

Part V – Timber Stand Improvement (TSI)



TSI Example 1. Good example of a ‘U-shaped’ double stem. These twins are sprouts from the original stump which is since long gone. In this case where one can place his/her boot easily between the two stems, one stem can be safely removed without too much fear of adversely affecting the remaining stem. But, which tree to remove? At first glance, one might choose the larger stem on the left. But, note the epicormic branches and the slight lean. Therefore, the better choice is the stem on the right. While smaller, it has better overall form.



TSI Example 2. Good example of a ‘V-shaped’ double stem. Again, these twins are sprouts from the same stump. But, in this case, one cannot place his/her boot easily between them. In this situation, there is higher risk that cutting only one stem will allow defect to enter into the base of the remaining stem. Either keep both trees or remove both trees. If they are growing well, with no visible defects, and there are no better neighboring trees then the proper call would be to keep them. However, if there is a better crop tree growing next to these twins then both should be removed.



TSI Example 3. Good example a crop tree (with pink ribbon). While this white oak does have a large side branch effectively stopping its merchantable height at that point, it is clearly the best tree in view. The leaning black oak immediately to the left, besides the fact that it is leaning, is a shorter-lived species and should be removed. The other white oaks in view possess inferior form and are growing too close to the selected crop tree. **THE ONLY WAY** one might keep **ONE** of these adjacent trees would be if both trees kept would be released on the remaining three sides.



TSI Example 4. Three crop trees have been selected in this view. Note the spacing. The crop tree on the right was kept mainly because there were no better options. The center and right crop trees are a bit closer than a forester would like, but again allowable given that both trees have room to grow on the remaining three sides once the TSI is performed. A general rule of thumb for spacing crop trees is 'double the diameter'; meaning 'two feet between the crop tree and its neighbor for every inch of the crop tree's diameter.' This rule allows for more trees per acre in younger stands. Ideally, the mature forest stand would have about 35 trees, 35 feet apart on every acre. Of course, Mother Nature oftentimes has other plans.



TSI Example 5. Three crop trees have been selected in this view. While not necessarily the biggest trees, they have better form and are more evenly spaced.



TSI Example 6. Leaning trees like these red oaks need to be removed because apart from having no commercial value, they are really competing with crop tree canopies much more so had they been growing straight.



TSI Example 7. The number of wildlife den trees to leave will depend upon the landowner's objectives. Timber oriented objectives will leave fewer den trees than wildlife or recreation oriented objectives. But, you should consider leaving one or two such trees per acre regardless of the objectives.



TSI Example 8. However, wolf trees like the one shown here take up too much space. This tree was probably a pasture tree that has been encroached upon after the pasture was abandoned. In other parts of the state, particularly in the western and northern regions where woodland savannahs once predominated, these wolf trees play a more valuable role in restoring this ecotype.



TSI Example 9. While bark is an extremely variable trait among species, interpreting the variation within a species can yield clues relating to a tree's growth. The bark of a slow-growing white oak like the one shown here will be 'blocky' resulting from right-angled cracks in the bark ridges. Also, the furrows ('valleys' between the ridge) will be deeper.



TSI Example 10. Fast-growing white oak, on the other hand, will have very flaky bark extending most of the way down the trunk. Only low-down on the trunk will one encounter bark with more defined ridges and furrows; and even then they will not be as defined as the ridges and furrows found on slower-growing individuals.



TSI Example 11. Before selecting any crop tree, inspect the trunk carefully for epicormic branches. These small branches are indicative of slow growth and the tree's attempt to stimulate growth by producing more leaf area. Unfortunately, releasing such a tree only stimulates these weak branches and one will end up with a main stem loaded with branches.



TSI Example 12. Not only must you look around when selecting crop trees, but you must also LOOK UP. Releasing a crop tree with a weak, slow-growing crown like the one shown here buys you nothing. This tree will not be able to respond to the TSI compared to another crop tree that has a balance, vigorous crown.