Forage News

MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

Converting Wooded Areas to Pastureland

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In the last decade, we have seen an increase in the conversion of wooded, partially wooded or areas that have been overgrown due to mismanagement to pasture or hayland. Clearing land could an expensive management practice and is important to make sure that this type of transition is done correctly to avoid environmental impacts such as erosion and destruction of wildlife habitats. Cutting trees and removing them could be cause land compaction, accumulation of biomass (tree limps, leaves, roots). It is important to have a logging company that could do the job properly while minimizing changes in soil properties. Having a large number of residue could impact land preparation and seeding. Before you embark in a conversion of woodland to pastureland, it is important to decide and define the purpose of that conversion: What is your end goal? Does the land suit that goal?

Woodland is a term to describe vegetation having a mix of woody species (trees and shrubs) and herbaceous species (grasses and forbs). Land preparation will require clearing the land, burning or removing any aboveground reside, or burying the stumps that are left. The next step is the need for equipment that could level the ground. Once the ground is leveled, it will be beneficial to get soil samples and determine nutrient levels before establishing any forage crop species. A representative soil sample should be collected for every 10-15 acres to a minimum depth of six inches. The soil in wooded areas tend to be very acidic and it is important to correct the pH by adding the recommended amount of lime before you plant any forage crops.

Converting woodland into pastureland is a process that takes time. A well-executed conversion plan could take 3 to 5 years from start to finish. A woodland area with more than a 15% slope is not recommended for pastureland conversion since can cause major erosion issues during the conversion process. A good environmental practice will be to leave as many trees as possible in steeper slopes and to install silt fences for erosion control.

The method of converting a woodland area to a productive pasture will depends on economic resources available and time. Instant conversion to pasture could be expensive. On the other hand, if you are willing to spend a few years in the conversion process with good planning, it can be done with minimal investment. A good conversion plan should start with a survey of the trees species in the property and deciding if there are specific tree species that you might want to keep in the property and they can also serve as shade source for the livestock at a later time. Prioritize what trees stays and what goes. Usually, smaller and unhealthy trees would be eliminated.
To determine the tree species present and their value, it is highly recommended to consult with trained and expert certified forester to determine if there are mature trees that could be sold to a logger and provide some revenue to help cover

the expenses of the conversion process. It is important to make sure that you pay attention to the wildlife in the area and making sure that you preserve some of the wildlife corridors to maintain species diversity.

Once tree species have identified for keeping or has been logged, the next step will be clearing the land. If trees have been logged, there is usually debris that will require removal. The quick path to pasture conversion in this case will be contract or hire a bulldozer with grubber blade or backhoe to the clear the debris and stumps left behind. A grubber blade looks like a large rake and will help clear stumps and debris while minimizing top soil removal and possible erosion. A backhoe will also allow the removal of large stumps that were left standing without the large soil disruption when done properly. Increasing debris removal will allow a faster pasture establishment and holding soil in place. If money provides constrain while clearing the land, an option will be to let some of the stump to deteriorate overtime. This might take several years and will limit pasture establishment since sharp stumps and other debris can impact tractor tires and the feet of the livestock. You may have to mow some brush repeatedly to eliminate the growth. In some cases, cutting the stumps close to the soil surface to clear the mower in the tractor can help with clipping the pastures until the stumps have rotten. Fire can also be used to reduce debris during the transition process. It can be used annually during the transition period to enable desire species to get established and recycle nutrients in the any tree biomass left behind. If using a mower is not an option, then consider using animals to clear the brush. Goats provide a good option to do so since they prefer browsing over grazing. To be efficient at using livestock, it will be beneficial confiding them to a relatively small area with the use of temporary electric fences. Confiding them to a small area will increase grazing uniformity and reduce plant selectivity. One important aspect of the grazing management in this type of system is to watch out of poisonous plants that could impact the livestock. Plants that are avoided under normal grazing conditions may be ingested by the livestock under this type of transition from trees to pastures. Goats can also be used post-clearing for sprout and weed control.

