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STRATEGIES FOR EFFICIENT USE OF WATER WHEN PLANTING NEW TREES AND SHRUBS

Whenever plans for new plantings of trees and shrubs are being developed, the weather during the weeks and months after transplanting is an important consideration. Especially problematic is water (precipitation), a critical component of after-plant care. In situations where supplemental water is not available, periods of drought and restrictions on water use can impact survival of the new transplant. In these situations, there are steps that can followed that can compensate for limited availability of water and its impact not only on newly-planted trees and shrubs, but also on herbaceous perennials and annuals. This discussion focuses on general practices aimed at helping new transplants become established and methods for efficient use of available water.

Before placing new plants in the landscape, careful consideration should be given to the plant and the site. When planting, practices such as spacing, digging and preparing the planting hole, and preparing the rootball are important. After transplants are in the ground, attention to watering and after-care are important to growth and survival.

Plant and Site Selection

- It is important to match the needs of the plant with what the site has to offer as closely as possible. This helps to maximize the vigor of the plant from the time of planting. The old axiom "the right plant for the right site" is always important but is especially pertinent during periods of drought.
- Major factors for consideration include soil, slope, amount of light, space or size, hardiness zone, drainage, exposure, and soil pH.
- For naturally dry sites, select drought-tolerant plants.

Planting Practices

Spacing:

- Avoid crowding or spacing plants too closely since crowded plants just don't grow well.
- Crowding also increases competition for available water.

Digging and preparing the planting hole:

- For both woody and herbaceous plants, the planting hole should be dug 2-4 times wider but no deeper than the rootball to be planted (Figure 1).
- In most cases, the soil dug from the planting hole (with minimal amendments) should be used to backfill the hole. However, if the soil is

substantially lacking in organic matter (e.g., sand or clay), additional organic matter can be added to help with soil moisture retention.

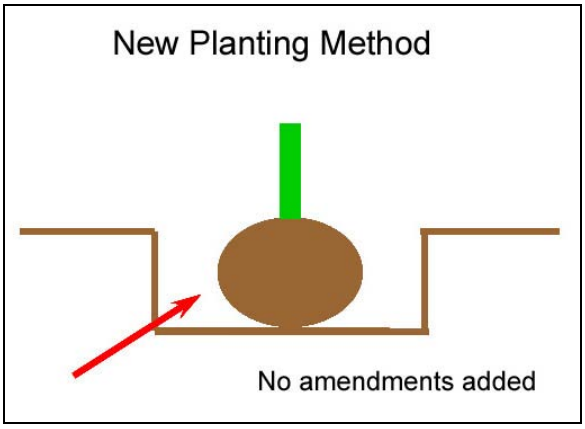

Figure 1. New method for planting.

Preparing the rootball and planting:

- Proper preparation of the rootball is unfortunately often overlooked but it is particularly critical to plant growth during periods of drought.
- With balled and burlapped (B&B) material, the burlap should be completely removed or cut and folded down at the base of the rootball. When wire baskets are also present, the top 3rd of the basket should be cut and removed.
- With container-grown woody and herbaceous plants, the rootball should be moist but not wet at the time of planting. It should also be scored, cut, or carefully teased apart before planting. This is especially important if the root mass is very tight and dense. This treatment helps to stimulate the growth of new roots.
- Never transplant the plant too deep. This is extremely important for woody plants. The root flare should be level (or slightly above for heavy, clay soils) with the perimeter of the planting hole. For B&B material, this often requires opening the ball in order to locate the root flare.

Planting After-Care

Fertilizing:

- It is now generally accepted that trees and shrubs don't need to be fertilized after transplant.

Watering:

- It is important to use efficient systems for delivery of water such as trickle irrigation, soaker hoses, and directed sprays at the roots. A hose without a nozzle set to trickle water slowly into the soil is a good way to water new transplants. However, it will be necessary to determine how long the hose needs to be in place so that an adequate but not excessive amount of water is applied.
- A berm of soil around the plant can help to direct water into the rootball.
- Overhead watering systems should be avoided since substantial amounts of water are lost through misdirection and evaporation. If it is necessary to use overhead irrigation, watering in early morning helps to limit some unnecessary losses.
- Most plants and new transplants require approximately 1 inch of water per week. However, new transplants might need to be watered twice a week for the first month and once a week for the remaining portion of the season. For *most* soil types, watering is best done as one deep soaking during which the soil profile is wetted to a depth of 6-10 inches.
- Supplemental water can be collected from gutters and downspouts. Wastewater from household use (also called gray water) can also supplement limited supplies of fresh water when used properly. It is best used when diluted 50:50 with fresh water.

Mulching:

- Properly applied mulches help with soil moisture retention and have the added advantages of weed control, soil temperature moderation, and disease control.
- Materials used for mulches include newspaper, black plastic, landscape fabric, lawn clippings (that haven't been treated with herbicide), straw, stone, gravel, bark, and wood chips.
- If the soil is dry, a deep watering should be done prior to applying the mulch.
- Improperly applied mulches cause many problems: when applied too thickly, the mulch impedes water penetration and smothers the roots. When applied too close to the stem, the mulch creates conditions favorable for the development of stem and crown rots. (Figure 2).

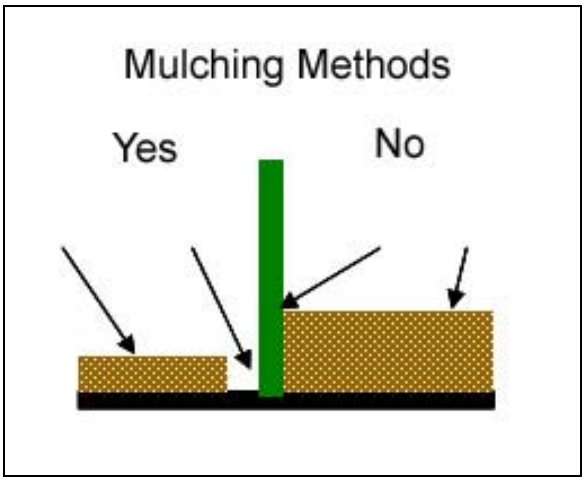

Figure 2. Guidelines for correct application of mulch for landscape plantings.

- Rules of thumb for mulching:
    - Mulches should be applied approximately 1 inch from the base of herbaceous plants and 6-12 inches from the base of woody plants (see diagram below).
    - The thickness depends upon the coarseness of the mulch. For example, fine shredded bark ~1 inch, coarse shredded bark ~2 inches, pea gravel ~3 inches, and bark nuggets ~4-6 inches thick.

Summary

While following these guidelines will not substitute for adequate, natural, supplies of water, new transplants should have a better chance of survival during a drought.

Additional fact sheets and information on drought are available on the Connecticut Agricultural Experiment Station website (http://www.ct.gov/caes/). These include "Drought and Its After-Effects on Trees and Shrubs" and "Drought Stress, Tree Health, and Management Implications." Up-to-date information on precipitation levels recorded at the Experiment Station's Lockwood Farm in Hamden can also be found at the Station website.

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