

CHARLES BRYSON



Cattle avoid tropical soda apple plants growing in pastures.

# Nothing but a Wasteful Weed

**W**hat pernicious weed has eggplant-like leaves dotted with long thorns, a golf-ball-sized yellow fruit, and a pleasant-sounding name? Tropical soda apple, *Solanum viarum* Dunal.

This aggressive weed has infested thousands of acres of pasture and lawn in the southeastern United States. It grows to a height of 3 to 6 feet and can be as broad as it is tall. In spite of its innocuous name, tropical soda apple is “nothing but a weed that has found ideal ways to spread itself in agriculture,” says ARS botanist Charles T. Bryson.

Bryson works at the Southern Weed Science Laboratory in Stoneville, Mississippi. He says the mature fruit, resembling small apples, is toxic to humans. However, it is palatable to livestock and wildlife, which later drop the fruit’s reddish-brown seeds in their manure.

A single cow pattie can hold up to 150 seeds, and each tropical soda apple plant can produce more than 50,000 seeds. Unfortunately for agriculture, the seeds can host several

plant disease-causing pathogens, such as cucumber mosaic virus, potato leafroll virus, potato virus Y, tomato mosaic, and the potato fungus *Alternaria solani*.

First discovered in Glades County, Florida, in 1988, tropical soda apple has spread in many agricultural and natural areas. Outside of Florida, tropical soda apple has been found in Alabama, Georgia, Mississippi, Pennsylvania, North and South Carolina, Tennessee, and Puerto Rico. It has also spread into Asia, Africa, and Central America from its place of origin in South America—Brazil and Argentina.

Losses to the Florida cattle industry related to tropical soda apple were estimated at more than \$11 million in 1994. Besides crop damage and losses in cattle grazing lands, the weed’s thorns can prick workers handling and harvesting crops. It’s also been found to increase the cost of holding cattle over for several days before shipping out of state.

In August of 1995, tropical soda apple was added to the U.S. noxious weed list.

Bryson, weed scientist Clyde C. Dowler at Tifton, Georgia, and plant physiologist David T. Patterson at Fort Pierce, Florida, are studying the weed, checking to see what herbicides kill it—and under what conditions it can survive.

In Georgia, Dowler has set up a federal-state certified weed containment facility. He has screened many broadleaf herbicides for their effectiveness in killing tropical soda apple. He got good control with herbicides such as glyphosate, triclopyr, picloram, and dicamba, which are commonly used on rangelands for brush control.

In Mississippi, Bryson says he’s involved in alerting farmers to the weed’s existence and showing them how to apply herbicides in a timely manner. He grew tropical soda apple in a confined area, applying herbicides after mowing the weeds down to 4 inches. The best control—up to 95 percent weeds killed—was



**Thorny stems and leaves are a nuisance to workers handling crops infested with tropical soda apple.**

obtained with triclopyr. [See page 3 for pesticide disclaimer.]

Tropical soda apple's fruit production is greater in Mississippi than in Florida. "In the Delta soils, we can expect 8 to 10 plants to produce 1 million seeds per year," says Bryson.

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**Tropical soda apple fruit turns yellow as it matures.**

"And tropical soda apple can also vegetatively produce new plants from root segments, branches, and old crowns. For these reasons, it's critical to eliminate both mature and immature fruit, the whole plant, and its roots."

Patterson conducted controlled-environment experiments in the phytotron at Duke University in Durham, North Carolina, to determine factors potentially limiting the ecological range and agricultural impact of tropical soda apple. He concluded that the weed will continue to invade new areas throughout the South and lower Midwest unless current infestations are eradicated.—  
By **Linda Cooke**, ARS.

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