



Planning a Tropical Nursery

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Every nursery is unique. Tropical nurseries operate in a vast range of environmental, social, and economic contexts. Each nursery has a unique design based on distinct needs, goals, and resources (figure 2.1). With so many diverse factors to consider, no standard blueprint for how to design a particular nursery exists. The best nursery design will be matched to your specific location, plants, community, and goals.

Although planning a nursery can seem like a somewhat complex process, the basic formula is to answer the questions of why, who, what, how, where, and when. Why start a nursery? Who will the nursery serve? What will the nursery grow? How will the plants be propagated and the nursery be managed? Where will the nursery be located? When will be best to carry out production tasks? This chapter is intended to guide you through the process of answering these questions for planning a native plant nursery.

Facing Page: *The best nursery design will be matched to your specific context and goals to meet the needs of your clients. Photo from American Samoa by Diane Haase.*



Figure 2.1—Native plant nurseries have many unique characteristics, including growing a wide diversity of species. Photo by Tara Luna.

The Importance of Planning

The startup phase of successful nurseries involves thoughtfulness, research, and careful planning. Too often this crucial planning phase is rushed or misdirected by preconceived ideas of how a nursery should look (such as, “all nurseries should have a big greenhouse”) or what the nursery should do (such as, “we ought to grow seedlings of this species for reforestation”). Before making these types of decisions, it is important to do some strategic planning. The initial planning phase is an opportunity to step back and clarify the vision and goals of the nursery and to coordinate all components needed to reach these goals (figure 2.2). For example, the first idea may be to build a large structure, such as a greenhouse. Deeper exploration of the nursery’s goals and the actual needs of the species to be grown, however, may reveal how to create a site-appropriate design of several different, smaller scale environments that are ultimately more economical, efficient, and effective for producing plants.

Planning is essential because each aspect of the nursery affects every other aspect. For example, consider the seemingly simple act of choosing what kind of container to use for growing plants. Containers come in many sizes and shapes (see Chapter 7, Containers) and will dictate the nursery layout and benches needed, what types of



Figure 2.2—Take time to visit other nurseries, talk with potential clients, and clarify your vision and goals before starting a nursery. Photo by Ronald Overton.

growing media will be used, how seeds will be sown, how plants will be watered, how plants will be delivered, and so forth. Container type and size will also affect scheduling and production costs. It would be unwise to invest in containers without thinking these other factors through. Browsing through this handbook can be helpful before making any big decisions or purchases. The example with containers is only one illustration of the interconnectedness involved in planning a nursery. Both direct and indirect factors must be considered in nursery design (figure 2.3).

Defining the Nursery's Vision and Objectives

Most nurseries are founded on a vision how the landscape and community could be 10, 50, or 100 or more years from now as a result of efforts today. This vision will be a guiding force for the nursery's work.

Some of the vision process involves locating your “north star,” the condition in the future that you may be inspired to work and move towards your whole life, but may not live to see. Visioning is the chance to dream big and may also include very personal aspects, such as how you would like your lifestyle, livelihood, and role in your community to be.

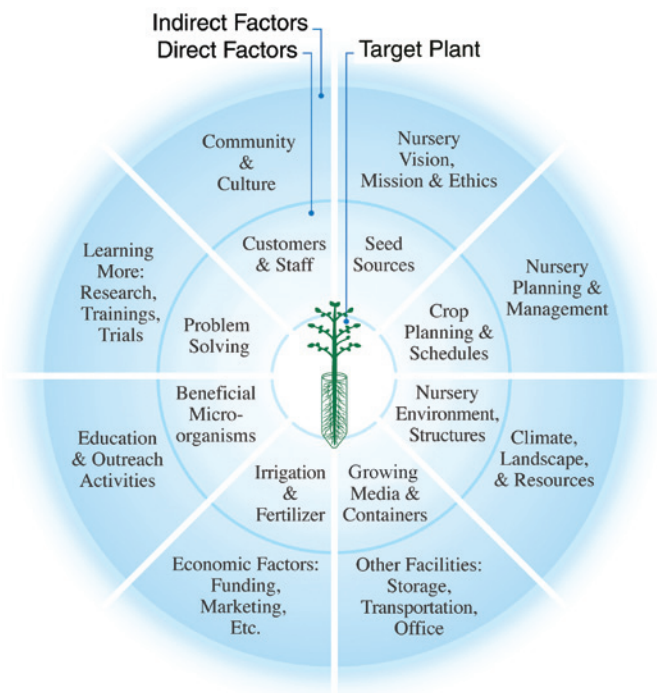


Figure 2.3—A nursery is a web of interrelated factors. Getting a good overview of direct and indirect factors for plant production in any situation will help design the best nursery to meet local needs. Illustration from Dumroese and others (2008).

