Forage News

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Invasive Species in Pasture Systems: Chinese Tallowtree

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Invasive plant species are one the challenges that livestock producers in the south face in their pastures. Chinese tallowtree [*Triadica sebifera (L.) Small]* is an invasive deciduous upright tree that can reach up to 60 feet in height and up to 3 feet in diameter. This invasive species is also commonly known as 'popcorn tree' because of its distinctive fruit. Chinese tallowtree is native to China, Japan and Korea. It was introduced to the US in the 1850s for ornamental purposes and seed oil production. It is considered a state noxious weed in several southern states that include FL, LA, MS and TX (***Fig. 1***).

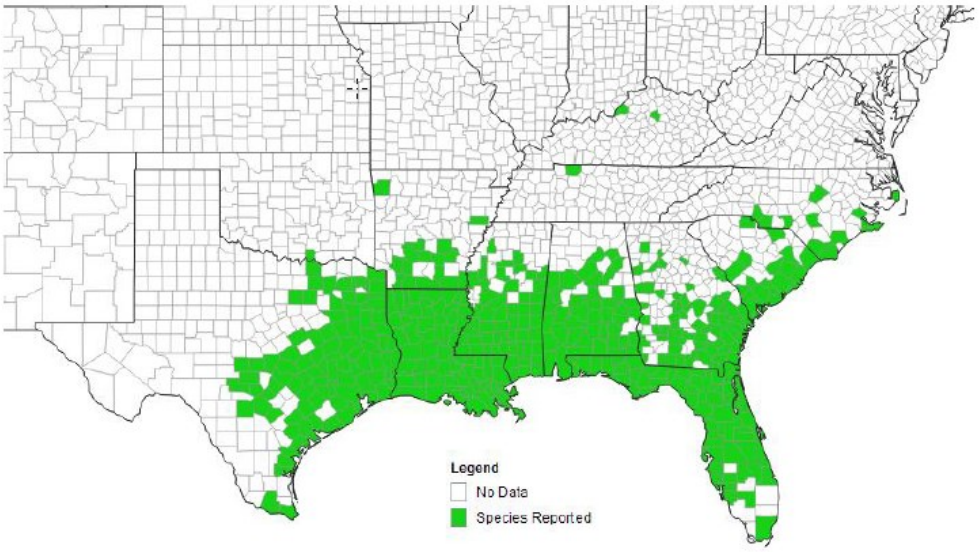

Figure 1. Distribution of Chinese tallowtree in the southern USA. Source: Early Detection & Distribution Mapping System (EDDMapS), University of Georgia, 2017.

Chinese tallowtree has a wide range of adaptation from wet areas such as stream banks and ditches to drier upland areas. It can tolerate from fresh to saline water logging as well as acidic to alkaline soils. It is also very competitive in shade or full sun conditions. This tree can displace other types of vegetation due to the ability to alter soil conditions through the leaf litter deposition that contain high amount of tannins (Cameron and LaPoint 1978; Cameron and Spencer, 1989; Pile, 2015).

Some of the unique characteristics to identify this invasive species are the alternately arranged, heart-shaped leaves with a long pointed tip (***Fig. 2***). Leaves tend to be bright green in the summer. It is one of the earliest woody plants to change to fiery red in the fall. Chinese tallowtree produces long, dangling yellow flowers from April to June. Once the flowers are pollinated, they produce a three-lobed, greenish fruit that form clusters at the end of the branches. Once the fruit matures in September and October, it becomes dark brown to black and opens to expose the white wax covered seeds. This is why it is often called 'popcorn tree.' Chinese

