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Updating Landscape Specifications[1]

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Abstract

Changes in nursery growing practices, combined with an increasing number of untrained people entering the landscape contracting industry, has necessitated the development of landscape specification guidelines so detailed that individuals with minimal horticultural skills should be able to complete a landscape project successfully. Emphasis in guidelines must be placed on shallow planting, the cutting of outside roots of container grown plants to minimize root girdling and to encourage rapid establishment, soil pH requirements of plants, soil drainage specifications in relation to planters and in special landscape situations, mulching materials and problems associated with over-mulching, stem girdling by ties and marking tapes, emphasis on root hardiness especially in relation to raised outdoor planters, learning to recognize properly dug large plants and the importance of plant nutrition.

Index words: landscape specifications, planting depth, drainage, soil pH, mulching, girdling, plant selection

The need to update landscape specifications is greater now than ever before. These needed revisions are due to an increasing number of untrained "Landscape Contractors" entering the market, obsolete specifications used by landscape architects and architects, and changing nursery practices.

Landscape architects and architects strive to create unique environments. However, making these dreams come true is the task of landscape contractors. Since there is no degree of competency that must be earned before the title of *"Landscape Contractor"* is bestowed on an individual, the qualifications of those bidding on contracts can vary from experienced, trained and well-equipped to those with only limited experience and little or no formal training. If the uniqueness of the design is to be achieved, specifications for the construction should be so complete that they leave little doubt as to the quality of materials to be used and the workmanship required. Unless contractors are willing to take chances or are adept at cutting corners, final bids from detailed specifications should fall within expected boundaries. At the present time, many specifications are so vague that it is not uncommon for bids to differ 100% to 300% and the lowest bidder generally wins.

A frequently used term in many specifications is: *"According to Recommended Horticultural Practices."* This term has little or no meaning to individuals entering the profession. It is not uncommon to have high school and college age students and common laborers with some weeding and lawn cutting experience advertise themselves as landscape contractors. Many of them have had no formal or apprentice-type training; however, because of having experienced a few successes, they often bid on jobs that are beyond their abilities.

Although most major landscape contracts have one-year guarantees, it is well recognized that most landscape size trees and shrubs contain sufficient reserves with their roots, stems and branches to sustain foliage and appear, to the untrained observer, to be growing during the guarantee period. Whether or not the plants will continue to thrive in the future is often questionable.

Landscape specifications should be so complete that any individual with normal intelligence should be able to successfully transplant any healthy, properly selected and dug species into properly prepared ground. Should the plant stagnate or die, then a trained third person with design and specifications in hand should be able to determine the cause of failure, and who is at fault.

Although it often appears as if many planting specifications originated during the construction of the "Garden of Eden," it is safe to assume that most specifications in use today originated when nurseries were located within a 50-mile radius of the area of use. At that time most plants were field-grown, balled and burlapped by hand and were probably grown in a soil quite similar to that into which they were transplanted. Today, a large percentage of plants used in landscaping are: container grown, grown in nurseries hundreds of miles away and in totally different soils, and have most likely been dug by machine. Unless the contractor has modified his or her planting practices, these changes in production practices alone are enough to cause failures.

The most common causes for failure of newly transplanted landscape plants are: a) planting too deep, b) improper planting of container-grown materials, c)

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poor drainage, d) improper soil pH, e) excessive mulching, f) girdling, g) improper plant selection, h) improperly dug plants, and i) nutritional deficiencies.

Planting too deep.

Because of advances in machine digging, an increasing number of landscape size trees and shrubs are being grown in sandy loam soils. These plants tend to have deeper root systems than similar plants growing in heavier soils. Transplanting these plants into heavier soils at their original planting depth or slightly deeper results in extended delays in establishment or death within 2 to 4 years. By specifying that the upper 1/8 of the top of the root ball be planted above the natural grade, the roots in the middle and at the bottom of the rootball will have a better chance of survival, especially when planting in heavy soils. (Fig. 1).

Improper planting of container-grown plants.

Most container-grown landscape plants used in landscaping are either pot-bound or are approaching that condition. Unless the roots of these plants are disturbed or cut, they are slow to establish and are susceptible to damage by drought. Specifying that a deep cut be made across the bottom of the rootball, "Butterflying," or that 4 to 5 cuts, 2.5 cm (1 in) deep be made the length of the rootball, "Slashing," will stimulate roots to branch and become established more rapidly into the new soil environment. (Fig. 2).

