

# The Perfect

# Storm

“That’s like having a car wreck in a fiberglass boat.”

It takes three things to create a perfect storm: a low pressure system, a high pressure system, and the human element. When a high-pressure system surrounds a low-pressure system, opposing forces collide and clouds, with high winds, form a storm. When a human element is added, the level of potential disaster is multiplied exponentially and creates the perfect storm.

Currently, a perfect storm is developing with cotton. According to the Plains Cotton Cooperative Association, cotton has topped \$2 per pound for the first time in history. Bayer Crop Science has announced it is discontinuing the distribution of a popular pesticide, Temik; and because cotton is so profitable, crop rotation could suffer.

## Enter the Perfect Storm

With an increasing market for cotton and a decrease in supply, due to a poor growing season in certain parts of the globe, the price of cotton has begun to climb. Jaybo Webb is a fourth-generation West Texas cotton farmer who just turned his most profitable year of cotton yet.

“I can’t afford to not grow cotton,” said Webb, as he repairs a bushing on his tractor.

Webb wipes the grease off his hands as he explains all the expenses above and beyond the cost of seed and

the importance of hard work, and especially a little luck, in farming.

“Money is hard to argue with,” says Webb, “I expect to see wall-to-wall cotton this year.” With profitability sky high, who would not expect to see an increase in cotton production? However, an increase in acreage used for cotton leads to a decrease in acreage used for popular rotational crops like sunflowers, grain sorghum, and corn.

Crop rotation is defined by the United States Department of Agriculture (USDA) as “growing crops in a planned sequence on the same field.” The USDA also lists reasons crop rotation is important: reduce wind erosion, improve soil quality, manage the balance of plant nutrients, and manage plant pests (weeds, insects, and diseases).

In a nutshell, crop rotation preserves the land and aids in the growth of healthy crops. One major problem West Texas cotton growers are familiar with is root knot nematode, a parasite that attaches itself to a plant and drains the plant’s nutrients either killing it or reducing yield. Root knot nematode can be treated with pesticides or reduced by designing the crop sequence to break the parasite’s lifecycle.

Temik is a pesticide produced by Bayer Crop Sciences that is the most popular choice for root knot

nematode treatment. However, Bayer announced that it canceled the registration of Temik, due to an agreement with the Environmental Protection Agency (EPA). According to the EPA, the product no longer met food safety standards and could bring health problems to young children.

## Enter Humanity

Dick Auld, Rockwell Professor in the Plant & Soil Science Department at Texas Tech University, has conducted research since 1994 on the viability of castor plant growth in Texas. Although castor plants are native to the Ethiopian region of Africa, castor has become very common in tropical or warm weather regions.

Most people associate the castor plant with its widely known medicinal use and awful oil taste. However, its oil has a variety of uses. It has been discovered in ancient Egyptian tombs dating back to 4000 B.C. but its most common use is as an industrial lubricant. Castor plants also have unique benefits besides producing oil, it is immune to nematodes.

Auld says he is excited about using castor as a rotational crop and using it to keep root-knot nematodes from hurting his cotton. He says he has waited his whole life for West Texas farmers to make

a little money growing cotton but the storm that’s brewing is a great concern.

“That’s like having a car wreck in a fiberglass boat,” said Auld.

One year, Auld said he lost 60 percent of his cotton crop on the TTU research farm so he planted sorghum that year instead. The following year he planted cotton again which turned into his top yielding year that he has had. Crop rotation works he said, and it can be used to keep cotton at its highest yielding threshold.

Steve Oswalt is a researcher working with Auld at Texas Tech to make castor a profitable rotational crop.

“To have a rotational crop, it has to be profitable,” said Oswalt.

Castor certainly has the potential to be profitable. A castor bean is 50 percent oil where a cotton seed is only 20 percent oil. On the market, cotton seed oil is generally around 50 cents a pound, however castor oil is closer to one dollar a pound. So what is holding castor back from becoming an acceptable cash crop? A little piece of lighting called ricin.

Ricin is a poison found naturally in castor beans and ingestion of several beans can kill a full size human being. According to the Center for Disease Control



Steve Oswalt explains the progress being made on making castor a viable West Texas crop.

(CDC) accidental exposure to ricin is highly unlikely unless a castor bean is ingested. It takes a deliberate act to make ricin and expose it to people. The CDC says ricin is more commonly associated with the use of it by Iraq in the 1980s and its recent use by some terrorist organizations.

The fact that castor beans carry ricin causes many people to be very cautious about it becoming a prominent part of their community. Texas has labeled castor plants as an “obnoxious weed,” due to its ability to produce ricin. Therefore, if an inspector finds one castor bean in a load of grain or corn that load is condemned; also if two or three beans are found in a grain elevator, that elevator is condemned.

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That’s the law. However, it is not against the law to grow and harvest castor beans. The way to make it work, says Oswalt, is through equipment dedicated to castor bean production. That is, combines will cut only castor and farmers could possibly incorporate trucks for only castor bean transportation to avoid cross contamination.

“When you talk about castor,” said professor Auld, “you’re talking about a work in progress.” Professor Auld and Oswalt are currently in the process of development on a new variety of castor called Brigham, named after Dr. Ray Brigham. He was one of the earliest pioneers to conduct research on castor beans who worked at TX AgriLife here at Lubbock and developed a variety of castor called Hale, after the county in which it was grown. Auld and Oswalt took the Hale variety and crossed it with two castor genotypes from Russia with lower ricin content to create Brigham.

### Enter the Rainbow

“We are hopeful we can have this done in five years,” said Auld.

Auld and Oswalt are fighting the high winds and battering rain in hope that this new strand can help encourage farmers to add castor to their crop rotation. By researching ways to make castor profitable and reducing the negative aspects associated with it, castor has the potential to calm the brewing storm and become a new staple in West Texas. **T**

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