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# GARDEN CENTER PLANT MANAGEMENT

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Professional care for plants in the retail nursery requires good productive growing conditions. The days of just taking plant orders have diminished and competition is real and significant in the nursery marketplace. Profitability in the nursery business is possible only for those who **care enough** to want a quality product and **do enough** to provide a quality product. If nursery professionals do not properly care for their plants, customers will find someone that does care. The consumer has learned about plant quality, therefore, caring for plants means caring for customers by providing a quality product, which is the key to a successful business.

A California survey compared nursery-type operations with non-nursery operations with the following results:

Reasons for buying plants at non-nursery stores:

1. Convenient parking.
2. Newspaper advertising.
3. Low prices.
4. Availability of garden supplies.

Reasons for buying plants at a nursery:

1. High quality plants.
2. Knowledge of plant material by salesperson.
3. Convenient parking.
4. Availability of garden supplies.

Consumer recognition of high quality plants and consumer knowledge of plant materials are direct and indirect requests for quality by these consumers. Consumers are concerned that nursery professionals do in fact properly grow plants and that nursery professionals can inform consumers on how to care for the plants purchased. All this requires knowledge and technology and it places retail nursery professionals in the **"Production Mode of Retail Nursery Management"**.

To provide a quality plant, the nursery professional must:

1. Ensure that it survives the initial transplant shock after harvest.
2. Ensure that it **improves** in value and quality while on the market.

3. Ensure that it is transplantable.
4. Ensure that it survives and grows well after the sale.

A retailer's guarantee that a plant will grow cannot be accepted as a substitute for viability. Customers expect that their money, time, and effort will be spent on a plant that will survive. They do not expect to lose the opportunity to enjoy their choice of plants for that year, guarantee or no guarantee.

If a customer buys a plant, takes it home, plants it with reasonable care, and the plant dies, the best guarantee in the world may not remove the impression in his/her mind as to where the plant was purchased. Thus, it is in the nursery professional's best interest to have each plant survive and grow well after it is sold. How plants are handled and cared for in the sales area governs their subsequent survival and vigor. To do this properly, the retail nursery professional must operate in a container production mode. Retailers may claim to be in the business to only sell plants, but it is important to realize that plants must receive timely and detailed attention to plant growth requirements so that they **improve** in quality and value. If this is not done, plants will **deteriorate** in quality and value. Plants do not maintain a "status quo" as they are either growing or deteriorating.

Several different types of Nursery stock are grown, processed and marketed to retailers and to consumers as illustrated in Figure 1 and as described below.

## **Balled and Burlapped (B&B) Plants**

B&B plants are dug directly from the field in which they were grown. This results in leaving 30 to 80% of a plant's root system in the field. Therefore, great care must be taken to maintain the plants after digging.

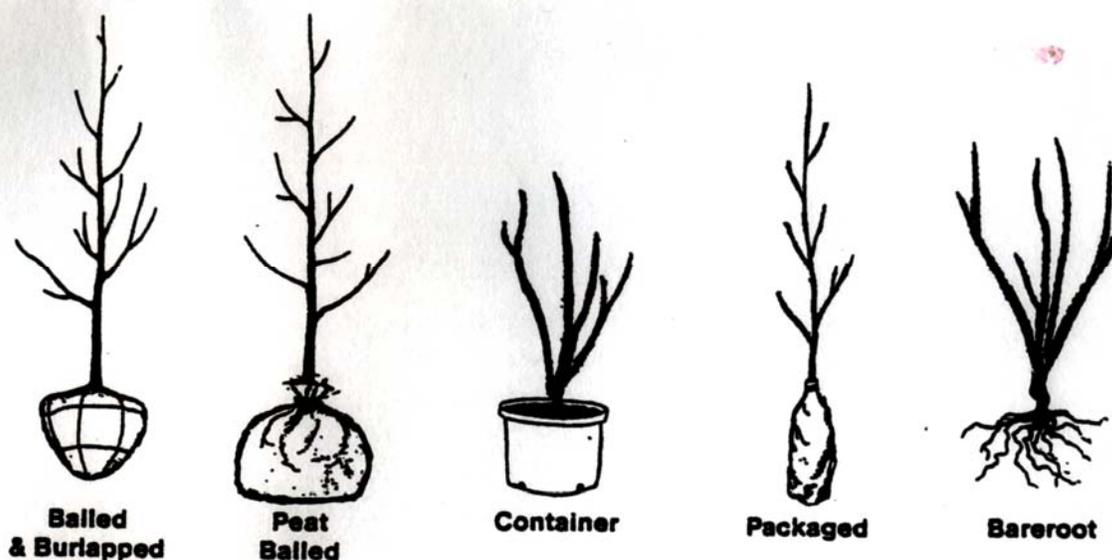


Figure 1. Types of nursery stock grown, processed and marketed to retailers and to consumers.

