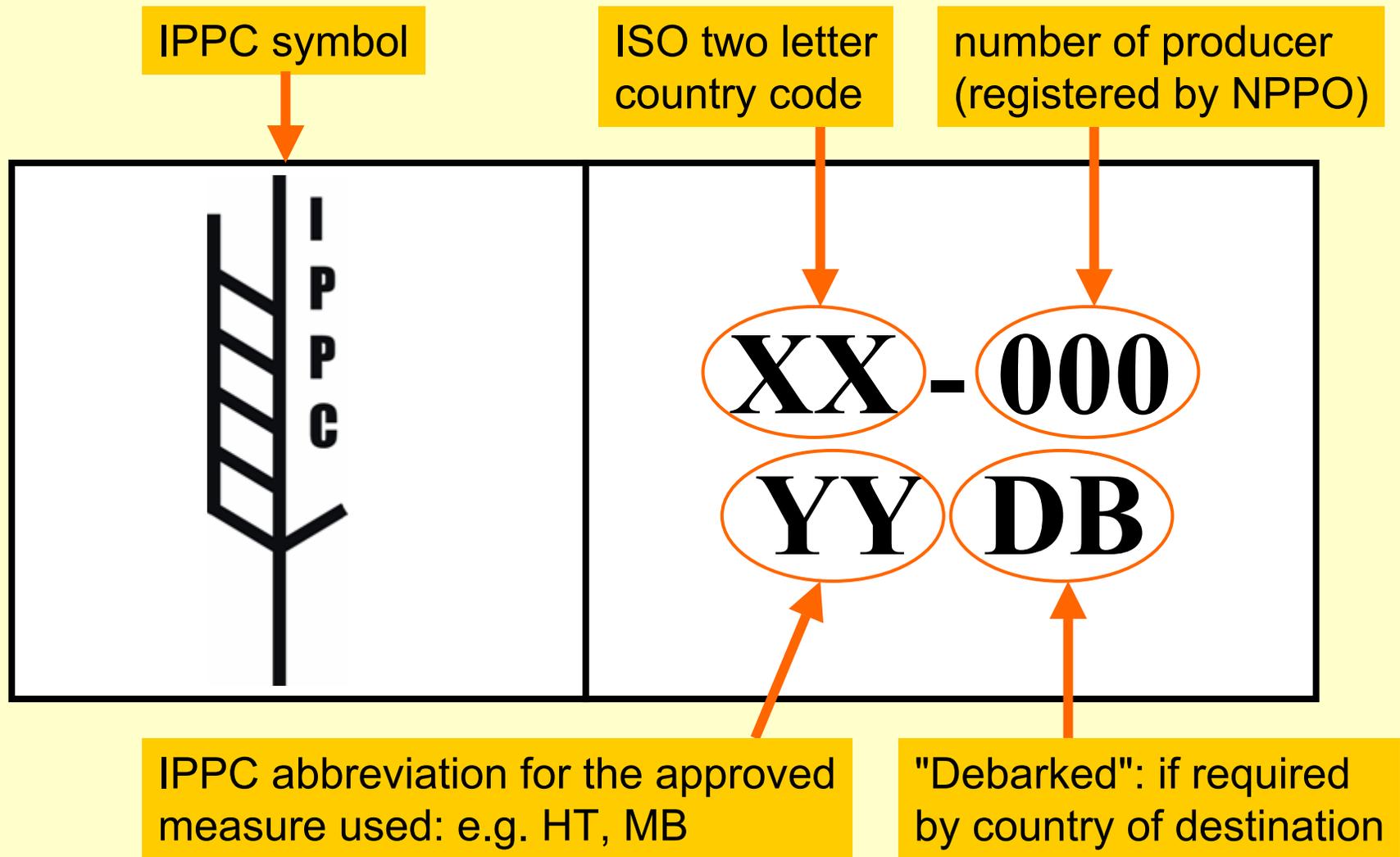
Eliminating the risk from most quarantine pests and significantly reducing the risk from a number of other pests that may be associated with SWPM.