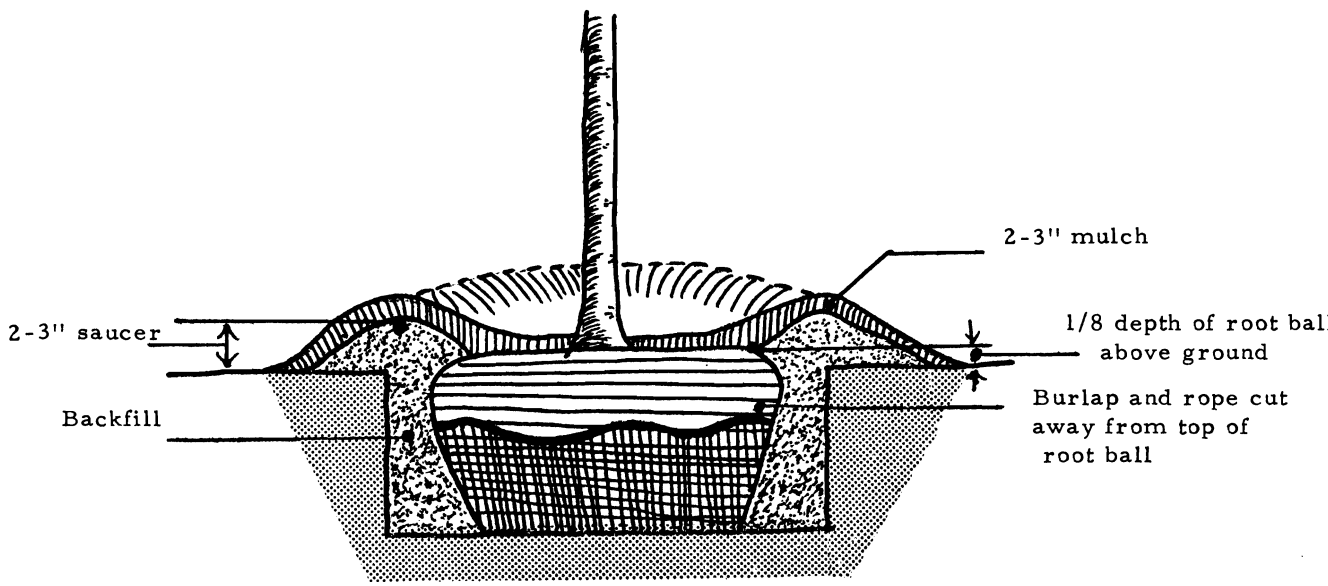

Fig. 1. Planting directions for balled and burlapped plants. Planting hole should be dug so that 1/8 of the root ball is above ground without placing backfill beneath the root ball. Removal of the burlap and ropes from around the stem immediately at planting time and building the saucer with edges extending beyond the borders of the planting hole to exclude surface runoff.

