

## Abstract:

Palm stead offers over 350 varieties of deciduous and evergreen shrubs

Standard stock is available primarily in 1, 2, 3, 4 and 5 litre containers

Specimen shrubs are available in container sizes from 10-110 litres, including over 150 varieties of deciduous shrubs and over 180 varieties of evergreen shrub

Contract growing and sourcing services are available

With the objective of fitting planting stock more ably to withstand stresses after out planting, various nursery treatments have been attempted or developed and applied to nursery stock.



Buse and Day (1989) for instance, studied the effect of conditioning of white spruce and black spruce transplants on their morphology, physiology, and subsequent performance after out planting. Root pruning, wrenching, and fertilization with potassium at 375 kg/ha were the treatments applied. Root pruning and wrenching modified stock in the nursery by decreasing height, root collar diameter, shoot root ratio, and bud size, but did not improve survival or growth after planting. Fertilization reduced root growth in black spruce but not of white spruce.

## Hardening off, frost hardiness:

Seedlings vary in their susceptibility to injury from frost. Damage can be catastrophic if "unhardened" seedlings are exposed to frost. Frost hardiness may be defined as the minimum temperature at which a certain percentage of a random seedling population will survive or will sustain a given level of damage (Siminovitch 1963, Timmis and Worrall 1975). The term LT (lethal temperature for 50% of a population) is commonly used. Determination of frost hardiness in Ontario is based on electrolyte leakage from mainstem terminal tips 2 cm to 3 cm long in weekly samplings (Colombo and Hickie 1987) The tips are frozen then thawed, immersed in distilled water, the electrical conductivity of which depends on the degree to which cell membranes have been ruptured by freezing releasing electrolyte. A  $-15^{\circ}\text{C}$  frost hardiness level has been used to determine the readiness of container stock to be moved outside from the greenhouse, and  $-40^{\circ}\text{C}$  has been the level determining readiness for frozen storage (Colombo 1997).



In an earlier technique, potted seedlings were placed in a freezer chest and cooled to some level for some specific duration; a few days after removal, seedlings were assessed for damage using various criteria, including odour, general visual appearance, and examination of cambial tissue (Ritchie 1982).

Stock for fall planting must be properly hardened-off. Conifer seedlings are considered to be hardened off when the terminal buds have formed and the stem and root tissues have ceased growth. Other characteristics that in some species indicate dormancy are color and stiffness of the needles, but these are not apparent in white spruce.

## **Your Guide to Successful Planting:**

### **1-Call Before You Dig**

Several days before planting, call the national 811 hotline to have underground utilities located.

### **2- Before You Plant**

Always plant in well-drained soil. Much of our local soil contains clay. To test for soil drainage, dig a hole and fill it with water. If the water does not drain in 12 hours, it probably contains clay and the soil will need to be amended.

### **3-The Planting Hole**

To plant your tree or shrub, dig a hole twice as wide as the diameter and 6"-8" deeper than the root ball, replacing the 6"-8" of soil with enriched backfill. Then, compact this 6"-8" of soil. Once the plant is placed in the hole, the top of the root ball should be slightly above or level with the surface of the ground.

### **4-Placing Your Plant in the Hole**

Remove all tags, wires or ropes from the stems or trunk, and do the following:

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

DO NOT remove the wire basket. Once the enriched soil has been placed  $\frac{3}{4}$  of the way up the root ball, cut & fold down the top  $\frac{1}{4}$  of the basket & burlap, and remove any strings around the tree trunk. Fill the remaining hole with enriched soil to its original level.



#### **Container Plants:**

Ease the pot off without disturbing the root ball. If the roots are extremely compacted, you may need to make a few shallow cuts through the roots on the side and bottom of the root ball.



## 5-Amending Your Backfill Soil:

After digging your planting hole, create a 50/50 mix of excavated soil and Master Nursery Bumper Crop. Place your plant in the hole and begin backfilling around the root ball. Lightly tamp the soil every 2 – 3 inches and sprinkle with Espoma Bio-Tone Starter Plus. Continue to backfill your hole to the soil's original level. Use any excess soil to build a ring approximately 6 – 10 inches from the outside of the hole. This will help minimize water runoff and instead allow it to move slowly down to the root zone of the plant.

## 6-Watering:

The roots of B&B and container plants dry out faster than the soil around them. Therefore, it is important to monitor soil moisture.

Water slowly to attain deep water penetration which encourages widespread root development. You will need to water once every 7-10 days (or more during hot, dry periods).

General Watering guidelines:

1-gal. Pot – trickle water for approx. 15-20 minutes

2-gal. Pot – trickle water for approx. 30-40 minutes

3-gal. Pot – trickle water for approx. 40-50 minutes

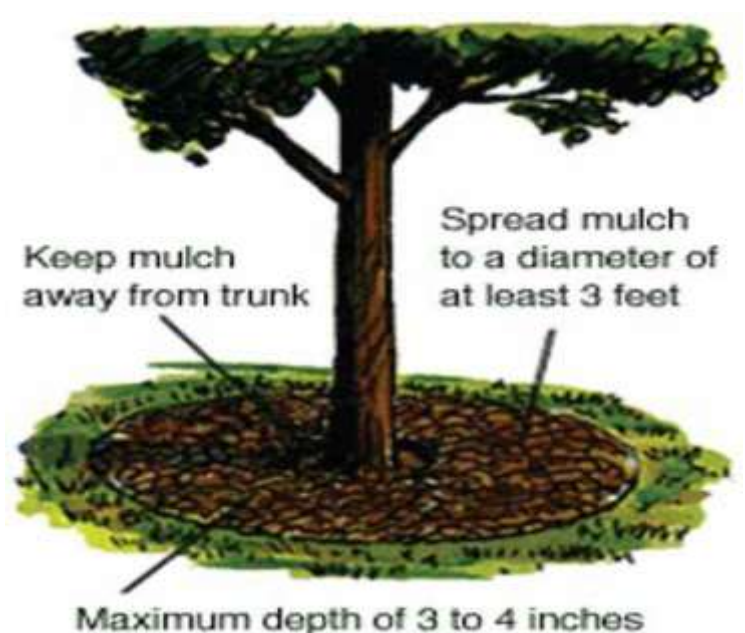
4-gal. To 7 gal. – trickle water for approx. 60 minutes

B&B – trickle water for 60-70 minutes

Remember, if it rains for 1 hour, it probably has not been enough water for a newly planted shrub or tree.

## 7-Staking:

It is not necessary to stake newly planted trees unless the tree is top heavy or planted in a windy location. If staking is necessary, connect the staking kit to the tree as designed. Allow for some movement in the plant, as this promotes strong root growth. Remove all staking



after one growing season so as not to inhibit root and trunk development.

#### 8-Mulching:

Add a 2 to 3-inch layer of mulch around the planting area. This will prevent water loss, and keep mowers and trimmers from getting too close to the trunk. Avoid overly deep mulch up against the trunk or stems of the plant as this can promote disease, pest injury and even stunting of some plants.



#### **Tree nursery bio control and crop protection:**

The implementation of Biological control strategies in tree and shrub nurseries makes sense.

Frequent use of chemical pest control products reduces growth conditions and makes young trees and shrubs even more vulnerable to pests and diseases.

Biological control offers the best possible natural strategies to grow high quality and strong plants and is the first step to prevent severe pest problems.

Trees and shrubs are used to decorate urban landscapes, avenues, parks and gardens

Avoid exposure to health-threatening products and replace chemical control by biological control to ensure a safe and healthy environment for the public and residents.