

MEDIA DISTORTIONS ABOUT TIFTON 85

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The media has made several false statements about the hybrid bermudagrass, ‘Tifton 85.’ This brief article seeks to dispel these falsehoods and the distortions about Tifton 85.

Tifton 85 is a Hybrid, Not a GMO

Several news articles, most notably an article on CBS News’ website (which has since been corrected), have asserted that Tifton 85 is a transgenic or, so-called, genetically modified organism (GMO). Tifton 85 is a hybrid and NOT a transgenic or GMO crop.

Tifton 85 is a cross between a bermudagrass [*Cynodon dactylon*, specifically cv. Tift 292 (an armyworm resistant plant introduction in the USDA-ARS collection)] and a closely related *Cynodon* species called stargrass [*Cynodon nlemfuensis*, specifically cv. Tifton 68 (highly digestible, but cold susceptible)].

Plant hybridizations are commonly used in many crops (e.g., peppermint, grapefruits, tangelos, triticale, loganberries, etc.). This is not a new or extraordinary process. As with all hybrids and new cultivars, Tifton 85 was thoroughly evaluated prior to its release. Tifton 85 is a high yielding, highly digestible hybrid bermudagrass that also has a tremendous number of environmental benefits, as well (e.g., produces substantially more dry matter per unit of rainfall/irrigation or unit of fertilizer, has a much deeper root system than other bermudagrasses, improves soil organic matter content, increases carbon sequestration, reduces the carbon footprint of pasture-based livestock production, reduces nitrate leaching through the soil into the groundwater, etc.).

Cyanogenic Compounds are Natural Plant Products

Some of the news articles have also claimed that Tifton 85 has had a random mutation that has caused it to produce cyanide gas. This is a misleading statement.

Some plants naturally produce compounds that are cyanogenic, or precursors to cyanide (sometimes called prussic acid). They are present in the plants (typically) as cyanogenic glycosides or glucosinolates, neither of which are inherently toxic in those forms. However, these compounds are readily broken down when the plant is consumed by an herbivore or if crushed. It is a natural defense mechanism for these plants. Notable examples of plants that produce cyanogenic compounds include common pasture and forage crops (e.g., forage sorghum, sudangrass, white clover, etc.) and pasture weeds (e.g., Johnsongrass, black cherry trees, etc.). Even some fruits, vegetables, and nuts (e.g., almonds, peaches, apples, apricots, cherries, lima beans, cassava, etc.) produce cyanogenic compounds in some of their plant tissues (usually seeds).

These cyanogenic compounds are not normally broken down in the intact plant because the glycosides and the enzymes that break them down are separated in different compartments. In members of the sorghum family, for example, the cyanogenic glycoside dhurrin is present in the epidermal cells at the surface of a leaf while the enzymes are located in the mesophyll cells in the middle of the leaf. However, when the plant is consumed, the cyanogenic glycosides and the enzymes that break them down then come into contact and the cyanide is released.

As previously mentioned, Tifton 85 is a hybrid of a bermudagrass and a stargrass. Some stargrass varieties have, in very rare cases, formed cyanogenic compounds. Even so, producers in Florida have grazed stargrass since 1972 without any incident. Stargrass has also been used in the tropics for much longer. Dairies in Puerto Rico, for example, frequently green chop stargrass and feed it to their dairy cattle. If the risk of cyanide poisoning was a significant problem, green chopping the forage and feeding it to dairy cattle would be a situation that would pose the greatest risk. Even so, forage specialists and researchers at the Univ. of Puerto Rico had never dealt with a single instance of cyanide poisoning in Puerto Rico related to stargrass.

Specialists at Texas A&M University have confirmed reports of cyanogenic compounds being present in Tifton 85. However, it appears that a confluence of events particular to that instance may have led to this finding. The investigation is still in a preliminary stage and no conclusions should be reached until it has been completed. Further details will emerge about this case as the investigation continues. Until then, avoid over-reacting to this report of cyanide poisoning and rushing to judgment about Tifton 85.