Non-treated or treated burlap is used to hold the soil securely around the remaining root system. Burlap has the advantage of disintegrating after planting. Treated burlap will last most of the first year. Untreated burlap does not last as long and may need to be replaced if the plant is held for a long period of time before being sold. If any form of plastic material is used to cover the ball, it must be removed at planting time as plastic can last for years and it can girdle roots that do grow through it. Always advise customers that plastic wrapping materials must be removed after it is placed in the planting hole, but before it is backfilled.

B&B plants may be either hand-dug or mechanically harvested. Hand digging involves carefully removing soil to form a ball of soil immediately below the plant. The size of the ball is critical and must be in accordance with the American Standards for Nursery Stock which is enclosed in this manual. After the ball is formed, it is wrapped with burlap and pinned with balling nails. Before removing the plant from the hole, it is tied securely in several directions with twine to hold the ball intact. When the plant is replanted, it is critical that the twine be removed from around the trunk **after** the plant is placed in the planting hole. Whether the twine is jute or plastic, it will girdle the plant if left tied around the trunk. **Advise customers to always remove the twine from around the trunk, from the top of the ball, and from the hole.**

Mechanically harvested B&B plants are dug with a Clegg, Vermeer, Jiffy Baller, Ace of Spades, Dutchman or other balling machines. Jiffy rootballs are usually placed only in burlap, while most machine-dug rootballs are placed in wire baskets lined with burlap. These are usually larger rootballs ranging from 24 inches to 60 inches. Burlap would not be used with rootballs 60 inches to 102 inches as these rootballs are usually dug and planted directly into a pre-dug hole. A rootball is secured in a basket by wrapping it tightly across the top with twine and then crimping all wire sections of the basket. These balls can be extremely heavy and care must be taken to prevent injury to the tree and to personnel when handling such nursery stock. Some controversy still exists as to the effect of the wire basket on subsequent root growth of the tree. However, research has shown that tree roots can engulf a wire and continue its translocation functions after it has grown around the wire. Some planting specifications require the removal of the basket or at least the upper portions of the basket. No twine should be cut or wire removed until the tree is stabilized with backfill in its permanent position in the hole. Then the twine must be cut and removed from around the tree trunk and from the hole to prevent trunk and root girdling, and subsequent death of the tree.

B&B plants should only be handled by the rootball. If a plant is picked up by the top or trunk only, the plant could come out of the ball. Even if this does not occur, roots are damaged every time a plant is lifted by its top. Repeated handling in this manner will greatly reduce the quality of the plant, it will reduce plant vigor and it can result in death of the plant.

By Minnesota law, B&B stock must be mulched if it is to be held above ground for more than a few days. Shredded bark, wood chips, straw or similar materials, or shrink wrap can be used as a mulch. Mulches reduce water evaporation and will also help prevent erosion of the soil ball. Mulches also moderate temperatures around the roots and improve the appearance of the sales yard. Green or fresh chips, not composted chips, should be used for mulching as composted chips, soil, sand or peat will promote root growth outside of the ball and into the mulch and thus, create additional transplant shock upon removal of the mulch and destruction of these new roots.

### **Container Plants**

Container plants are steadily increasing in demand because they are highly marketable. They can be sold and planted with little or no transplanting shock in spring, summer, or fall. They are easy to handle in the nursery and by the customer. If managed properly, container stock increases in value over time rather than deteriorating quality and value. For container stock management procedures refer to the chapter on Container Production.

Three types of container stock exist as described below.