Any nursery founded to propagate native or culturally important plants must be aware of its vital role in protecting ecosystem health and diversity. Biodiversity is defined at three different levels (Wilson 1988, Landis and others 1993):

- Genetic level—the number of alleles or genotypes within a species.
- Species level—the number of species within a population and the number of these populations within a community or ecosystem.
- Ecosystem level—the number of communities and ecosystems in the world.

Nurseries play a key role in helping to preserve biodiversity at all three levels (figure 2.4). Mindfulness of appropriate local genetics and diversity allows for nursery work to be of enormous benefit for the environment, the community, and future generations of plants, animals, and people.

Determining Community Needs

Visions are translated into practical objectives through interactions with the local community and the local environment. The nursery founder may have a vision, for example, of seeing many kinds of people planting a wide



Figure 2.4—Nurseries play a key role in helping to preserve biodiversity. For example, every time you collect seeds to propagate, you can help protect local species and genetic diversity. Photo by Douglass F. Jacobs.

diversity of native and culturally important plants provided by the nursery, while native animals from pollinators to birds and mammals also benefit. You can hold a broad vision for the future, while working practically within a scope that makes sense for the present. For example, an approach of—“if we grow it, they will plant it”—may result in wasted effort if the community has little desire or knowledge about how to use the nursery’s plants. To help bridge the gap between a vision and practical objectives, start by asking questions such as—

- What is truly needed and wanted in our community?
- Who are the potential clients of our plant materials at this time?
- Who might be potential clients in the future (if we engage in outreach and education)?
- What are the needs and priorities of the potential clients?

Formal and informal avenues should be used to gather as much information as possible. Trade groups, guilds, elders, and instructors that work with plant products are often tremendous sources of information. Holding a gathering, discussing hopes for the future of the local environment and community, interviewing people, publishing an article in the local newspaper and asking for responses, or conducting formal market research can be useful in this

phase. It is also imperative to understand the challenges people in the community face on diverse outplanting sites (figure 2.5). For example, if you plan to grow species to serve local farmers for their conservation practices (such as erosion control, windbreaks, or riparian buffers), make field visits to observe actual conditions on the farms.

This “end-user needs assessment” is key to helping a nursery determine not only what species to grow but also the container size (stocktype) clients might prefer. With culturally important plants, particularly those used for medicine and crafts, clients often have exacting specifications. It is essential to assess these expectations during the planning phase to ensure that the nursery will provide what clients actually need and want (figure 2.6). In addition, an assessment will help determine how long the existing demand is likely to last, which may indicate whether the nursery will be viable in the long term.

The nursery may also use its own vision to avoid being swept up into meeting the short-term demands of a changing market. For example, if public interest in planting a certain exotic ornamental species becomes high, a nursery might expect financial gain from meeting this demand. Would meeting that demand, however, help fulfill the vision of the nursery? Perhaps it would and perhaps not; deciding whether to meet a certain demand depends on the circumstances and the nursery’s objectives.



Figure 2.5—Understanding the challenges of your client’s outplanting sites is important so you can grow the best plants for their needs. A farmer planting trees for forage on a dry site in East Timor (A); “badlands”—bauxite mining areas—on the main island of Palau where revegetation is very challenging (B); an abandoned pasture in St. Croix, U.S. Virgin Islands, infested with invasive coral vines (*Antigonon leptopus*) that smother other vegetation (C). Photo A by J.B. Friday, photo B by George Hernández, and photo C by Brian F. Daley.



