# THE DEVELOPMENT OF REGULATIONS FOR THE CONTROL OF PINEWOOD NEMATODES

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## INTRODUCTION

I have been asked to provide you with an overview of the Pinewood Nematode (PWN) issue with particular emphasis on the current and proposed import regulations. When we speak of the PWN issue, it relates to the export of lumber or products consisting of wood of coniferous species to European countries. Products affected include lumber, pulp chips, pulpwood, logs, crates, pallets, poles, stickers, dunnage and any other product containing our Canadian softwood. The implications of regulations or a ban on Canadian softwood exports to Europe will have a far reaching effect on the Canadian economy. Softwood exports to Europe accounted for some $834 million in 1990 (1), which represents approximately 14% of Canadian softwood exports. The importance of the European softwood export market cannot be over emphasized. In regions of the country, such as Atlantic Canada, exports to Europe represent approximately 46% of the softwood export shipments (1).

The Pinewood Nematode (Bursaphelenchus xylophilus (Steiner and Bührer)Nickle) is a microscopic worm-like creature that is transported via a vector. The suspected vector is the Monochamus sp. or sawyer beetle. These beetles are wood borers which are attracted to dead or dying trees. They will also enter logs with bark. The nematode is carried in the trachea of the vector insect and can be deposited in the bark during feeding. Under certain conditions as demonstrated in Japan, the adult vector will emerge in the spring and feed on fresh shoots of healthy trees, thus inoculating the tree with nematodes (2). The pinewood nematode is a plant-parasitic species which kills trees by rapidly multiplying in its water conducting elements, thus restricting the transportation of water. The infected tree wilts and dies within a short period of time (3). This is known as pine-wilt disease. There is no record of PWN causing trees to wilt in Canada (4).

## INCIDENCE

The first recorded outbreak of pine wilt caused by the pinewood nematode occurred in Japan early in the century and it is suspected that it was introduced from United States. Annual losses in Japan resulting from pine wilt are estimated to be up to 1% of the standing timber (2).

Since its discovery, scientists in other countries have investigated the presence of the parasite. Pinewood nematode is now known to be present in the United States, Canada, Japan, China, Taiwan, Korea (4), southern France and in the Siberian region of Russia (2). It should be noted that despite recommendations of the European Plant Protection Organization (EPPO) in 1988, that EC members have not conducted similar pest risk assessments or surveys within their own territory. Surveys are currently being carried out in three member states, but only as a result of being organized and funded by Canada.

Pinewood nematode is reported to be widely distributed throughout the United States and was first reported in Canada in 1982 in southern Manitoba. Since that time, Forestry Canada has conducted surveys and reported presence of PWN in very low numbers in most provinces (3). Forestry Canada reports show that infestations of pinewood nematode via a vector insect occur in dead or dying trees only. There is no evidence to suggest that pinewood nematode infest healthy, living trees in any region of Canada, and thus it can be concluded that the organism is not of biological importance to the health of our forests. According to a recent Forestry Canada report (5), "the risk of exporting the pinewood nematode with Canadian lumber and logs, or indirectly through vectors, is extremely low". "Furthermore, the high threshold temperature (20°C+) required for the development of pine wilt disease would preclude disease expression in much of Europe".

## DEVELOPMENT OF REGULATIONS FOR SHIPMENT OF SOFTWOOD LUMBER PRODUCTS TO EUROPE

After seeing the evidence resulting from the introduction of PWN in Japan and China, certain countries in Europe became concerned over the potential danger to their forests, which they consider to be free of the organism. Recognizing their dependence on the importation of softwood lumber products from North America and especially Canada, the EC saw the need to insure that timber imported from North America be free of pinewood nematode. The following is the sequence of events leading to the EC regulation as outlined by Agriculture Canada (6). As a control, the EC imposed a requirement in 1981 for the implementation of a phytosanitary certificate program for coniferous wood from North America to protect against the spread of bark beetles. A phytosanitary certificate would have required inspection of individual pieces of lumber for bark by Agriculture Canada during lumber production. After some negotiations, agreement with the United Kingdom was established that industry "mill certificates of debarking" would be acceptable. Under the mill certificate program (MCP) mill personnel, typically lumber graders, would inspect individual pieces for bark and provide a certificate stating that the lumber had been

inspected and was clear of bark. The use of mill certificates of debarking was implemented in July 1981 for shipments to the United Kingdom.

In 1983-84, Finland plant health officials detected PWN in wood chips originating from the United States, which precipitated the move toward banning coniferous wood products from North America from the Scandinavian countries. In February 1986, Sweden imposed a total ban on the import of coniferous wood products from North America. Soon after similar bans were enacted in Finland (wood chips) and Norway. Canada quickly objected to these bans stating that they were inconsistent with GATT obligations.

From 1982 to 1987, the mill certificate program for debarking proceeded without major problems in the U.K. Other European countries were lax in enforcing their requirement for phytosanitary certificates, many accepted the mill certificates. Then in March 1987 the EPPO prepared a draft regulation specifying prohibition or kiln-drying.

In late 1987 and into 1988 there were some problems with the quality of debarking on wood arriving in the U.K. The U.K. complained officially and introduced concerns about PWN. After a visit by U.K. Forestry Commission officials, an agreement was established with industry for a more controlled system of self certification. The new program was still carried out by industry and supervised by Agriculture Canada. It involved a standardized form and the requirement that all exporters be listed and approved by Agriculture Canada. During the first 6-8 months there were some reported non compliancies with the new mill certificate program mainly to do with how and when the forms had been prepared.

