

NURSERY ACCREDITATION

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Abstract

The need for accrediting forest and conservation nurseries is stated. An example of accreditation is given from the case of accrediting the USDA Forest Service National Tree Seed Laboratory. The elements necessary to bring about nursery accreditation are outlined and suggested alternatives are given to bring the process into reality.

Key Words

Nursery standards, quality assurance, seed movement

INTRODUCTION

Successful conservation and forest regeneration has always required using reproductive materials that met appropriate genetic, morphological and physiological quality standards. Both survival and growth of planted trees and shrubs diminish in direct proportion to decreases in seedling quality. Sometimes these standards were formalized, as in state seed certification standards. These standards specified how seed source or level of genetic improvement would be certified. The state certification standards have been little used. Instead, producers and users have set stock specifications informally. This informal process uses the best judgment of growers based on observation or the recommendations of an expert. There have often been differences of opinion on seedling cultural practices, seed transfer guidelines, or seedling morphological standards. How big a seedling, what kind of root system, top pruned/not top pruned, good to plant in this area/not good for this area are some of the many differences that have been debated. As long as the number of producers was relatively small and stable, workable if not optimal consensus usually was achieved.

Cost share programs, increased interest in timber as an investment, and the expanded general interest in regenerating wild plant communities have resulted in an increase in demand for seeds and seedlings. For example, numerous longleaf container seedling growers, hardwood nurseries, and seed collectors have entered the market place. Some new entities

have done great work, while others without experience, colleagues, or formal standards to guide their work or protect the public have created havoc. Skilled nursery managers have been forced to drop a product line because they were being undersold with poor quality stock. The end result is that reforestation failures are occurring and will continue to occur. There are reports of new seed collectors who offer certain sources of seed for sale when none of the experienced and established collectors are able to find the same sources. One can only conclude that, at best, there are some uneducated persons at work in the field and quite possibly some others who are looking for quick and easy profit. A system of nursery and seed plant accreditation or certification is needed to at least set minimum quality standards for reproductive materials. Without standards for nursery stock and nursery management, the general public will have a frustrating experience or become critical of forestry practices. Accrediting nurseries and seed plants can serve as a great way to educate the public, landowners, and new vendors. It will also allow forest managers to take the moral high ground when harvest and reforestation activities are criticized. They will be able to prove that they have used quality reproductive materials produced by scientifically sound and widely accepted practices. Another way to say it is that US forest and conservation nurseries need a universally recognized quality assurance system. An additional introduction to the rationale for nursery accreditation can be found in Karrfalt (2000).

DISCUSSION

Quality Assurance Terms

Accreditation, certification, registration, and licensing are various terms that are used by various authorities to indicate a specified level of skill, knowledge, ability or quality. For this discussion, the term accreditation is chosen. What term is ultimately used to recognize nurseries will have to be determined by the parties involved in the process.

An Accreditation Example

Accreditation means that the authority has been granted to an entity to conduct a certain activity or produce a certain product. The International Seed Testing Association (ISTA) has given the National Tree Seed Laboratory (NTSL) the authority to issue International Seed Analysis Certificates and International Seed Lot Certificates. The NTSL is, therefore, an accredited ISTA laboratory. What this means and the process of becoming accredited are described here to illustrate accreditation.

The accreditation process began by preparing a quality assurance manual. The very first part of the manual contained a statement of commitment to perform seed tests with the highest quality possible. Secondly, all standard operating procedures were described in complete detail. This included how tests were prepared; how all equipment was maintained; how persons were trained; what standard did each employee or piece of equipment have to meet; how each employee's work and piece of equipment was validated against this standard; what occurred when work or test conditions did not meet standards; and finally what records were kept to document these activities. More simply put, it was a matter of stating what was to be done and how it was to be done, doing what was said, and preparing documents to prove that what was to be done was done.

Preparing the standard operating procedures was the easy part, as this had existed in some form for many years. Setting standards for work and equipment was fairly easy. This was outlined well in testing rules and standard laboratory procedures. The documentation part tended to be more challenging. The detailed documentation required to pass a quality assurance audit was a new experience and rather dull at first. Once the benefits of documenting were grasped, the whole process seemed more worthwhile. The documentation was proof to anyone who wanted to know that we had done everything possible to control error and produce seed test data of the highest

quality. This was a point of considerable pride and accomplishment for the laboratory. An additional benefit was that we had proof for ourselves that the operation was moving along correctly. We had given ourselves the assurance that we were doing the best we could in our support role to make the nurseries and seed plants successful at their work.

Verifying temperature records on the germination rooms is a specific example of a control process adopted at the NTSL in the process of accreditation. From the beginning of the laboratory, temperature recorders were attached to all germination rooms. Most nurseries have such recorders on seed and seedling storage units. What had never been done formally was check to determine, on a daily basis, if the recorder was giving the correct temperature. Now, each day, the recorder is compared to a mercury bulb thermometer and the inspector records the temperature on a control chart. Any differences between the two thermometers are to be immediately investigated to determine which device was correct. Any necessary repairs or adjustments are then made. Once a year the check thermometer is compared to a NIST thermometer at the lab, and every three years the NIST thermometer is sent for verification of its accuracy. (NIST stands for National Institute of Standards and Testing.) This level of precision is needed at the NTSL because temperature cannot vary more than ± 36 °F (2 °C) before test results are affected adversely. By following this procedure, we know we have the best temperature control that is possible to provide accurate and repeatable germination tests.

