

## Nursery Certification<sup>©</sup>

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Preventing, or at least slowing down, the spread of invasive alien species has become a difficult challenge for government agencies worldwide. Between 1996 and 1999, North America, including Canada, the United States, and Mexico, were invaded by six major alien species that were and still are serious pests of plant crops. By 2010 the number of alien pest species that have inadvertently been introduced into North America has more than quadrupled. Three of these alien pest species are serious pests of nursery crops: sudden oak death (*Phytophthora ramorum*), Asian long horn beetle (*Anoplophora glabripennis*), and emerald ash borer (*Agrilus planipennis*).

The North American Plant Protection Organization conducted an analysis of the pest introduction data. The research concluded that the following factors have resulted in ineffective prevention of stopping the introduction of serious pest species.

- 1) Regulatory agencies tend to rely on historically based pest lists and miss the possibility of other introductions.
- 2) Infested plant material (or wood products) can be a source of infection indefinitely (quarantine periods may not be effective).
- 3) Pest detection by government officials can occur long after the pest has been established.

Pest risk analyses for imported plant material are researched by regulatory agencies to establish directives for importing new plant species introductions or importing plant species from a different country source. A pest risk analysis designation resulting from an import request may have a high degree of uncertainty because the importer is uncertain of the true origin of the plant material (geographical area where the species was first discovered) and/or is uncertain of the propagation mother stock source. Coupled with this lack of accurate source information is the fact that many plants are shipped through a number of plant suppliers before arriving at the final North American destination. Further, there is still limited or no scientific information about some alien pest species. In particular, disease pathogens are often not as well understood as arthropod pest species life cycles.

Despite regulatory inspections, quarantines and import restrictions, several pest species have been introduced into North America on nursery stock imports. Examples are citrus long horn beetle (*Anoplophora cinnensis*) found on Korean bonsai and brown rot (*Ralstonia solanacearum* Biovar 2) that was imported on infected geranium cuttings from Kenya, Guatemala, and Costa Rica. Nursery stock imports are the chief suspect in the introduction of sudden oak death (*P. ramorum*) to the western United States of America.

There are several options to the present North American regulatory regimes. One option is to continue with the status quo. Unfortunately, that will mean a continued introduction of potentially detrimental alien pest species despite border inspection efforts. Border inspections could increase in number and intensity, but there is limited government funding and symptoms of these pests are often not observable when plants are inspected. Pre-clearance at source has the same limitations as inspection at arrival. Because of these limitations, Canada, the United States, and Mexico have implemented or are currently studying certification programs that are clean-stock-systems approaches to reduce the introduction and spread of alien pest species. There are international guidelines for

certification on which domestic programs can be built. The main advantage of certification is that continuous year-round efforts of pest detection and control are much more effective at the nursery rather than relying solely on a pre-shipping inspection. However, there are significant disadvantages especially for nursery owners. Costs can be high for both staff training and maintenance of the program. These costs must be included in the cost of production which may or may not be redeemed. Federal government agencies may have to offer significant incentives to establish effective certification programs. As well, certification programs require audits or an oversight mechanism to satisfy the needs of the importing country. Despite these disadvantages both the North American Plant Protection Organization (NAPPO) and the International Plant Protection Convention (IPPC) view certification as the way of the future for the international movement of plants and plant parts.

An effective certification program is based on a systems approach. Two or more measures or procedures that are independent of each other are required to manage risk of introduction or spread of a regulated pest. The program can also include a number of measures or procedures that are dependent on each other. All procedures must be written in a manual. When a procedure is carried out (e.g., inspection at receiving) there must be a record. This could be a simple stamp with the inspector's initials on a shipping document (packing slip). Audits check that all certification program procedures are carried out routinely and accurately.

Examples of the British Columbia *P. ramorum* (sudden oak death) Certification Program procedures or measures are listed in the table below.

Table 1. British Columbia *Phytophthora ramorum* (sudden oak death) Certification Program procedures or measures.

| Independent measures/procedures  | Record keeping  |
|--|---|
| Certified <i>P. ramorum</i> by suppliers or, free of symptoms by government agency | Copy of Phytosanitary Certificate or nursery certification number |
| Visual inspection upon arrival   | Copy of packing slip signed of as inspected                       |
| Test leaf spots with field test kit – (assume negative)                            | Signed paper in file showing negative test                        |
| Plants placed in isolated bed  | Record of which bed and when placed                               |
| Regular visual inspection for leaf lesions during production period                | Copy of these inspections in the file                             |
| Spray with Subdue Max  | Copy of spray records in file                                     |

There are several factors that contribute to an effective certification program. Proper training of managers and staff is a key component. Many hours can be wasted trying to implement measures or procedures that are ineffective or too time-consuming to be useful. Once effective and efficient procedures have been identified and recorded, staff must be given access to the materials and time to carry out these procedures. Otherwise, they will not be done routinely or effectively. Therefore, managers must clearly delegate responsibility for each procedure to individual staff member. Management must follow up to ensure that the program procedures are always in place.

Record keeping is a major tool in an effective certification program. Records are used for both internal audits that are carried out by company employees and external audits that are conducted by independent auditors. The audits will verify that the procedures are in place and are effective. Certification programs currently in place for trans-border shipment of plants include greenhouse certification programs and nursery certification programs. A voluntary program in Canada, Clean Plant Program, has replaced the *P. ramorum* Certification Program.

## **QUESTIONS AND ANSWERS**

Todd Jones: Does this joint program between Canada and the USA standardize the testing and permitting?

Carol Barnett: Yes, I believe so.

Todd Jones: Is it in place yet?

Carol Barnett: No.

Mark Krautmann: I'd like to thank the program committee for having you here, Carol. Professionalism calls us to a high standard in this regard. If we're going to aspire to hold and expand our markets we must set and maintain the highest standards we can achieve.

Carol Barnett: Propagators have a large commitment to this effort since we start the process.

