

Undercutting loblolly pine seedlings

UNDERCUTTING AS PRACTICED BY MBI NURSERY

By Walt Chapman

I. WHEN TO UNDERCUT?

The initial undercutting is done around mid-August in the MBI Nursery. The time to undercut is generally determined by the development of the seedlings. When the seedling crop has advanced to the point when the vast majority of seedlings have some fascicle bundles present and are indicating the imminence of an additional spurt of height growth - then the first undercutting is done!

The time usually occurs about mid-August when the crop is planted about mid-April. Height growth of the tallest seedlings is adequate at this time and every effort is made to hold the height of the taller seedlings and let the smaller ones catch up in height.

General effects of first undercut are: 1) seedlings set buds; 2) height of taller seedlings ceases; 3) seedlings to "off color" - i.e. lighter shade of green than normal; and 4) because of stress for moisture, the lower foliage may brown up. (This depends on moisture following undercutting - if it rains - watch out they will "go" again!) If they do, the second undercutting is done within 3-4 weeks following the first undercutting. If a normal amount of moisture occurs during the fall, stressing by moisture control can be accomplished as the fall is usually the driest part of the year.

The average number of times undercutting is done is about three. If by chance there comes a wet, late fall then four undercutting may be required. As much attention is given to root development, as with height growth. When the roots start elongating so that a "halo" of white root tips is quite obvious - a spurt of height growth is imminent. In other words, get the undercutter blade ready to go within a week following this stage.

Lateral root pruning is also practiced. When the soil has settled following the first undercut, the seedling roots are pruned laterally. Depending on root elongation; lateral pruning may be done a second time following the second or their undercut.

II. MOISTURE CONTROL DURING FALL RELATIVE TO UNDERCUTTING

Heavy irrigation is done just prior to and following undercutting. If lucky, rainfall is worked into the regime. It is nice when a good rain comes at either time, as the cooling effect of rain far surpassed irrigation.

Following undercutting in August, as much as 1.5 inches may be applied to settle them down. After all, the object is not to kill them - just make them think we might! Moisture from the surface must meet the lower strata moisture. Then the moisture is allowed to recede to the undercutter shear (about 6 inches) before irrigation or when the ironmeter reached 60-70 millibars stress within this strata. At that stage, heavy irrigation again meets the sub-surface moisture which may require up to two inches over a two-day period depending on atmospheric conditions.

Keep in mind some moisture is essential for root development, continued development of stem and foliage and incidentally the development of mycorrhizae as well as functions of the photosynthetic processes. In other words, roots don't grow to moisture - they grow with it - and so does all other functions! Hence, there is a limit to the "stressing bit"! However, by controlling the moisture supply, it is evident that a redistribution of top and root development can be obtained. Also, the undercuttings and lateral root pruning loosens the soil strata so that aeration is greatly enhanced which has a marked effect on root development because the soil atmosphere is ideal.

III. SUMMARY STATEMENT

The objective of the Root Training Regime is to develop seedlings with root systems that can be planted relatively easy. Mycorrhizal development is encouraged by natural means. The stressing during the process by moisture control helps control the height to a good degree, thus producing seedlings of reasonable size. No top-dressing beyond early July is normally done so that seedlings gradually "harden-off", lowering the moisture content of the seedlings by transplanting time. Incidentally loblolly seedlings so treated can be transplanted as early as September with excellent results if adequate moisture is available on the planting site and seedlings are taken directly to the field without storage.