Figure 2.6—The perpetuation of culturally important plant materials is a key objective for many tropical nurseries. The nursery must work with end-users in the community to ensure that the plants produced will meet cultural needs, such as Kava, an important medicinal and ceremonial plant of the Pacific Islands (A) or plants for traditional weaving on Yap (B). Photo A by Ronald Overton, and photo B by Megan Parker.

Keep in mind that nursery-community communication goes both ways. Although the nursery must listen to the needs and wants of its community, it can also share its visions and goals by engaging in education and outreach to share information with clients and the community about the benefits and attributes of its plant materials. For example, if local farmers or landscapers believe only a certain ornamental plant works well as a boundary hedge, it may be because people are unaware of a native or traditional species that can be planted successfully for the same purpose, while providing other benefits. A good understanding of local ecology, environmental issues, history, soil types, and site needs for outplanting materials is important for effectively communicating with potential clients (figure 2.7).

Defining Target Plant Needs and Other Services

Successful nurseries provide healthy, high-quality, locally adapted plants that have high survival rates after outplanting. In addition, nurseries must provide the field-ready plants for outplanting when environmental conditions and the outplanting sites are optimal for survival. Nursery planning is critical for matching the plant materials produced with the needs and conditions of clients' outplanting sites to ensure that the plants can produce the materials or products (medicine, wood, food, and so on) that clients expect. (See Chapter 3, Defining the Target Plant, for more discussion about this topic.) These needs dictate the plant's target size, age, genetic source, container type, and management in the nursery.

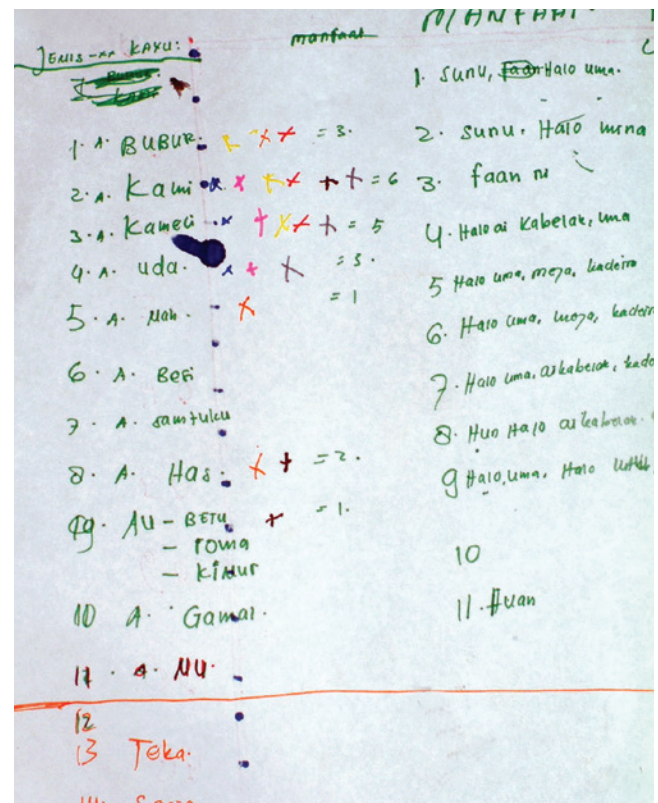


Figure 2.7—Gathering information about the community needs helps clarify what the nursery could grow. Here, villagers in Baucau, Timor Leste, developed a list of local agroforestry species and their uses. Villagers used colored markers to vote on which trees they would like to plant. The most popular was candlenut, *Aleurites moluccana*, whose nuts could be sold locally and processed for food or oil. *Ai kameli* is sandalwood (*Santalum album*) and *ai bubur* is *Eucalyptus alba*, the local firewood. Note that the typical forestry trees, teak (*Tectona grandis*) and toon (*Toona species*), did not receive any votes. The language is Tetun. Photo by J.B. Friday.



Figure 2.8—Nurseries dedicate time and resources to cultivating relationships with clients, including visiting clients’ sites months or years after the plants left the nursery, to see how the plants are doing. Photo by Douglass F. Jacobs.

