

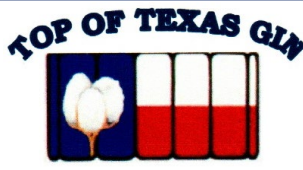


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## Cotton Insights Newsletter

A service provided by Windstar, Inc. affiliated gins.

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### Introduction

The Cotton Insights Newsletter is a new service created by Windstar affiliated gins. These gins are working together to support a new Cotton Agronomics Manager position. I have accepted that exciting position and look forward to working with everyone to improve cotton production and profitability in the region. My prior experience includes working as the Lubbock based District 2 Extension Agronomist-Cotton for the Texas A&M AgriLife Extension Service and later as Research Director and Cotton Extension Program Leader for Oklahoma State University at the Southwest Research and Extension Center at Altus. These roles have provided me with a unique multi-state perspective of cotton production and I have been honored and blessed to be able to serve the clientele in this area. As the Windstar Cotton Agronomics Manager, plans are to conduct various research trials (e.g. variety comparisons), generate a newsletter, conduct grower educational meetings, etc. I want to thank all involved for the vision to create such a unique industry-supported position, and I look forward to continuing to work with the best cotton producers in the world.

### Crop Situation

What a difference a year makes. The significant regional drought in 2018 resulted in a loss of many dryland acres. The rainfall obtained thus far in 2019 have spirits high and hopes are for an excellent production year. The cool May temperatures thus far have been uninspiring with respect to cotton planting. Some cotton has been planted and there will likely be significant challenges for emergence and seedlings for those acres.

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## Stand Establishment Concerns

It is imperative that growers recognize that cotton can be damaged by cool, wet conditions. The cotton seedling derives its energy from the oil contained therein until the cotyledons get unfurled and photosynthesis begins. The crop may never fully recover if damaged, and may become a target of opportunity for seedling diseases. It may continue to have poor vigor for much of the growing season, and by the time it recovers, there may not be enough growing season left for good yields. Final planting dates for insurance purposes are there for a reason, and early fall freezes can wreck a late planted crop. There is a fine line between planting into good moisture, and still getting a good, healthy stand. Earlier planting can be optimal, but good soil temperatures and the right environment should be present. Otherwise, poor seedling emergence and health will likely be encountered. *If planting into cooler, wetter conditions, make sure to plant the highest seed quality possible and that means checking the cool germination data on each of your seed lots and planting the highest quality under those harsh conditions.*

### Key Points to Consider

- Cotton's developmental threshold is 60 degrees F, so there is minimal physiological activity including germination below that temperature. The optimum soil temperature for germination is near 85 degrees.
- Temperatures in the seed zone of less than 50 degrees can cause chilling injury while temperatures of 41 degrees can damage or kill the seedling. For photos of this injury see the next page.
- Greatest risk of chilling injury is the first few days after planting.
- Smaller seeded varieties tend to have lower vigor. Different seed lots within individual varieties can be highly variable with respect to seed size. Watch low seed vigor issues, especially with the small seed size of many newer varieties (e.g. >5,500 seed/lb, check seed bag). For a given variety, seed lots with larger seed (fewer number of seed per pound) may be more vigorous than those with smaller seed (larger number of seed per pound), but this can vary and depend upon other factors.
- Obtain high quality seed with good to excellent cool germination test data (minimum 60%, but preferably 70% or higher). This test is conducted in a growth chamber set at 64 degrees for 7 days, with seedlings with a 1.5 inch hypocotyl counted as germinated. The result indicates the percentage of strong, vigorous seedlings.
- Sort seed lots by cool germination test data and determine planting sequence. Start with higher vigor seed under cooler temperatures, end with lower vigor seed under warmer temperatures.
- Goal is a favorable 5-day forecast with minimum air temperature not less than 50 degrees, and hopefully with maximum air temperature about 80 degrees (see table next page).
- Mid-morning soil temperatures in the rooting zone should exceed 60 degrees at 6-inch depth or 68 degrees at the 2-inch depth.
- Plant into a firm moist seedbed with excellent seed to soil contact.
- For best emergence plant not more than 1- 1.5 knuckles deep.
- Use a proper and uniform seeding rate.
- The acceptable final PLANT population for 40-inch rows is around 2-4 PLANTS per row-ft (1.5-3 plants per row-ft in 30 inch rows). Thinner stands typically result in more harvesting difficulties.
- Target lower end for dryland and higher end for irrigated
- Grower must have faith in the planter, its setting, seed quality, and weather factors to get from actual seed drop rate to the targeted final stand.
- No in-furrow fertilizer. Cotton seedlings are delicate and we already have a challenge getting them emerged. In-furrow fertilizers increase stress on seedlings.