In September 1988 the EPPO designated the pinewood nematode as an A1 quarantine organism which provided specific quarantine requirements for controls of PWN infested wood.

In May 1989, upon forceful insistence by the U.K. that grub hole controls be implemented, the industry voluntarily agreed to include grub hole control in the certification program beginning in January 1990.

In mid 1989 the Canadian industry offered to the EC for consideration the U.K. program for debarking and grub hole control. EPPO reaffirmed its special quarantine requirements for PWN and suggested debarking and kiln drying to 20 percent moisture content or the wood may be prohibited from entry.

As of December 1, 1989, Ireland changed its import regulations to require that all coniferous wood be kiln dried. Also, Spain decided to enforce the phytosanitary certificate requirements, which required Agriculture Canada to inspect and issue certificates as required. It was also in December 1989 that Plant Health officials from Finland found PWN in Canadian wood shipped to Finland. Intense negative publicity in Europe resulted and Finland took this opportunity to denounce the Canadian mill certificate program and push for kiln drying regulations for the EC.

Throughout 1990, the U.K. increased surveillance of imported wood and did register eleven complaints for non-compliance. Seven of the complaints were for improper certificates, however four Canadian mills were delisted for violations.

In early 1990 a Canadian task force was established to develop a research program to investigate heat treatment as a control for PWN and its vector. Canada suggested to the EC that the research should be a cooperative effort. A cooperation agreement was established to this end between the two project leaders, however was never endorsed by the EC Commission authorities. Successive derogations on the implementation of a kiln-dried directive were put in place until the research results were available.

In April 1992, the "Joint report of EC and Canadian Studies" , which was endorsed by both the Canadian and European scientific teams was released. The results show that with a time/temperature regime of 56.1°C at the core for 30 minutes would kill all PWN in unseasoned wood blocks with a reliability of 99.994% with a 95% confidence (7). The document was presented to the EC Standing Committee on July 9, 1992. With this information, the EC was to present its directive for treatment for PWN.

In the mean time, the Government of Canada responded to pressure from the lumber industry to develop an acceptable and practical proposal for a directive. This proposal was submitted in mid-July to the Commission of European Communities from our Hon. Frank Oberle, Minister of Forestry and Hon. Michael Wilson, Minister of Industry, Science and Technology and Minister of International Trade. The Proposal is based on the accepted principle "that protective measures should reflect the degree of risk involved and should be the least trade restrictive possible" (8).

The proposal is based on the risk of transfer of the PWN and its vector on a species by species basis and would commence on April 1, 1993. The Canadian proposal is briefly summarized as follows:

**1 PINES**- All pine products are to be kiln-dried or heat treated to a core temperature of 56°C for 30 minutes.

**2 SPECIES EXCLUSIONS**- Species that have been demonstrated to be free of pest status (ie. Western Red Cedar and possibly Canadian Hemlock) will require a document certifying the species. This wood must be free of bark.

**3 SPECIES WITH VERY LOW TO NEGLIGIBLE RISK-** (Including spruce, fir and larch) Species in this group are to be free of bark and grub holes and are to be accompanied by documentation from the Government of Canada alone or jointly issued by industry, in the form of an enhanced mill certificate.

**4 DEAD, DYING, FIRE DAMAGED OR STAINED WOOD FROM GROUP 3-** Wood from this group must be free of bark and grub holes and shall be kiln-dried or heat treated to 56°C for 30 minutes.

**5 KILN DRIED MATERIAL-** Permitted as long as the wood has reached a moisture content of 25% or less at the time of manufacture.

The EC Plant Health Standing Committee held a meeting on October 12 and 13, 1992 and drafted a proposal based on the Canadian proposal (8). The terms are as follows:

**1. Pines:** All pines or species mixtures containing pines must be heat treated or kiln dried, effective January 1, 1993.

**2. Other species:** All other species (except cedar which has an exemption) will be allowed to enter under an enhanced mill certificate program, effective April 1, 1993.

**3. Large timbers:** All timbers 200mm and thicker will be exempted, however will require a mill certificate. This exemption is to apply under technology has been developed for treatment of large timbers.

**4. Verification:** Acceptance of the Canadian verification proposal.

The Committee met again on October 26 and 27 and although the directive was not verified, the committee did establish that implementation date of the directive will be six months after Member States are formally advised of the final adoption of the new directive. This means that if the directive is formally adopted by January 1, 1993, the implementation date will be July 1, 1993.

## DISCUSSION

It is hoped that the Pinewood nematode issue is coming to a practical conclusion. It has been a long and confusing battle for Canadian industry and government officials who have had to deal with decisions based on non-factual information and the politics surrounding the establishment of the European common market.

The Canadian proposal is viewed by industry as a fair and practical solution that will offer the required control over the importation of infested wood. It is hoped that the EC directive will accept the Canadian proposal as a compromise. It is based on accepted scientific evidence generated in the cooperative Canadian-EC research work.

The developing regulations are of a concern to all exporter manufacturers and shippers to the EC. From raw materials and lumber products to refrigerator crates will all require conformity to the upcoming directive. Ensure that you understand the implications to your particular product and prepare now for compliance.

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