Some topics to consider when deciding what to grow include—

- The species the nursery might be capable of growing.
- Specific end-user requirements for each species (such as medicine, food, timber, habitat, soil stabilization, windbreak, and commercial products).
- The types of environments in which plants will be outplanted.
- The size and age of stock preferred.
- The season during which people prefer to plant (in the tropics, usually the beginning of the rainy season).
- The quantity of each species people may want to plant.
- The distance people are willing to travel to obtain the plant materials.

Another consideration is what species are most needed from an ecological standpoint. For example, in some tropical forests, rarer or later successional species needed to restore the diversity of the forest may not return without human help, and these species may be a higher priority for nursery work (Holl and Aide 2011).

The target plant requirements will differ among species and outplanting sites and will influence all aspects of nursery design: location, structures, container types, scheduling, management practices, propagule collection, and so forth. In addition to producing plants, many nurseries offer a range of services such as consultations and planting plans, seed selection and collection, testing of new propagation methods, plant delivery, and outplanting support (figure 2.8). Successful nurseries also dedicate time and resources

to community education, client communications, marketing, and establishing good relationships with farmers, natural resource managers, landscapers, and planners.

Assessing Resources and Costs

How will we start a nursery? How will the finances work? What resources and costs are involved? Is starting a nursery even feasible? Each of these questions is discussed in the following sections.

Starting With a Small Pilot Nursery

It is often wise to start with a small pilot nursery to better understand how to produce native plants and successfully manage a nursery in your conditions to meet your community’s needs. A pilot phase is an opportunity to try out production on a smaller scale with less risk (figure 2.9). The design of the pilot nursery is essentially your “best educated guess” on what type of set-up would be optimal to produce plants, based on this handbook and your personal experiences. You can expect a large learning curve when developing methods for growing native and culturally important plants. High crop losses may occur during the first few seasons, and more losses may take place for the sake of experimentation (figure 2.10). A few seasons of growth and observation in a pilot nursery can preclude unnecessary expenditures, develop viable propagation strategies, and eliminate many of the unknowns regarding how to produce plants and manage the nursery, thereby providing enough detailed information to effectively plan a larger facility. A pilot nursery can also be invaluable in estimating costs and making a more accurate feasibility assessment when the time comes to expand.



Figure 2.9—Starting with a smaller scale pilot phase reduces the number of unknown factors and risks and is a key part of developing a successful nursery. Photo by Thomas D. Landis.



Figure 2.10—The pilot phase is the time to test ideas and accept the fact that failures lead to better results. These growers tried to repurpose Styrofoam® cups as nursery containers. They found that, unlike proper root-training nursery containers, the round shape allowed roots to spiral, which could be a serious problem after out-planting. Photo by J.B. Friday.

A small pilot nursery can help assess the following practices:

- How to take crops through all phases of development, from germination through hardening and distribution.
- How to develop realistic timelines and budgets for future production.
- How to plan infrastructure for production (and what infrastructure is truly necessary versus optional).
- Which growing media, container types, and propagation strategies are optimal for the plants.
- What labor and material costs are involved.
- What types of challenges may arise.
- How clients respond to the plants that were produced.
- How plants perform on different outplanting sites.
- What aspects of the nursery vision are feasible to carry out at this time.

The key is to start small, learn lessons along the way, and adjust your system accordingly. Keep in mind that no one who works with plants will ever feel as if they have learned everything they need to know; even very established nurseries are always learning more about how to grow and perpetuate plants, how to manage facilities and resources better, and how to improve relations with clients and the community. At some point, however, you will be confident that it is time to expand on the successes of the pilot nursery and continue development on a larger scale.

Assess Finances

Finances are an essential part of determining how a nursery will start and operate. Nurseries differ greatly in terms of their financial objectives. Some nurseries may be funded through grants or government programs while others are aligned with a particular project or organization. Some may have startup or pilot phase money, but are expected to be financially self-sufficient in the future. Private, for-profit nurseries must earn enough income from the sale of plants to at least pay for development, infrastructure, production costs, and staff time. Whatever the circumstances, finance is a key part of nursery planning. It determines—

- How much money can be invested in the nursery at the outset.
- If staff can be hired.
- In what timeframe the nursery can start to produce plants for sale.
- How many plants can be produced.
- What price can be charged for the plant materials.

