

# TIMBER STAND IMPROVEMENT

by R. Scott Brundage, Consulting Forester/Tree Farmer

Timber Stand Improvement (TSI) is the term used to describe the removal of less desirable species of trees in order to allow the better species of trees more room to grow. It is like weeding a garden or flower bed—get rid of the “bad” and keep the “good”. Less desirable species include honey locust, boxelder, American elm, hickory and off-site ash in Missouri. Other trees to eliminate include poorly formed, defective, forked, etc. desirable species, such as white and red oak and black walnut. I have killed hundreds of black walnut trees to release better, higher quality walnut trees. A tree must have room to grow in order to maximize production. Two, three, four, or more trees cannot properly grow where there is room for only one tree. TSI is necessary to obtain a productive, well-managed woodland. TSI allows you to manage wildlife habitat at the same time as managing timber production (oak acorns are excellent wildlife food).

Our crews have completed thousands of acres of TSI in the last few years. The following information includes recommendations from what we have learned:

- 1. We primarily use Pathway (trademark), which has an identical label as Tordon RTU (trademark), but is CHEAPER. Active Ingredients—Picloram-5.4%; 2,4-D-20.9%; Inert-73.7%. We apply pure, undiluted chemical IMMEDIATELY to freshly girdled or cut trees, generally from a spray bottle. One gallon is 128 ounces. One ounce of chemical costs 28.79 cents/oz. We get approximately 40 squirts from our squirt/spray bottle per ounce. This means each squirt is approximately 3/4 cent. Each squirt covers approximately three inches of girdled tree or one inch of tree diameter.
- 2. We fell all trees smaller than 4 to 5 inches in diameter. These trees are too small to girdle because they pinch the saw, and it is hard to cut an inch deep girdle without felling the tree. We often cut them off waist high so we are not bending over all day to chainsaw and spray chemical. Remember, only the cambium needs to be sprayed, not the entire stump. The cambium is just under the bark and is the outer cellular layer of wood. The cambium is about equal to the thickness of this sheet of paper. On really small trees and shrubs, it is easier to spray the entire cut surface than just the cambium layer.
- 3. We girdle with chainsaws all the trees over 5 inches in diameter. We always apply chemical (Pathway) to girdled trees and all cut off stumps, since we want them dead and not competing with the remaining crop trees for water, nutrients, and sunlight. The reasons for girdling versus felling are important. Girdling plus chemical application means the dead tree falls down piece by piece over the next several years and does little to no harm to the remaining trees which have been released. Besides, girdling is much safer than felling. If you fell the tree, several bad things can happen—first, the felled tree often hangs up in a good tree you are leaving for a crop tree. You then have the thankless and dangerous job of getting the hung-up tree to the ground. This is always the most dangerous work we encounter (no more broken legs, since we now always girdle on larger trees). Also, if the tree doesn't get hung up, it always seems to fall on the best seedling or sapling one hopes will be a future crop tree. We always girdle trees about waist high. This is faster, safer, much easier on an old man's back, and easier to apply chemical. Also, if

you fell all TSI trees, it looks like a tornado had hit, and access is very, very difficult for years to come by either ATV or on foot.

- 4. TSI any day of the year. We heard from chemical companies that you could kill trees any time of the year, but had normally worked late February into late fall. TSI performed the first week in January after subzero cold still produced excellent results (complete kill) on honeylocust, American elm, oak, hickory, etc. Some ash are still alive, so we must apply more chemical. A word of caution: In early spring, heavy sap producers like maple can flush the chemical off. We have had fairly good results this time of year, but I suggest waiting until mid- May on sap flowing species such as maple, river birch, boxelder, etc.
- Always use Pathway on girdled trees. In one test, double-girdled (no chemical application) black walnut are still alive after two years. This has happened on many other species that are still alive several years after double girdling. If you do not want a tree, kill it; chemicals are the fastest and surest way. Many girdled trees have the top die, but have several sprouts; therefore, you will have the same problem again in several years.
- 5. If you see grapevines, cut them off and spray Pathway on the “stump”. We have had good success doing this. If you have lots of grapevines, get 2,4-D or Garlon 4 (trademark) and diesel, which I think are better than Pathway because of all the loops and rooted sections.
- 6. We have yet to have a flashback problem. Flashback is defined as two trees of the same species having a root graft, and when you try to kill one tree with chemical and leave the other, instead both trees are killed. I will not say this cannot happen; however, we have not seen it in hundreds of thousands of TSI trees. We have only killed what we intended to kill.