Many forested properties have changed ownership in the last decade. With ownership changes, management strategies and intensities can change too. One outcome of this, impacting the yellow pine forests of the Southeastern US, is an increase in the number of naturally regenerated timber stands. Regardless of the reasons an owner may choose to regenerate stands naturally, an old problem can occur. Too many seedlings germinate causing overstocked tree densities. When overstocking occurs, tree growth slows prematurely leading to a risk of increased disease and insect attack. Longer rotations are also needed to produce mature and merchantable timber. This delay in harvest and reduction in stem quality can reduce the stands' economic return. Thankfully, landowners can do a pre-commercial thinning of these overstocked stands to get back on track.

Pre-commercial thinning reduces competition around an individual or small grouping of seedlings or saplings. This allows those remaining to obtain more water, nutrients, and sunlight needed to grow better. Pre-commercial thinning is easier to achieve and more effective if done in the first 3-4 years after regeneration establishment. This is usually before stems reach a merchantable size which is under 5 inches in diameter at DBH (diameter at breast height is the tree diameter measured at 4.5 feet above the ground line). It can be done later but the logistics are more demanding and the actions are more difficult to complete. For loblolly pine, when stocking exceeds 2000 stems per acre a pre-commercial thinning should be considered to reduce the stocking to within a 450 – 750 stems per acre range.

The goal of a pre-commercial thinning is to remove competing seedlings by cutting them below their lowest branch, as close to the ground as possible. Many methods can be used to implement a pre-commercial thinning. These range from manual applications to the use of small machines or large machines. Manual methods can include using machetes, bush axes, small power tools with brush cutting heads, chainsaws, or backpack herbicide sprayers. Manual methods are best used when the seedlings are still relatively short, at or below chest height.

Small machinery, such as ATVs or small tractors, can be used if they can traverse the stand. These machines can be equipped with mowing attachments or herbicide spray tanks but must be used before the seedlings are too tall for the equipment to pass over. Once saplings are above head height, or over about 5 years old, larger machines will be needed to accomplish the pre-commercial thinning. These larger machines include large tractors, converted tree skidders, or small to medium dozers. The machines will have to pull heavy duty brush mowers, disc harrow plows, or rolling drum choppers through the stand to remove the extra stems.

Since pre-commercial thinning is controlling stems that are not yet of commercial size, the landowner has to pay to have this completed. The earlier the thinning is prescribed and conducted in the management cycle, the less costly it will be to the owner. Using manual control methods, either by the owner or contractors will be the least costly, but as
stem size and size of machinery needed for control increase so does costs. The early implementation of pre-commercial thinning also enables the desired crop trees, which are being left, to have the full benefit of the site for their growth and development.

Natural regeneration methods can be useful for a landowner, but there are times the result can be too successful with many more stems growing than the site to support. Also, there can be the occurrence that a planted site has seed already in place or seed blown in from adjacent timber stands that create an overstocked situation. In these instances, pre-commercial thinning can provide the control needed to develop a productive stand for the landowner.

Figure 1. Overstocked naturally regenerated loblolly pine stand with more than 2000 stems to the acre. Photo Credit: Tom Brant, Clemson Extension.

Figure 2. Loblolly stand after pre-commercial thinning, approximately 538 stems per acre remaining. Photo Credit: Tom Brant, Clemson Extension.

Figure 3. Notice heavy fire fuel load after thinning. Wildfire protection is an important consideration the first year after pre-commercial thinning. Photo Credit: Tom Brant, Clemson Extension.