Even if plants are to be distributed freely and not sold, it is still essential to know the cost to produce each kind of plant for planning, assessing feasibility, and ensuring the financial viability of the nursery. For a new nursery, predicting the cost of plants is complicated and depends on infrastructure, nursery size, staff skills, knowledge base, and many other factors. Nurseries that have gone through a pilot phase probably have a good grasp of the production costs. These costs can be revised to reflect production on a larger scale. Without a pilot phase, estimating costs before production is very difficult to do accurately, especially because high crop losses may be expected during the first few seasons while successful propagation methods are developed.

Visiting other nurseries to get an idea of similar production processes can be very helpful as resources and finances are assessed. Government nurseries are a great source of information because staff members usually share production details openly, and their production costs are public information. Visiting private nurseries is also useful in assessing all the stages that go into plant production, although they may be less open regarding financial and operational details. These production details can then be used to estimate costs in the planned nursery.

Estimate crop production costs by considering all phases of production, from collecting seeds to mixing growing media to delivering the plants (figure 2.11). To improve the accuracy of the estimated costs, consider the timeframe



Figure 2.11—To accurately estimate the time and expenses required for growing plant materials in a nursery, examine all aspects of plant production, from collecting seeds to delivering plants. Photo by Thomas D. Landis.

for growing the crop, the size of the stock, the labor and materials required, and the fact that some crop losses will take place during production. Remember to account for the following factors:

- Material production costs (for example growing media, water, fertilizer, seeds, pest control).
- Labor costs for production, maintenance, and delivery.
- Shipping costs and shipping time required for supplies and equipment (shipping can be costly and slow in remote areas and islands—order well in advance).
- Time and labor for customer relations (such as helping clients determine their target plant needs, answering e-mail messages or telephone calls, and visiting sites after outplanting).
- Inventory required (for example, the time, space, and materials each crop will require, such as nursery benches, containers, and trays).
- Structures (for example, protected germination area, shadehouse, and storage).
- Overhead costs (such as rent, insurance, water, utilities, and taxes).
- Time and labor for administration (bookkeeping, payroll, and staff relations).
- Time and funds for outreach, advertising, or educational programs.

It is wise to estimate a range of best-case (most economical) and worst-case production scenarios. After production is underway and actual costs are known, it is imperative to

revisit the price structure of the plants to ensure that they are in line with actual costs. In some cases, the costs of producing plants on a larger scale will be lower per plant than during the smaller scale pilot phase. But it is also possible that costs related to rent, utilities, labor, and so on may be higher.

Assess Feasibility

After assessing resources and costs, it is time to evaluate whether starting the nursery is a realistic and achievable undertaking. Again, starting with a small pilot phase is a good way to determine the feasibility of starting a nursery. The feasibility assessment needs to include the species potentially available to grow, client needs, production costs, market price, and the nursery’s site, goals, and capabilities. Will the emphasis be on growing plants from seeds or cuttings? How long does it take to grow these species to target specifications? What size plants need to be produced? Several scenarios need to be examined, including a variety of facility designs, sizes, and locations, so that the best conditions to meet projected needs are identified.

Other feasibility questions that need to be asked include, “Can the vision and objectives be fulfilled without starting a new nursery? Do alternatives exist?” Acting as a distributor instead of as a producer may be an economical alternative to starting a new nursery; this alternative has its benefits and drawbacks (table 2.1).

Selecting a Nursery Site

After the decision has been made to move beyond the pilot phase and develop a nursery, an appropriate nursery site must be selected. If possible, the pilot nursery can be located on the proposed permanent site to maximize familiarity with production and management on that site. Sometimes the nursery site is selected after the pilot phase, and this approach also has merit because you may be clearer about what you are looking for in a nursery site. Nursery site selection involves working with nature, rather than against it, for the most effective, efficient, and economical design (figure 2.12). The less the natural environment has to be modified to produce high-quality plants, the less expense the nursery will have to incur to create optimal crop conditions. Again, an understanding of the methods and costs associated with producing target plants along with the client-needs assessment will help in choosing a site. Careful observation of site conditions and an assessment of past and present climatic records are important. Even in cases where the site is already chosen, the process of site observation and inventory described here is helpful to understand the strengths and challenges of that site. Of course, no site is perfect.

