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Crop Management Newsletter

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

Thanks to the sponsors and the gins who support the Dawson/Lynn IPM Program
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I'm Back

Well, I think we have all my computer problems worked out (I'm not totally convinced) but that's what I am told, so the IPM newsletter should be coming to you on a regular basis. If you know of anybody who is not receiving the newsletter, all I need is an e-mail address and they can start getting it - for free!

Insect levels are nearly non-existent. However, we did find a medium-size worm this week.

Since the July 4th "blow," growing conditions have been ideal (95-97 daytime highs and low 70's at night) giving us 22 - 24 heat units (HU) per day. The only thing that would make it perfect would be some rain across the entire area.

Here we are at the end of July and in the scouting program we have one field in full bloom and one at first bloom. On the other end of the spectrum we have a field that just started to square this week (July 24-28). Will we make a crop? So many factors but yes, no and maybe.

Explaining Heat Units (HU)

The cotton plant has perhaps the most complex structure of all major field crops. Its indeterminate growth habit and extreme sensitivity to adverse environmental conditions is unique. The growth of the cotton plant is very predictable under favorable moisture and temperature conditions where you can tell if your crop is on schedule. Growth follows a well-defined and consistent pattern expressed in days.

Another useful and more precise way to assess crop development relies on using daily temperatures during the season to monitor progress. The heat unit concept utilizes accumulated hours above a critical temperature rather than calendar days in describing growth and development. The growing degree days (DD) concept is based on a developmental threshold above which the crop grows. Below that temperature is where little or no development occurs. For cotton, the threshold temperature is 60°F; therefore, the degree days are referred to as "DD60's".

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The Texas A&M University System, U.S. Department of Agriculture and the County Commissioners Courts of Texas cooperating.

The basic formula for calculating heat units involves averaging the maximum and minimum temperatures for each day and subtracting the threshold temperature (60). There are no negative HU's - use a "0." Calculation of the accumulated heat units and knowledge of the heat unit requirement for any particular growth stage can be used to explain and predict the occurrence of events or duration of stages in crop development.

Under normal conditions, you can generally find the first square on the plant 31 to 47 days (35 days average) after planting or when the seed has contact with moisture if dry planted. With continuing favorable temperatures and available moisture, the first white bloom should be visible in approximately three weeks after the square is set. That will be from 20 to 27 days (23 days average) after the square or bud develops. So you should spot the first white bloom about 60 to 80 days from planting.

Research shows that in the High Plains, about 85% of the total bolls are set during the first three weeks of blooming, 10% during the fourth week, and less than 5% from the fifth through the seventh weeks.

The average number of days and heat units required for various growth stages of cotton.

Growth Stage	Days	Heat Units
Planting to Emergence	4 to 9	50 to 60
Emergence to First Square	27 to 38	425 to 475
Square to Flower	20 - 25	300 to 350
Planting to First Flower	60 to 70	775 to 850
Flower to Open Boll	45 to 65	850 to 950
Planting to Harvest Ready	130 to 160	2200

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Now, let's take those numbers and apply them to this season and see where we end up. We will use four planting dates, June 1, 10 & 20 and July 1 and a total of 2200 HU, based on research conducted on the High Plains, for a mature crop.

Growth Stage	Date			
	June 1	June 10	June 20	July 1
Planting	June 1	June 10	June 20	July 1
First Square (35 day average)	July 6	July 15	July 25	Aug. 5
First Flower (additional 23 days)	July 29	Sept. 7	Aug. 17	Aug. 28
4 weeks of Bloom (95% boll set)	Aug. 26	Sept. 4		
3 weeks of Bloom (85% boll set)			Sept. 7	Sept. 18
Planting to Harvest Ready (130 to 160 days)	Oct. 9 to Nov. 8	Oct. 18 to Nov. 17	Oct. 21 to Nov. 20	Nov. 1 to Dec. 1

Seasonal cutout is a calendar date in which based on historical records, there is a chance for accumulating enough heat units (between 800 - 850 HU) to mature a white flower. For our area, August 6 is the date in which there is an 85% chance to accumulate enough HU to mature a white flower and August 12 is the date in which there is a 50% chance to accumulate enough HU to mature a white flower. It is these dates that most individuals have a hard time accepting. Based on two years of bloom tag work I conducted, it was concluded that between August 20 and 25 was the last date in which a white flower contributed significantly to yield and quality. It is not being said that you can not produce lint from white blooms that occur after these dates. What is being said is that after these dates, any white blooms are not of the best quality and that to attempt to mature them out completely you are risking the yield from and the quality of the bolls that are already fully mature.

Why am I discussing cutout so early? Look at the dates for first flower for the last two planting dates and look at the last effective bloom dates for cutout - they are in conflict.

One last thing - if you planted one of the "faster" or early maturing varieties you might expect to compress the season by about 2 weeks.

This newsletter accounted for the science and knowledge we have for cotton production based on research. However, if we have a another great fall and receive good and timely rain, cotton can produce yields which make us scratch our heads. Hopefully, that is what we will experience this year.