

Forage Weed Highlight: Tropical Soda Apple (*Solanum viarum*)

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This year marks 20 years since tropical soda apple, TSA for short, was discovered in Alabama. Originally from South America, TSA was first introduced into Florida in 1988 from a shipment of cattle from Brazil in the form of undigested seed. TSA is now on the Federal Noxious Weed List and is one of the 10 worst invasive weeds in Alabama.

Identification

In the simplest terms, TSA can be described as horsenettle on steroids. Both are in the *Solanum* genus so you can see some similarities in the leaves, fruit, and growth structure. Where Carolina horsenettle may commonly grow between 1-3 feet, tropical soda apple may easily reach 4-6 feet in height (Fig. 1). Both are perennial warm-season broadleaf weeds in southern latitudes, but TSA can grow as an annual in areas that experience frosts. It is most often found in pastures, but frequently establishes along fencelines, ditches, and along woodland edges. New seedlings can emerge from both seed and roots in the spring in areas of south Alabama. In fact, seed may germinate in a wide range of soil temperatures. Research from the University of Florida suggests seed can germinate from 41°F to 101°F, which means that germination could occur in winter months as long as soil and weather conditions permit.

TSA has a bushy form, with hairy leaves that are shallowly divided into pointed lobes that are 4-8 inches long by 2-6 inches wide. Large white, to yellowish thorns (0.5 to 1 inch long) occur along the midveins of both the lower and upper leaf surfaces and along the stems (Fig. 2). Mid-summer blooms usually occur below the leaves and consist of five-petaled white flowers with a yellow center. Fruit are round berries that initially look like tiny watermelons that later turn yellow when mature (Fig. 3). Mature plants can produce up to 200 fruit and each fruit can produce up to 400 seed.



Figure 1. Uncontrolled tropical soda apple can quickly invade pasture areas.



Figure 2. Long thorns occur along the upper and lower leaf midveins.



Figure 3. Immature fruit look like tiny watermelons, then turn yellow as they mature.

Management

Seed dispersal via fruit consumption is the primary method of distribution across the landscape. Therefore, prevention methods that inhibit fruit production are key to minimizing the spread. Livestock will graze the leaves and consume the fruit, but this is not a recommended method of control. Mowing may set back growth and delay fruit production, but this will likely need to occur multiple times in a single growing season. Chemical control may arguably be the most effective form of control in forage systems. There are several herbicide options labeled to target broadleaf weeds in grass pastures and hayfields (Table 1). Effective active ingredients include 2,4-D, aminopyralid, fluroxypyr, picloram, and triclopyr. None of these have a grazing restriction when used at recommended labeled rates. These are most effective when sprayed on emerged plants that are small and actively growing. Each herbicide application should include a non-ionic surfactant at 0.25% v/v solution to help move herbicide into the plants' system.

Table 1. Herbicide Options for Tropical Soda Apple Control in Grass Forages

| Herbicide Trade Name | Herbicide Active Ingredient(s) | Product Rate | Restricted Use | Recommended For |
|--|--------------------------------|-----------------------|----------------|-------------------------|
| DuraCor | Florpyrauxifen + aminopyralid | 20 fl oz/A | No | Pastures |
| Surmount | Picloram + fluroxypyr | 2 pt/A | Yes | Pastures |
| Grazon P+D | Picloram + 2,4-D | 2 pt/A | Yes | Pastures |
| GrazonNext HL | Aminopyralid + 2,4-D | 1.5 pt/A | No | Pastures |
| Velpar L | Hexazinone | 2 qt/A | No | Pastures, Forests |
| Milestone VM | Aminopyralid | 7 fl oz/A or 0.5% v/v | No | Pastures, Forests, ROWs |
| Remedy, Garlon 4 | Triclopyr ester | 1 qt/A or 2% v/v | No | Pastures, Forests, ROWs |
| Roundup, Accord Concentrate, Cornerstone, etc. | Glyphosate (spot treat) | 3% v/v | No | Pastures, Forests, ROWs |

* Modified from ACES.edu Tropical Soda Apple publication ANR-2596.

One application will not likely provide complete control into the next year, so retreatment may be necessary. Please read and follow all label recommendations. Research has shown that seed does not remain viable in the soil for more than about 2 years, so it is possible to rid properties of this pest as long as reintroductions do not occur.

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