Table 2.1—The benefits and drawbacks of either starting a nursery or distributing plants from another supplier. Adapted from Landis and others (1994).

Benefits	Drawbacks
Purchase plants	
<ul style="list-style-type: none"> • Time and capital available for other uses • No nursery staff needed • More long-term flexibility • Short-term or no commitment required 	<ul style="list-style-type: none"> • No control over growing process • Less control over plant quality, genetics, and availability • Plants may not be adapted to local environment • Unique needs of local clients may not be met
Start own nursery	
<ul style="list-style-type: none"> • High control over growing practices (can choose organic methods, local resources, and so forth) • High control over quality, genetics, and availability of plants • Plants will be adapted to local environment • Can develop local expertise on plant growing and handling • Can use traditional or culturally appropriate methods if applicable • No reliance on others to provide plants • Create job opportunities 	<ul style="list-style-type: none"> • Large initial investment, capital, and time • Long-term professional and economic commitment • Native plant markets are notorious for year-to-year fluctuations • Steep learning curve to gain proficiency in quality plant production and nursery management



Figure 2.12—Good site assessment and an understanding of crop needs will help determine the best structures for a nursery. Shown here is nursery construction in American Samoa. Photo by Thomas D. Landis.

Critical nursery site selection factors include the following—

- Access to good-quality, affordable, and abundant water.
- Unobstructed solar access.
- Easily accessible flat area for delivery or processing of bulky, heavy material such as soil, sand, mulch, and fertilizer.
- Easy access and close proximity to staff.
- Adequate land area.
- Reliable energy supply (if water pumps, fans, or lights are used).
- Freedom from insurmountable ecological concerns (such as neighboring chemical pollution, unmanageable noxious weeds, and so on).
- Freedom from problematic political concerns (such as problematic zoning and historical land use issues).

Climatic and biological attributes top the list for importance in site selection. An abundance of good-quality, reliable, affordable water is the number one factor; water quality

always needs to be tested when a site is being considered for nursery construction. See Chapter 11, Water Quality and Irrigation, for more information about this topic. Unobstructed solar access is also essential; plants need sun to grow. Access to electricity is important only if the nursery uses practices such as electric water pumps, fans to move air through the nursery, lights at night, or communication devices. At least one person needs to have quick access to the nursery in case of emergency; if the nursery site will be far away from human dwellings, it may be advisable to construct a caretaker residence on site. The amount of land selected for the nursery must be large enough for the production areas and any support buildings, and also allow for the efficient movement of any equipment and materials. In addition to immediate needs, potential nursery sites need to be evaluated on the basis of available space for possible expansion. Ecopolitical site selection factors, notably land use zoning and concerns about neighboring land uses that may involve herbicide, pesticide, or potential groundwater contamination are also important factors for determining suitable sites for nursery development.

Table 2.2—Decision matrix for evaluating potential container nursery sites. In this example, Site A received the highest score and is therefore considered the best choice for a nursery site. Adapted from Landis and others (1994).

Site selection criteria	Weight value ^a	Site A		Site B		Site C	
		Rating	Weighted score	Rating	Weighted score	Rating	Weighted score
Critical Factors							
Good solar access	10	9	90	7	70	9	90
Water quality	9	9	81	7	63	4	36
Water quantity	8	10	80	8	64	9	72
Available energy	8	9	72	9	72	10	80
Adequate land area	7	8	56	8	56	10	70
Zoning restrictions	7	10	70	6	42	8	56
Pollution concerns	6	9	54	7	42	9	54
Secondary factors							
Microclimate	6	9	54	8	48	9	54
Topography	5	10	50	9	45	10	50
Labor supply	4	9	36	8	32	10	40
Accessibility	4	8	32	6	24	8	32
Shipping distances	3	9	27	7	21	10	30
Total score			702		579		664
Site suitability			#1		#3		#2



Figure 2.13—Planning for local environmental conditions and for risk is essential during the process of nursery design. This nursery in Guam uses natural windbreaks to reduce water use and add protection to the nursery site (A); this nursery in Palau catches rainwater as a backup water supply (B). Photo A by Tara Luna, and photo B by George Hernández.