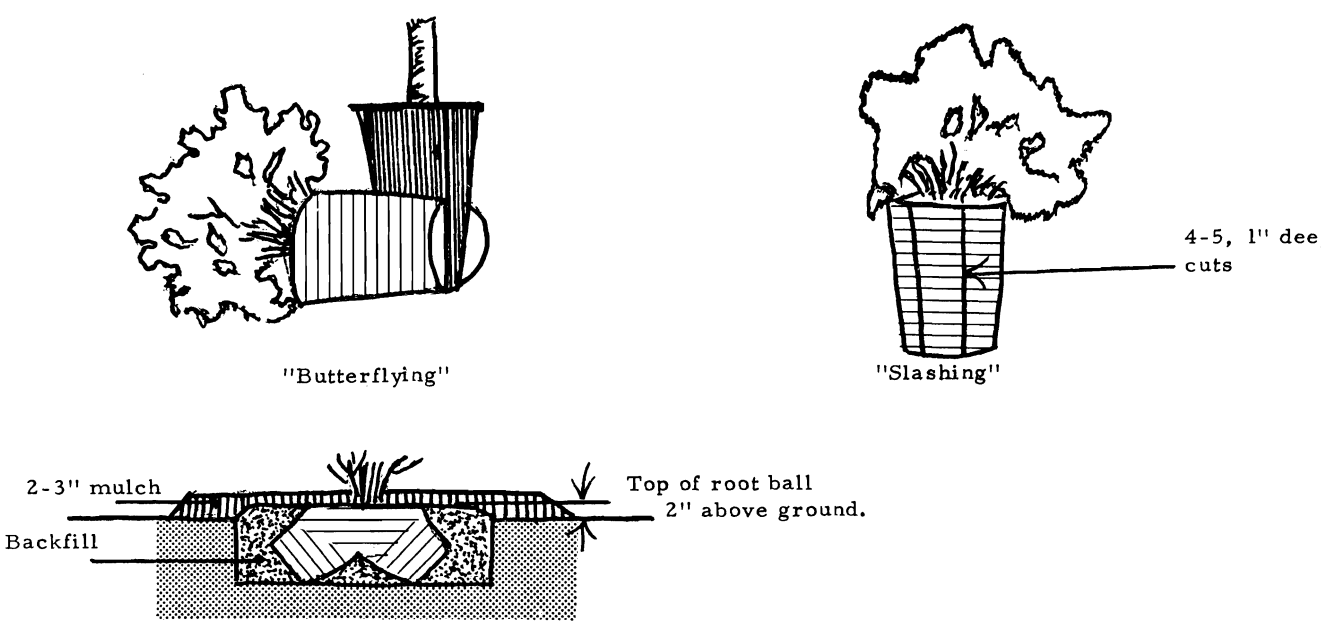

Fig. 2. "Butterflying" or "Slashing" the root ball of container grown landscape plants to disrupt the circular root growth and to stimulate branching of roots. Planting the container grown plants with the top 2" of the root ball above ground.

Poor drainage.

Relatively few plants thrive in poorly drained soils. With increased use of automatic irrigation, drainage problems are occurring with greater frequency. Plants at the bottom of slopes, near curbs or walls or in soil depressions, are most affected. Placing a shovel full of gravel beneath the rootball does not solve the problem. These problems should be resolved prior to bidding.

The increased use of planters in landscapes is creating new problems. Unless soil separators are used between the growing media and the aggregate, at the bottom of planters, drainage can become a problem after several years of use. A layer of peastone or fine gravel over the coarse aggregate does not produce adequate protection from siltation (Fig. 3). Non-woven fiber soil separators should be specified.

Improper soil pH and nutritional deficiencies.

The commonly used term *"Fertile Soil"* is unacceptable because it is impossible to judge the fertility of soil by its appearance, or trust its source of origin. Landscape specifications should provide parameters for acceptable pH, soluble salts, nutrient concentrations and particle sizes for all soils, organic amendments, and aggregates. Fertilizer and lime amendments used should be specified to adjust soil and media pH and nutrient to optimum levels.

Excessive mulching.

Materials being used for mulching are variable. The term *"Organic Mulch"* may be used to describe fresh woodchips as well as pine nuggets. To avoid problems that have become associated with woodchips, pole-peelings, and hardwood bark, it should be stated that mulching materials other than barks of coniferous species must be composted. The amount of mulch to be applied should be stated not to exceed 7.5 cm (3 in).

Girdling.

Girdling of trees and shrubs by plastic string, rope and marking tape is becoming a serious problem, especially 3 to 4 years after the job has been completed. These materials do not decompose and once hidden by soil, mulch or foliage, their presence does not become noticeable until it is too late. Specifications should clearly state that all tying materials and marking tapes should be removed **at the time of planting.** Although injury may not become evident until several years after the guarantee period is over, that does not mean that the contractor or the architect cannot be held liable.

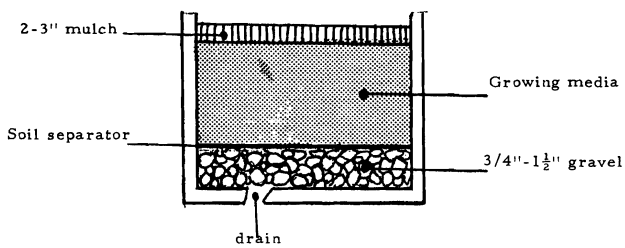

Fig. 3. Providing permanent drainage in planters by installing non-biodegradable soil separators between the growing media and drainage gravel.

Improper plant selection.

Selecting the correct plants for the right places is the responsibility of the landscape designer, landscape architect or nurseryman. Micro-climates created by reflective walls, raised planter mounds, southern and western exposures, etc., create special problems. Unless these are given adequate consideration, losses can be anticipated. Cold injury to roots and winter desiccation are common problems associated with these areas. These potential problems may go unnoticed for several years or they may occur the first winter. Those making the plant selections must be made aware of the effects of light and heat from reflective walls, especially during winter months when the ground is frozen; the importance of considering root killing temperatures when selecting plants for raised planters or roof top gardens; and the tolerance of plant species to shade, sun and media pH. The ability of a plant to survive is highly dependent upon the environment in which it is planted.

Improperly dug trees.