Container-Grown Plants – Container-grown plants refer to plants grown in a container growing medium from the propagule stage to the marketable stage. These plants could be in one container, or upgraded into a larger container over a period of weeks, months or years. There is generally very little transplanting shock with properly managed container-grown plants because all of the root system stays with the plant. These plants will need a minimum amount of after-planting care because they have established root systems. One disadvantage of container grown plants is that they can become "root bound". Once transplanted into a container as a seedling or rooted cutting, the roots can grow downwards or out to the sides of the container. As they reach the sides they can only grow in circles. As the roots become longer and thicker, the root system can actually strangle itself, which leads to decline and death of the plant. If the

roots are circling the container at the time of transplanting, they must be sliced vertically three to four times prior to transplanting into the landscape.

Containerized Plants – Containerized plants are field grown plants, harvested bare root and then planted into a container for marketing purposes. Considerable time, ranging from two to five months is required between containerizing and selling to insure that the plant is well rooted in the container and can therefore, be removed and transplanted without disturbing the rootball or root system. Just as with container-grown plants, a container growing medium is required to insure a quick and vigorous root establishment in the container.

Field-Potted Plants – Field-potted plants are field-grown plants. They are harvested similar to B&B except the root ball is placed in a container rather than in burlap or wire baskets. Field-potted plants should be handled like B&B plants and should not be held in the container for more than two to four weeks. Field soil does not function properly as a container growing medium and therefore, will not facilitate good vigorous root growth in a container.

### **Bare Root (BR) Plants**

Bare root plants are field-grown plants harvested without soil on the root system. BR plants require prompt and strict handling to prevent the drying and, therefore, killing of any roots and root hairs. They must be immediately placed in cool (34-38°F), humid (90-95% RH) storage. Cool temperatures and high humidity **must** follow BR plants through storage, transit, display, and right up to the time of planting, whether it is into containers, back into the field, or into the landscape. BR plants must be dug after leaf fall and must be planted prior to budbreak the following spring.

Bare root plants are sold only in early spring before budbreak, or late in the fall once the plants are dormant and have lost their leaves. The big advantage of bare root plants is reduced cost. Less labor is involved in harvesting because a tractor with an undercutter loosens and lifts a row of plants, and they can be easily picked up out of the loosened soil. The lack of soil around the roots allows the plants to be stacked, reducing storage space. With the absence of the heavy soil on the roots, shipping costs are reduced.

Always caution customers to not allow the root system to dry out prior to planting. During preparation for

planting, the roots may be soaked in a container of water.

### **Peat-Balled or Bench-Balled Plants**

These plants are prepared for sale by creating an artificial ball from a light weight growing medium around the roots of a **bare root** plant. The BR plant is wrapped and tied in burlap or plastic which extends the selling season of a normally BR plant. If plastic is used, it must be carefully removed without disturbing the ball at the time of planting. Burlap may stay on the ball, but any twine around the trunk must be removed from the trunk, top of the ball, and from the hole **after** the tree is placed and secured in the hole at the time of planting. Peat-balled or bench-balled plants provide manageable products and extend the shelf life and salability of bare root plants.

### **Packaged Plants**

Packaged plants are small bare root trees, shrubs, and roses that are mechanically packed with a moist packing material such as sawdust, shingle tow, perlite, or peat in a waxed or plastic lined paper bag or box. It is not intended that the plants grow in these packages or the packing material as it will not support growth. It should be removed upon planting. These plants should be sold and planted before bud break.

### **Herbaceous Perennial Plants**

Herbaceous perennials are hardy, non-woody, plants. Retailers must accept the responsibility of caring for perennials to assure viability upon sale. Losses of this class of stock can be extremely heavy due to:

1. Long display times due to inclement weather.
2. High temperatures and inadequate light, which force growth while plants are on display.
3. Fungal problems, which tend to proliferate either in storage, right after plants are removed from storage, or if the plants are stressed upon transplanting.

Herbaceous perennial nursery stock appears on the market as bare root divisions or in packages or in containers. Packaged stock is usually obtained from cold storage and may or may not have roots packed in a growth sustaining medium. Perennial container stock may have been dug recently from a field or bed, or obtained from cold storage and potted into containers. Established perennials may also be sold by growing them for several weeks in a container. With a

little care, perennials in containers can be planted by the customer without disturbing the roots. Loss of perennial stock by retailers or customers is usually less in containers than with packaged stock.

Successful holding of bareroot or packaged perennials while on sales display is dependent on temperature and light. A high percentage of these perennial losses occurs because of excessive growth in warm sales areas with low light levels. Such "forced" growth weakens the plants, reduces future growth potential, and renders plants susceptible to damage from weather extremes when planted outdoors. Perennials displayed and grown in containers outdoors will usually withstand light freezes and full sun better than when they are grown in greenhouses or shade houses. They will be in better condition for planting by the customer. The exception to this is shade loving perennials which do require some shade for optimum growth.