Protected microclimate can make dramatic improvements in nursery productivity and reduce cost expenditures. A site with a climate sheltered from extremes such as high winds, storms, and severe temperature fluctuations is ideal. Gentle topography also makes nursery set-up and management much easier than hilly or steep terrain. Access to the nursery by staff and clients is also useful for economical nursery production. In areas at risk of high winds, making use of a natural windbreak (figure 2.13) or having the ability to quickly remove the plastic from the roof of a greenhouse may save a structure in a severe storm. A backup water supply ensures crop survival through periods of drought or uncertainty. Firebreaks or a site selected to minimize fire risks can preclude disaster.

Each potential nursery site will likely have good and bad attributes. A decision matrix (table 2.2) can be constructed by listing the potential nursery sites across the top and the significant site selection criteria down the

side. The next step is to assign each site selection criterion an importance value on a scale from 1 to 10, with the most critical factors receiving the highest values and the less important ones receiving progressively lower values. Next, the suitability of each potential nursery location is evaluated and rated, again on a scale of 1 to 10, based on the information that has been gathered. The score for each cell in the matrix is then calculated by multiplying the weights for each site selection factor by the rating for each site. Finally, the weighted scores are totaled for each site, and, if the weights and rankings have been objectively assigned, then the potential nursery site with the highest total ranking should be the best choice. If all the potential sites are close in score, then the process needs to be repeated and careful attention paid to the relative values of each factor. The selection criteria can also be adapted or expanded to include other factors important to you. If the scores are still close, the sites are probably equally good.



Figure 2.14—Good planning examines the flow of work and sets up effective workstations for efficient and enjoyable plant production during all phases of growth. Photo by Kim M. Wilkinson.

Planning the Flow of Work

Good nursery planning takes place in time and in space (figure 2.14). Overall nursery planning examines the flow of work and materials through all seasons and phases of growth.

The requirements to produce target plants in time for the client’s outplanting season guide all other aspects of nursery design. Good site selection and a sound knowledge of propagation methods are important for creating the most appropriate environments for the crop’s needs. Rather than a single, large nursery structure or area, it is common to have a diversity of smaller areas and some structures tailored to meet the needs of the crops as they go through their development.

Although crop production is the core of nursery activities, it is only part of the whole picture. Preparation, cleanup, and storage must also be well planned. Where will seeds be cleaned, stored, treated, and tested? Where will containers be cleaned, sterilized, and stored? Where will clients be met? The flow of work through time and seasons and design to facilitate the movement of people and plants in an efficient and safe way is an essential component of nursery planning (figure 2.14).



Figure 2.15—Good planning translates to making efficient use of resources and space. This small greenhouse saves water and labor by growing sedges and wetland grasses on benches beneath those for dryland forbs. Photo by Tara Luna.

Considering the nursery’s local effect is also important. For example, consider not only where good-quality water will come from for irrigation, but also where the water could go after nursery use. The water may contain fertilizers and be a potential source of pollution, possibly creating problems and legal issues for the nursery. With good planning for flow over time, however, that same water may be used as a resource, directed to other crops (figure 2.15), or recycled. Thoughtful design minimizes the amount of water used, provides for the needs of plants, and deals with runoff appropriately, as discussed in Chapter 11, Water Quality and Irrigation. Consider as many elements as you can during the planning phase, and be prepared to adapt as new opportunities for efficiency present themselves after the nursery is operational.

Planning as an Ongoing Process

The initial planning phase is a crucial part of successful nursery development, but the planning process does not stop after the nursery is operational. The vision of the nursery needs to be revisited regularly. Set aside time to assess the nursery’s progress in fulfilling its objectives, visualize new possibilities, and adapt to changing circumstances.



Figure 2.16—Planning a nursery is an ongoing process that is aided by visiting other nurseries and continually learning more. Photo by Kim M. Wilkinson.

Continually learning more through nursery visits, conferences, and field days will also help with ongoing planning and improvement (figure 2.16). Following up with clients and revisiting target plant specifications are also essential for planning for success. See Chapter 18, Working With People, and Chapter 19, Nursery Management, for more discussion about these topics.

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