Mechanization in wholesale nurseries has changed how large trees and shrubs are grown and dug. Periodic spraying between trees with post-emergent herbicides combined with discing between rows are methods of weed control. These cultural practices are resulting in the mounding of soil around the stems and over the roots. Unless this excess top soil is scraped away prior to digging, it is highly probable that most of the dug roots will be found at the bottom of the soil ball and there will be few roots present. Individuals tagging trees for specific landscape jobs should be aware of this practice of mounding around the stems of plants. Landscape contractors should be cautioned against accepting plants with mostly large fleshy roots and few fibrous roots at the bottom of root balls. Such plants are more than likely unable to survive transplanting.

The replacement of plant material in a landscape is costly, time consuming and often difficult. The purpose of landscape specifications is to assure that the work is properly executed, the plants will thrive, and the desired environmental effects are achieved. Complete specifications are just another means of achieving quality control.

Significance to the Nursery Industry

The replacement of plant materials in landscapes is costly and time consuming. Plant material failures in newly planted landscapes give the industry a bad image. Many of the specifications prepared by landscape architects and landscape designers are archaic or are so vague that estimates may vary by thousands of dollars depending on the credibility of the landscape contracting firms. To encourage competitive bidding, while assuring that the landscape can be successfully completed, it is of utmost importance that landscape specifications be standardized and in such detail that should the plants not survive, the cause can either be attributed to the lack of proper specifications or the failure of not following the specifications. Clear and concise landscape specifica-

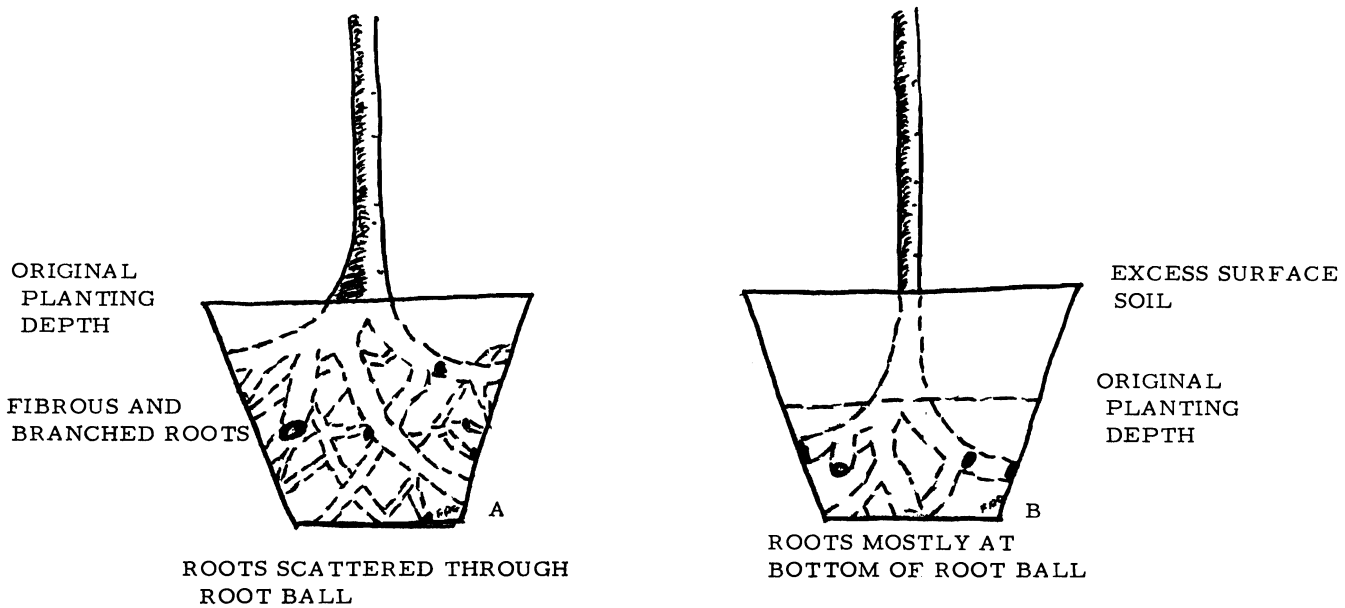

Fig. 4. Potential problems associated with the position of the root system and number of roots within a root ball as influenced by: A) removal of excess top soil; B) not removing excess top soil before positioning spades of hydraulic tree diggers around trees and large shrubs that have been under cultivation for many years.

tions would place the cost of replacement on the landscape architect, landscape designer, landscape contractor or landscape nursery depending on the results of an investigation.

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