## Outlook for Planting for Various Five-Day Forecast Predictive DD60 Accumulations

Predictive DD60 Accumulation for Five Days Following Planting	Outlook for Planting
<10	Very poor
11-15	Poor
16-25	Marginal
26-50	Good
>51	Very good

Source: Cotton Physiology Today, Planting and Replanting Decisions, April, 2007

For more information on seed quality, soil temperatures and other issues see the publications listed below.

For a copy of Cotton Physiology Today, Planting and Replanting Decisions, April, 2007, click on the link below:

<http://www.cotton.org/tech/physiology/cpt/variety/upload/Planting-and-Replanting-Decisions-2007.pdf>

For a copy of Cotton Physiology Today, Seed Quality and Germination, March, 1990, click on the link below:

<http://www.cotton.org/tech/physiology/cpt/variety/upload/CPT-Mar90-REPOP.pdf>

## Chilling Injury Photographs



### Note:

- Root tip meristematic tissue dead
- Short, thickened radicles
- In the photograph below, three seedlings on far left were subjected to chilling while three on right were not.
- Note interruption of taproot growth with subsequent lateral root development.



Photos on this page were sourced from: Cotton Physiology Today, Planting and Replanting Decisions, April, 2007:

<http://www.cotton.org/tech/physiology/cpt/variety/upload/Planting-and-Replanting-Decisions-2007.pdf>

## Cotton Industry Concerns About Fusarium Wilt Race 4

Recently, *Fusarium oxysporum* f. sp. *Vasinfectum* Race 4 (FOV4) was identified in fields in the Far West Texas area in El Paso and Hudspeth counties. The U.S. cotton industry is on alert over this devastating new Fusarium race, and disease prevention and identification of infested fields are components of the overall containment strategy. FOV4 can easily disperse and it has already become widespread in the San Joaquin Valley of California since it was first identified there in the early 2000s.

This is a different race of Fusarium wilt than what we have previously encountered in the South Plains. The El Paso Valley infested fields had been planted to Pima (or Extra Long Staple or ELS) cotton, which is a different species (*Gossypium barbadense*) than our Upland types (*Gossypium hirsutum*) we have always planted. Pima cotton typically requires a longer growing season for good production and acceptable fiber maturity than Upland types.

Several plant pathologists generated a 4-page publication with Cotton Incorporated entitled “Identification and Management of Fusarium Wilt Race 4 of Cotton in Texas and New Mexico” (see link below). It states:

*FOV4 can survive in soil, in plant debris, and in infected seed beneath the seed coat, even after acid delinted and treated with fungicide seed treatments. The fungus produces multiple types of spores and some types can survive in soil for many years. Spread within a field occurs when infested soil is moved by implements, vehicles or personnel, or when water carries infested soil or plant debris in irrigation or storm water to other fields.*

*Infected seed is a means to disseminate FOV4 over great distances. Planting seed from infested fields poses significant risk of spreading infection. Do not plant seed produced in infested fields; for example, replanting of so-called “brown bag” from fields known to have FOV4. Do not plant seed from fields that are suspected to have been exposed to FOV4.*

**Currently there are no resistant commercial Upland varieties available.**

***If growers are considering planting Pima cotton in the South Plains area, they should be very concerned about the seed source, and avoid planting Pima seed that was grown in California or the El Paso Valley. Overall concerns of potentially contaminated equipment being moved outside of the affected areas are also noted.***

Plains Cotton Growers recently sent out an alert pertaining to this issue. To read this alert, click on the link below: <http://www.plainscotton.org/esw/news/cncurrent.html>

Cotton Incorporated has provided excellent background information on this disease, its development and threat, identification, and management strategies. To go to the Cotton Incorporated main FOV4 webpage, click on the link below:  
<https://www.cottoninc.com/cotton-production/ag-research/plant-pathology/identification-and-management-of-fusarium-wilt-race-4/>

To download a Cotton Incorporated 4-page PDF file with in-depth discussion of FOV4, click on the link below: <https://www.cottoninc.com/wp-content/uploads/2019/02/FOV-4-Bulletin.pdf>

To download a Cotton Incorporated 2-page PDF producer handout outlining industry concerns about FOV4, click on the link below: <https://www.cottoninc.com/wp-content/uploads/2019/04/FOV-4-Two-page-Producer-Handout.pdf>