TREE PLANTING OPERATIONS

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Background reading:


Sources cited:


Two critical requirements …

… biologically suitable and serving the need

… done correctly
And remember to deliberate all the elements …

### Checklist of factors to consider in planning a tree-planting operation.

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### As a review …

… first think about site assessment

… and species selection
Remember this …

... lets review some critical site and planting stock factors

... notice the low areas
… and what happens to red pine at those areas

… with appreciably less than 24 inches of soil to signs of impeded drainage
… tufted foliage on the branches

… a key symptom

… and early mortality in the most poorly-drained soils
… a sign of impeded drainage

… so check the depth

… usually close to the surface in concave slopes
We have guides to aid in site assessment …

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<th>Species</th>
<th>Soil Drainage Class</th>
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**CONIFERS FOR TIMBER**

- Black Spruce
- White Spruce
- White Pine
- Red Pine
- Sugar Pine
- Jack Pine
- Azalea Pine
- European Larch
- Japanese Larch
- White Cedar

From Stone et al. 1970

BLACK = GOOD

SPECKLED = *NO*

(Poorly suited)

... just ONE factor

**CONVEX = GOOD DRAINAGE**

**CONCAVE = POOR DRAINAGE**
... and read the landscape for signs of potential problems and opportunities

... typical seedlings should look like this (inverted)
... with a good balance between tops and roots

... now think about the planting stock
… they require proper packaging and storage to prevent desiccation and heating

… look for a 50/50 top-root ratio

… and a dense and fibrous root system
… good color, no damage, not desiccated, no mold

… and then let’s plant them
… and then let’s plant them

How to plant a tree …

A well-planted tree:

1 – Upright in position
2 - Inserted to the root collar
3 - Roots spread to a natural arrangement
4 - Soil firmly pressed around the roots

After Wenger 1984
... first dig a hole

... hold it open
… insert the tree seedling and press the soil around the roots

Plant to the root collar …

… hold upright

… press soil around the roots
… with good supervision to insure a good result

… here operationally on a recently cut and prepared site
The goal ...

... rows straight ... seedlings upright ... firmly pressed in ... appropriate spacing

... judging the quality of a planting operation based on guidelines like these
... shallow holes often result in cramped, J-shaped root systems

... larger holes result in better root development
… with this end result from poor planting

One option …
... an old one

... mechanized hole digging speeds the work
... and may give you better holes
… with the people concentrating on planting the trees

Or use a planting machine that digs an adequate hole and closes it again …
... check out the parts

.. and this caged version to protect the worker during “wildland” planting
Note the site preparation and planting in one operation

… other designs look like this

Back to the more simple version ....

… the tractor driver controls the spacing between rows

… the “rider” controls spacing within rows
... rows straight ... seedlings upright ... firmly pressed in ... appropriate spacing

...or machine planted at bedded site
... what about doing some site preparation and planting in one operation

... pushing a V-blade to push debris aside
... like this

... planting in the pathway
... same parts ... heavy duty

... with this short-term result
… leading to this

Check an example in the Blue Hills of Oregon ….
First clearcutting to remove the overstory ... ... then site preparation follows

... with seedlings planted at wide spacing to supplement the natural regeneration
… using stumps and coarse debris to provide shade to the new trees

… or using sun screens on dry and exposed sites
Now consider container planting ...

... producing the seedlings in greenhouses

... in a environment controlled for water, heat, light, and nutrients
... in containers like these

... or perhaps like this one to grow plug seedlings
... filled with artificial soil to enhance growth

... or in Styrofoam blocks like these
… plantable seedlings in as little as 4-6 months

… acclimated outside until ready for transport to the planting site
... and kept in the container until planted

... well equipped ... ready to go
... using tools like these

... or dibbled in

Georgia-Pacific, Maine
… with the dibble point conforming to the shape of the plug around the roots

So let's plant a tree …

… with workers better outfitted for safety
... first, push in the dibble to form a hole

... insert the plug seedling
… planted

(excuse the dead seedling here)

… firmly pressing in the planted plug seedling
... success

(even springing back to life)

... each person planting a row, controlling spacing within the row
… and the supervisor insuring appropriate spacing between workers and rows

… well done
... growing well afterward

... 1-year Jack pine
... and successful plantations

... white spruce from container planting
And what about planting unrooted cuttings …

…starting with good quality planting stock

… hybrid poplars, here
… different style dibble

… but the same concept

… prepare a hole
... insert a cutting

... burying all but the top bud
... with this result

... and this at 1 year
... diligent planning
... successful execution
... positive results

... even with shelterbelts
... and wind breaks

... done well