**Out planting**

Out planting is the final stage of the nursery process, but before we get to specific techniques, we should review some important concepts.

**Tree planting**

Planting is one of the most important operations in Silviculture. The quality and quantity of harvested timber are also greatly affected by planting.

**Planting procedures include the:**

1. Selection of planting stock
2. Site preparation
3. Stand density
4. Spatial arrangement
5. Method of planting
6. Choice of planting season and treatments following planting

**Selection of planting stock**

In general, as the size of the planting stock increases, the top:root (T/R) ratio increases, however, small planting stock is vulnerable to suppression by competing plants, and if too small or young, cannot resist cold or frost heaving. The use of large containerized planting stock to minimize weed control operation.

**Planting season**

The choice of planting season is usually based **on the physiology of the planting stock** and **labor management considerations physiologically**.

**The best time for planting** is when the **roots have commenced elongation** but before the buds have started to flush. This is usually about **one month before bud flush in the spring.**

**An alternative time for planting** is when **shoot elongation** and **leaf spread have ceased,** but **root elongation is still active**. This is usually between the **beginning of autumn and when the leaves change color in the autumn.**

**The advantage of planting in autumn:**

* Is that the dry weather can be avoided if it is common in spring.
* In snowy regions, transplanted seedlings are protected from the cold by the snow, and planting in these areas in autumn is effective.
* In regions with deep snow, the length of the planting season in spring is limited by the late snow melt, so planting is usually done in the autumn.
* The planting season for broad-leaved **(evergreen)** species is **later** than that of broad-leaved **(deciduous)** species or **coniferous** species, **Because** the physiological activity of broad-leaved evergreen species is **slower** in the spring than other species.

**Planting methods**

Planting methods vary according to a range of factors, **including**

1. Site
2. The characteristics of the tree species
3. The size of planting stock
4. Spatial arrangement of planted trees
5. Density of planted trees

**An important factor is the expected growth of the planted trees**

1. **Density of planted trees**

Initial stand density is an important factor affecting wood quality, although; **genetic factors control characteristics** such as the color and luster of wood and environmental factors.

The **distribution** and **size** of knots and the **annual** **growth** are important **determinants of wood quality.**

1. **Spatial arrangement of planted trees**

The principle factors affecting spatial arrangement are the arrangement of the growing space for each crown and the efficiency with which planting, weeding and thinning operations can be conducted.

However, **on a slope**, this arrangement does not result in even spacing, **because** the crown develops **faster** on the valley side of the tree, and the upper part of each crown is overshadowed by the crown of adjacent trees on the mountain side when the canopy is closed.

**Limiting factors on the out planting site**

Each site is different so it is critical to identify the environmental factors that can limit plant survival and growth.

* **Temperature** and **Moisture** are usually the most limiting.
* Other site factors, such as **Aspect** and **Soil** **type**, must also be considered.

Some planting tools should **not be used** on fine textured soils, such as **silts** and **clays**.

Sites with **south** or **southwest** aspects will **dry out more quickly** and **should** therefore **be planted first.**

* In some cases, **Shade** **materials** may be required.

**Pre-planting preparations**

Before the out planting actually begins, several preparations should be made to ensure the project runs smoothly and successfully.

1. Check soil moisture and temperature
2. Monitor air humidity, temperature, and wind speed
3. Watering plants and root dips
4. Site preparation
5. Scalping

**Scalping** is the physical removal of grasses, forbs, small shrubs, and organic debris around planting holes it is ineffective against larger woody plants that are too difficult to remove.

**Scalping to be beneficial for these reasons:**

1. Reduced weed competition
2. Improved soil moisture availability
3. Less damage by root pathogens and insects
4. Increased planting efficiency