It would be most unlikely that a nursery would need a NIST thermometer; but how certain are nursery managers of the temperatures in their seedling coolers? Strong verification of seedling storage temperatures at the nursery might be very comforting and useful when trying to determine the cause for poor quality seedlings arriving at a planting site. Temperature uniformity within coolers is also very important in maintaining quality. Often temperatures can vary and need to be balanced within the cooler. Accreditation would simply require that steps be taken to ensure the coolers are doing the job they are intended to do, something any nursery manager would want to know.

The next steps in accrediting the NTSL were review steps. The quality assurance (QA) manual was sent to ISTA headquarters where it was reviewed for completeness and correctness. Next came the onsite audit conducted by two auditors selected by the ISTA. One auditor was a process auditor who looked at how we executed the QA manual. The other

auditor was a technical auditor who focused on the application of the ISTA rules and the scientific measurements made. Following the audit, some improvements were made according to the findings of the auditors. Then, upon the auditors' recommendation, the ISTA granted accreditation to the NTSL to continue issuing ISTA certificates. Subsequent audits will occur every three years to maintain the accreditation.

Information on the accreditation process conducted by the ISTA and the Association of Official Seed Certifying Agencies can be obtained at their websites (AOSCA 2000; ISTA 2000). These are examples that show the process in a seed and agricultural context. A nice general introduction to accreditation with the International Organization for Standardization (ISO) can be found in Katner (1994). ISO initials can be easily found in our modern world on many trucks, signs, products, and literature, indicating the associated company has ISO accreditation credentials.

Building a System to Accredite Nurseries

The parts to a system to accredit nurseries would be the same as for the NTSL. While ISTA has existed for decades and is an established authority in seed testing, there is no counterpart for the nurseries. Therefore, the first step in building a system would be to establish an accrediting authority. State Crop improvement authorities might serve in this capacity. They are familiar with accreditation of seed producers and the accreditation process. Most have some genetic certification standards for seeds of trees, shrubs and other wild plants. Some even have standards to genetically certify seedlings. Properly documenting seed source and interpreting this for the customer remains a major issue. This is especially true in years of seed shortage and with newer nurseries. Crop improvement associations are also recognized by their respective state governments as being the sole authority within their state for the certification of all seeds. They also have a national organization (the Association of Official Seed Certifying Agencies) that works to make standards uniform across the nation and internationally. Past experiences have been, however, that crop improvement authorities are often weak in the technical aspects of forestry. Another drawback of crop improvement associations might be that they operate only within one or a few states. Regional, if not national, systems of nursery accreditation are needed. The regional nursery associations might cooperate with the crop improvement associations

and be the source of technical expertise for drafting standards and performing audits. Alternatively, the nursery associations could take on the full role of accreditation, or be the parent to yet another accrediting body. Such a role would be a major evolutionary step for the associations in providing leadership in forest regeneration. The critical factor in establishing an accrediting body is that it has legitimacy and technical stature great enough to accomplish the task and be accepted by a strong majority of the players in reforestation. Leadership by the associations or from among the members of the associations would be imperative as they already represent a broad spectrum of private, state and federal entities. Government and non-government agencies outside the current scope of nursery associations probably should also be engaged in the discussion. The USDA NRCS, Arbor Day Foundation, American Forests, and the forest certification bodies will have or should have interest in accreditation of nurseries as all would be concerned with quality nursery stock for reforestation. Including them in the effort might lead to a broader base for support of accreditation.

Once a recognized accreditation body is established, its first job would be to draft accreditation standards. For seed testing, the official rules for testing seeds served as the technical basis for accreditation. No similar unified body of technical information on what constitutes high quality nursery management exists. The breadth and technical specificity of the standards for nurseries could be difficult. Some factors for nurseries would be easier than others. Topics such as pesticide use and handling are already covered in detail in federal and state laws and would probably not be difficult to include, or even could be excluded because they are adequately handled elsewhere. Other factors such as stock type, genetic identity preservation, movement of seed sources, and qualifications for nursery personnel might be more difficult to formulate into an accreditation standard. Various options to follow might have to be included on more controversial topics with guidance to the consumer on what the options mean. The key principle is that accreditation of a nursery must mean to the buyer and user of reproductive materials that the materials purchased and the information given are adequate for successful regeneration that benefits the environment for the long term.

The final aspect of the accreditation process is that it must not be burdensome—financially or administratively. A good system will have costs, but there must be good return on the time and money

invested. This should be an attainable goal welcomed by managers. For example, most managers benefit from having all procedures written down, especially when they are new on the job. Accreditation would help communicate to workers and successors how to run the nursery most efficiently and successfully. A good accreditation standard would outline many procedures in a general way so that the manager need only adapt the standard to fit the particular circumstances of the individual nursery.

Affordability is necessary in order to include as many nurseries as possible so that an industry wide standard can be achieved. Simplicity and affordability will help assure the system is useful to producers and consumers alike. As new initiatives occur or situations evolve and change, the process must also be responsive to new requirements.

Accreditation schemes are everywhere a part of modern life. Forest nurseries need to begin the process of accrediting their work immediately to meet current challenges and ensure forests for the future. The regional nursery associations are the logical organizations to begin the process.

SUMMARY

Recent concerns over inappropriate seed movement and the marketing of low-grade seedling types have

prompted calls for the establishment of genetic and morphology standards for forest and conservation seedlings produced in the United States. Accrediting nurseries would be one way to set a standard for the production of quality reproductive materials for reforestation, educate new practitioners to reforestation and nursery work, and educate and assist the general public to buy only materials that will give good results. The steps toward this end include establishing an accreditation authority, developing accreditation standards and protocols, and conducting the necessary audits to accredit nurseries. Accreditation needs to become a reality in the very near future. The regional nursery associations are the logical organizations to begin the process.

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