ISPM No. 15: introduction in countries

COUNTRY	EFFECTIVE DATE	REMARKS
Australia	01.09.2004	Fumigations with CH ₃ Br: at least 24 h, treatment certificate necessary. "bark free" instead of "debarked". Previous requirements are accepted for countries which don't use of ISPM 15
Canada	01.04.2005	Introduction on 01.01.2005, transition to 01.04.2005
China	?	For EU member states: Use of ISPM 15 to a great extend. Renunciation of phytosanitary certificates announced.
Colombia	01.01.2005	
EU	01.03.2005	
India	01.11.2004	
Mexico	01.04.2005	
New Zealand	01.08.2003	Previous requirements are accepted.
Nigeria	03.03.2004	Import permit of Plant Quarantine Service necessary
Phillipines	01.07.2005	From 01.01.2005: treatment nessecary. From 01.06.2005: Marking
South Africa	01.01.2005	
South Korea	01.06.2005	
Turkey	01.01.2005	
USA	01.04.2005	

Source: Federal Biological Research Center for Agriculture and Forestry / Brunswick, Germany

Marking for approved measures (ISPM No. 15, Annex II)



ISPM No. 15: Approved treatment methods for SWPM

1. **Heat treatment** with a minimum wood **core** temperature of **56°C** for a minimum of **30 minutes**

(other methods like kiln drying or chemical pressure impregnation may be considered heat treatments to the extent that they meet the heat treatment specifications)

2. **Fumigation** with **Methyl Bromide** according to a minimum temperature/dosage/time-correlation given in Annex 1 of the standard.

Annex III of ISPM No. 15:

Measures being considered for approval under this standard

Treatments being considered and which may be approved when appropriate data becomes available, include but are not limited to:

Treatment	Single methods
Fumigation	Phosphine Sulfuryl fluoride Carbonyl sulfide
Chemical Pressure Impregnation (CPI)	High pressure/vacuum process Double vacuum process Hot and cold open tank process Sap displacement method
Irradiation	Gamma Radiation X-rays Microwaves Infra Red Electron beam treatment
Controlled atmosphere	

International Forestry Quarantine Research Group (IFQRG)

Main functions:

- > Advisory body to the IPPC providing scientific analysis and review of global phytosanitary issues and new information
- > Forum for the discussion and clarification of key issues related to the phytosanitary implications of global trade.
- > Identify and undertake collaborative scientific research aimed at high priority forestry quarantine questions.

Working groups:

- > Heat treatment
- > Fumigation
- > Chemical pressure impregnation
- > Irradiation
- > International data base for phytosanitary interceptions
- > **Development of testing criteria for alternative treatment methods of SWPM**

IFQRG criteria to meet the requirements of ISPM No. 15

- > effect on all kinds of quarantine pests:
insects, nematodes, fungi
- > effect on all stages of development:
eggs, larvae, pupae, adults, spores, mycelium, resistant stages
- > effect in all species of wood
- > effect in all standard wood sizes which are used in international trade (up to 10 cm)
- > effect at any moisture content of the wood
- > pests have to be killed on, inside and in the bark as well as in the wood

Factors affecting broad use of alternative treatment methods

- > Possible areas of application
- > Operators safety
- > Environmental effects
- > Costs
- > Duration of application
- > Chemical and physical properties
- > **Safety of persons in countries of destination: residues of fumigants / other chemicals**



Recommendations

- > Heat treatment (HT) methods are well proven, clean and effective, there are long experiences in different countries:
 - **Building of HT facilities in developing countries can be supported by developed countries**
 - **usage of alternative energies (e.g. solar energy / solarization)?**

- > Fumigations should only be left to special cases (**residues!**)
(also for countries with poor options to carry out HT methods)
Otherwise: Strengthening / Changing of IMO-Regulations
(Use of fumigants with fast catabolism)

- > Promising alternative treatment methods are in development or already developed. Establishment in ISPM No. 15 in near future is desirable.

LogBag / LogRac System



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Thank you for your attention

Photo: James Appleby / University of Illinois



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