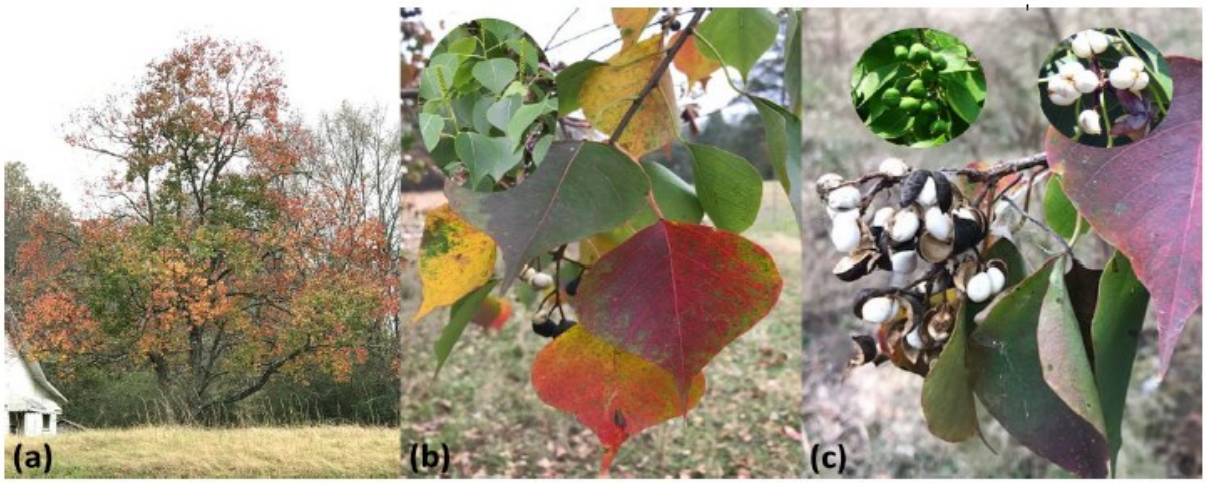

Figure 2. Distinctive characteristics of a Chinese tallowtree: (a) mature tree, (b) heart-shaped leaves with long pointed tip, and (c) white wax covered seeds.

tallow tree can become reproductive in 3 years. It can produce up to 100,000 seeds per year and seeds have shown to have a high germination vigor. A far and wide spread of the seeds can occur by both water and birds. It also spreads by producing suckers from shallow roots.

Different treatment methods have been recommended for Chinese tallowtree control. Grazing is not an option because cattle do not graze Chinese tallowtree and goats will graze it, but not prefer it. Chinese tallowtree also has a herbivory tolerance that likely contributes to its invasive potential. Mechanical methods, such as bulldozer or forestry mulcher will remove large mature trees, but roots must be destroyed to prevent resprouting. Mowing saplings will allow the plant go from a single stemmed plant to multiple stems. Burning can kill small trees, but effective use depends on having sufficient fuel for an intense fire. Several herbicides provide excellent control. Several methods can be used to apply herbicides for control of Chinese tallowtree that include basal, cut-stump, foliar, frill, or soil applied. ***Table 1*** provides more information about the different types of application and recommended herbicides and rates. It is important to read the herbicide labels because some herbicides will damage other woody plants or forages and there might be grazing and planting restrictions of forage crops. Contact your local county Extension office for more information.

Table 1. Method of application, herbicide, formulation and rate for chemical control of Chinese tallowtree in pasture systems.

Application	Herbicide	Formulation	Rate
Basal	Triclopyr	4 lb ae/gal*	20% solution + bark penetrator
Cut-stump	Glyphosate	3 lb ae/gal	1% solution
	Imazapyr	2 lb ae/gal	64 oz/ac + 32 oz water
	Triclopyr	4 lb ae/gal	undiluted
Foliar	Glyphosate	3 lb ae*/gal	1% solution
	Imazapyr	2 lb ae/gal	32 to 96 oz/ac or 2% solution
	Imazapyr + Metsulfuron	72.7%	25 oz/ac
	Picloram + 2,4-D	49.8%	128 oz/ac
	Picloram + fluroxypyr	23.88%	48 to 96 oz/ac
Frill	Imazapyr	2 lb ae/gal	64 oz/ac + 32 oz water
	Triclopyr	4 lb ae/gal	20% solution
Soil	Hexazinone	2 lb ai/gal	256 to 512 oz/ac
	Imazapyr	2 lb ae/gal	32 to 96 oz/ac or 2% solution

*lb ae/gal = pounds of acid equivalent per gallon; lb ai/gal = pounds active ingredient per gallon.
Source: Adapted from Loewenstein and Enloe, 2015 and Maddox et al. 2017.

Chinese tallowtree will tolerate a wide range of environmental conditions and an early identification and eradication of this invasive tree species is very important approach in pasture systems. Large infestations can be cumbersome since aerial application or large ground operations will be required and in some cases extensive pasture renovations. Chemical control is often the most effective way to control Chinese tallow. Remember that results of an herbicide application may vary based on the application method.

Upcoming Events

December 8-9, 2017—Grass Fed Beed in the Southeast, Purvis, MS

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