One of the most common questions is how to handle the wood waste after land clearing? There are different approaches that could be used and all of them have pros and cons:

1. *Pile and burn:*
   Pro: simple and cheap way to remove the material
   Con: It is a fire hazard is not done properly. It might require a burning permit. Check with your county forestry commission office
2. *Dig, burn, and bury:*
   Pro: simple and cheap way to remove material from sight
   Con: It could be a fire hazard, hard to get a complete burn, requires backfilling the hole after burning, and could develop sinkholes at a later time and may require a burning permit.
3. *Pile and leave for degradation over time:*
   Pro: cheap and could provide some habitat value
   Con: makes forage establishment difficult, area for weeds to proliferate, loss of grazable land area.
4. *Mulch with a tub grinder:*
   Pro: it can provide much that could be used for other applications and allow complete removal of debris to easy forage establishment.
   Con: More expensive and cost can vary depending on stump size, terrain, hauling, etc.
5. *Waste-wood utilization:*
   Pro: There could be a potential income from firewood, wood chip much and can maximize economic value and bi-product utilization.
   Con: it can be time consuming, a variety of equipment and skills sets might be needed.

Once you have the trees and brush cleared, it is time to start thinking about pasture renovation. After stump removal or degradation, it will be recommended to plow to lose the soil structure and level with a disk harrow. Do not use a spring tooth harrow since it will be digging roots and clogging the harrow. This type of soil preparation method should be applied close to pasture establishment to reduce erosion. If lime is needed based on soil test recommendation, it will be a good time to go ahead and incorporate the lime and increase the rate of neutralizing soil acidity.

Establishing a productive pasture or hay field requires more than just drilling or broadcasting the seed. Forage selection and establishment is crucial to this type of transition. Forage species should be selected based on soil type, nutrient requirements, management approaches, persistence. It always important to utilize different species as monoculture or mixes that can extend the grazing season and reduce supplementation. Selected forages should be planted at the correct seeding rate and depth and fertilize accordingly. It is recommended to apply phosphorous and potassium at establishment to encourage root development. Woodland areas could have weed seed banks lying dormant for many years and soil disturbance can increase germination. Do not apply nitrogen to the established pasture until forage seed has germinated and it is at least two inches tall. This will minimize weed competition and allow better nutrient utilization by the desired forage crop species. Producers need to be aware that herbicide selection for weed control can be limited during the establishment period, so controlling weeds at pre-planting is very important.

Grazing management is important in terms of the grazing enterprise, but also in terms of the management for newly established pastures. Grazing management is generally a tool for managing grazing lands and is about when and where cattle graze. It is influenced by infrastructure such as fencing and water, and management strategies such as fire, species selection, pasture establishment, weed management, soil fertility, and woodland management. Once the transition is made from woodland to pastureland, it is recommended to let pastures get well-established and do not start grazing until the initial grazing height is achieved and removal occurs at the recommended residual target height. This will allow making sure that you are matching feed demand to feed supply, ensuring residual ground cover for pasture recovery, and providing the best forage quality across critical forage growth phases to meet livestock demands. At least during the first two years of the conversion a low stocking rate of two acres per mature cow will be required.

Land management is a complex ecosystem. Converting woodland to pastureland could become a very expensive venture and careful planning and implementation of pasture conversion should be implemented. This conversion will require a lot of planning and preparation. Let's not forget that trees can also provide a vital habitat for biodiversity. They are also play an important part in the hydrological cycle within a landscape and maintaining trees in a pasture system is very important. Keeping the ecosystem functioning efficiently during this transition ensure future sustainability. Tools that are managed properly such as fencing infrastructure, grazing systems, fire, established pastures, weed control, and woodland management can be used to maintain or improve land condition. A good plan should include hiring a professional to asses and sell any possible timber, soil testing and improving the soil if necessary, planting forage species that appropriate for the area and appropriate acreage to meet the livestock needs, and developing a consistent and manageable grazing management can be sustainable for the forage species and the livestock. Always familiarize yourself with the pros and cons of transitioning from woodland to pastureland and have a clear time table to meet your objectives.

Upcoming Events

August 20-21, 2018—GLCI Conference, Hattiesburg, MS
September 24-25, 2018—GLCI Conference, Natchez, MS
September 27, 2018—Coastal Plain Fall Forage Field Day, Newton, MS
November 12, 2018—MCA Cattlemen's College, West Point, MS
November 13, 2018—MCA Cattlemen's College, Hattiesburg, MS

For upcoming forage related events visit: ***http://forages.pss.msstate.edu/events.html***