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# Crop Management Newsletter

News about Crop Management for producers in Dawson, Lynn and surrounding Counties.

Thanks to the sponsors and the gins who support the Dawson/Lynn IPM Program  
(found on page 2)

## Current Conditions

Good underground moisture conditions - sure need the top to get wet.

10-day average soil temperatures as recorded by the West Texas Mesonet:

New Home	66	Welch	70	St. Lawrence	70
O'Donnell	66	Lamesa	67	Big Lake	70

There are no soil temperatures recorded for the Tahoka, Big Spring or Tarzan sites.

## Seed Germination and Hydration

The first stage of germination is water uptake. Water only moves to the seed in the liquid form from soil in firm contact with the seed. Actually the seed starts out so dehydrated that it can dry the surrounding soil. Once a sandy soil starts to dry, it loses its water conducting abilities making it unable to move water into the seed for germination and leading to stand failures. In order to decrease the potential of stand loss due to dry soils, we need to establish excellent seed-to-soil contact especially in sandy soils, regardless of initial moisture content. If the seed-to-soil contact is established, the seed will be more able to uptake the water when a rain event does occur and germinate.

As the seed soaks up moisture, it changes from the non-growing state to the growing state. This change allows the molecules inside the cells to become more fluid, a "sap." Since this "sap" is an oil, low temperatures harden this "sap" disrupting the fluidity and cell expansion causing chilling injury and seedling death.

## Chilling Injury

Soil and air temperatures should be at optimum levels when planting. A mid-morning soil temperature of 68°F at the planting depth for three consecutive days and a favorable five-day forecast following planting is best, but not always realistic, especially when planting early.

Soil temperatures below 50°F have been associated with chilling injury. If this occurs at the most sensitive stage, when the seed is taking up water, the pre-emerged seedlings often dies after the root tip or radicle has pushed out a half inch. Chilling within the first five days after planting results in weak plants with delayed maturity and reduced yields. Dry seed are highly tolerant of chilling, but as soon as it is placed in moist soil it begins soaking up water and enters its most sensitive stage. Since the temperature of shallow planted cotton seed can fluctuate widely, planting should be avoided when temperatures are forecast to drop below 50°F anytime during the first few days after planting.

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A favorable five-day forecast will help avoid potential chilling injury getting the seedling off to a good start which can pay dividends at the end of the season. Yield can be decreased 10% by planting into a cool spell. When the 5-day accumulated heat units were above 25, yield is not limited by temperature.

During the growing season, research has shown that there is one two-week period where the heat unit accumulation and yield had a significant correlation - it coincides with the seedling stage of the cotton plant. This indicates the importance of warm temperatures on obtaining healthy stands to potentially obtain maximized yield.

Temperature guidelines to determine a favorable five-day forecast.

Outlook for Planting	Five Day DD60 Accumulation
Very Good	50 or greater
Good	26 to 49
Marginal	16 to 25
Poor	11 to 15
Very poor	10 or less

When planting into cold soils, it is a must to use the highest quality seed as measured by the cool germination test.

Although dependent on growing conditions, a delay in planting early in the planting window can have little impact on the date of flowering as cotton planted under optimum conditions will often catch up to earlier planted cotton that struggled with cool temperatures. Adequate soil temperature for a vigorous plant is critical. Make sure adequate soil moisture is available for optimum results and that seedbeds are firm to ensure good seed-to-soil contact.

Because of all the above - many times it pays to plant the dryland first and then the irrigated.

Special THANKS to those who support  
Agriculture and the Lynn/Dawson IPM  
Program

**All-Star Sponsorship Level**

**Dawson County Commissioners Court  
Lamesa Cotton Growers**

**Major Sponsorship Level**

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Many Thanks to the Gins who participate and support the Lynn/Dawson IPM Program

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Woolam Gin**

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