Perennial plants should be closely examined periodically so dead or diseased stock can be removed from the sales display area. A fungicide can be applied if deemed necessary to prevent the spread of diseases. Refer to the chapter on Perennials for additional cultural information.

### **Bulbs and Similar Structures**

Hardy bulbs include lilies and fall planted bulbs such as daffodils, hyacinths and tulips. Non-hardy root or modified stem pieces or divisions sold for spring planting include cannas, begonias, dahlias and gladiolus. Refer to the Plant Propagation chapter for definitions and descriptions of these structures.

Fall bulbs require little special care, however, they may get too dry if left in a warm room too long. They can usually withstand the main part of the sales season in good condition, and it is only the leftover bulbs that may be in questionable condition by late fall or early winter. Occasionally, diseased bulbs are found in spite of careful sorting and grading by the shippers, therefore, frequent checking for evidence of disease is a good practice.

Fall bulbs **must** be exposed to a cool period for root growth and physiological conditioning before the flowering season or they will not flower satisfactorily. If these plant structures do not receive an adequate cold treatment, they will not flower if planted in the spring.

Lilies are the most troublesome of bulbs sold in the spring as they tend to produce new growth easily, especially if the packaging keeps the humidity high. Opening packages and keeping this stock at cool temperatures will help retard new growth. Potting these structures before new growth becomes excessive and selling them after they become established in a container is the best method of management. Lilies may be sold and planted in the fall when they are not so susceptible to producing growth while on sale.

### **Planting Depth of All Plants**

The correct planting depth of all plants is critical to plant survival and growth. For B&B stock, customers should be instructed to remove excess soil from the top of the rootball if there are several inches of soil above the trunk flare or above the first root. If a plant is to be planted in heavy soil, the root ball should be planted shallow, wherein a few inches of the top of the root ball would actually be above the indigenous soil level.

The same would apply to bare root or herbaceous plant material in that the root crown should always be at or slightly above ground level rather than having soil placed up onto stem tissue. Refer to the chapter on Planting and Transplanting for additional information.

### **General Garden Center Management**

Just as there are several types of nursery stock, each grower and retailer will have unique operational variations such as: different types of containers, different growing media, different species, different cultural practices, etc. Thus, strict management and attention to detail is required to maintain all plant material in a high quality and salable condition. Refer to chapters on Irrigation Management, Container Production, Pruning, Fertilization for Nursery and Landscape, Weed Management, Pest Management, Insect Management and Disease Management to better understand and implement these management and cultural requirements.

Putting a value on the cost of having a plant sitting in the sales lot highlights the need for plant improvement with time. Twenty-five cents and up is not an unreasonable space and maintenance cost for a #1 container per week. Retail nurseries have variable operation costs, but consider this cultural care or maintenance cost in the garden center of 25 cents per #1 container per week. If that #1 container plant is not sold after eight weeks, an additional two dollars is now invested in that plant. This cost of in-store maintenance must be offset by:

1. A sufficient, but not excess, mark-up for a given period of time.
2. An increase in plant size, grade and quality to justify a subsequent **higher** rather than **discounted** selling price over time.

If plant quality goes down because the plant is shopworn and not properly cultured, profits are diminished and losses per plant rise rapidly as stressed plants actually deteriorate and die. Larger, more expensive plants generate even greater losses when they decrease in quality. Refer to the chapter on Sales and Marketing for additional information.

The Nursery Industry is very fortunate in the product it sells. Even though it is classified as a perishable product, it really is not perishable compared to fresh produce, Christmas trees, meat, cut flowers, etc. In fact, nursery stock **is not** perishable if properly cared for. It is a living product and it can improve in quality with professional care and technology, and with time. It is for this reason that the indiscriminate reduction of prices should not occur at the end of the season because the plant is shopworn or in poor condition. With time, plants should be larger with improved quality and most likely upgraded for an **increase** in price.

High quality plants in the garden center will sell better, they will survive better for the customer, and a garden center enterprise will be more successful and profitable. Garden center managers can obtain this success by implementing and maintaining a "Production Mode of Garden Center Management".