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### **Defoliation Considerations in Cooler Weather**

Sandy Stewart, Ph.D.

Cotton defoliation prior to Tropical Storm Humberto has gone relatively well in Louisiana. Temperatures have been adequate for activity of all products, and most tankmixes have done what was expected. Moreover, very little of the Louisiana cotton crop has suffered extreme drought stress, leaving leaves that do not have an overly thick cuticle, making them easier to defoliate. For the coming week, however, slightly cooler temperatures, and potentially more problems associated with juvenile growth following several inches rain, will dictate some adjustments to our approach to defoliation.

#### **Temperature**

Temperature plays a huge role in cotton defoliation. Forecasted temperatures through Sunday (9/16) show high temperatures in the low 80s and lows around 60 degrees. For the beginning of next week, temperatures should rebound with highs in the 90s and lows in the mid to high 60s. Following the weekend, conditions for good activity of materials that contain thidiazuron (Dropp, Freefall, Ginstar) should improve.

Thidiazuron is the most temperature sensitive defoliation material. Thidiazuron also happens to be the basis of most tankmixes in Louisiana. Additionally, thidiazuron's ability to defoliate juvenile growth and control regrowth is likely to be needed in the coming week. Therefore, waiting until the short cool snap passes to resume defoliation applications of tankmixes containing thidiazuron is advisable.

Some options for using thidiazuron in slightly cooler conditions should be considered. The standard rate of thidiazuron in normal conditions is 0.05 lb ai, which is equal to 1.6 oz/A of Dropp or Freefall. Increasing this rate to 2.4 oz/A

will help its activity and should extend regrowth control. Tankmixes that include 4-8 oz/A of Def or Folex with thidiazuron will also help in these slightly cooler temperatures. The addition of ammonium sulfate (AMS) has always been suggested to improve thidiazuron activity in cooler temperatures. While this approach has merit, the forecasted temperatures for the coming week do not yet warrant adding AMS to all tankmixes. Simply increasing the rate and/or adding Def or Folex to the mix should be adequate in the coming week.

Ethephon (Prep, Super Boll, Finish, FirstPick) activity is also sensitive to cooler temperatures. Some tankmixes applied early have included rates of Prep or Super Boll at 5.33 oz/A for defoliation enhancement. From this point forward, rates that low are likely to be ineffective. Based on early observations, rates as high as 32 oz/A of Prep or Super Boll have shown excellent enhancement of defoliation with thidiazuron containing tankmixes. If ethephon is added to first applications, strongly consider rates between 21 and 32 oz/A.

### **Regrowth Control**

Juvenile growth and regrowth control is always a concern following rain. Almost all cotton plants have some regrowth potential that is triggered by moisture and/or residual nitrogen. The degree of potential regrowth problems is normally dictated by available nitrogen.

Early observations following the rainfall prior to the tropical storm indicate that we probably do not have a great deal of residual nitrogen left; therefore regrowth potential is not tremendous. This should not be construed to say that there is no regrowth potential in this year's cotton crop because anytime there is as much available moisture as we have, some regrowth will be present. However, based on those early observations, extreme measures to prevent regrowth are not likely to be necessary. Increasing Dropp or Freefall rates to 2.4 oz/A on a first application, followed by tankmixes that include a PPO-inhibitor such as Aim, ET, or Resource should adequately control regrowth. An exception to this could be fields in which additional nitrogen was applied in the mid- to late-bloom period.

As stated above, the important considerations for the coming week should be to slightly increase thidiazuron rates on a first application and consider tankmixes that include a herbicidal defoliant like Def or Folex. Once again, it is advisable to allow the short cool snap forecasted through the weekend to pass before resuming defoliation applications. Applications of thidiazuron containing tankmixes are likely to have much better activity if they are initiated Monday (9/17).

**TABLE OF EXPECTED ACTIVITY OF VARIOUS DEFOLIANTS**

<b>Material</b>	<b>Estimated minimum temperature</b>	<b>Expected activity</b>			
		<b>Mature leaves</b>	<b>Juvenile growth</b>	<b>Regrowth prevention</b>	<b>Boll opening</b>
Def/Folex	60°F	Excellent	Fair	Poor	None
Thidiazuron	65°F	Excellent	Excellent	Excellent	None
Ginstar	60°F	Excellent	Excellent	Excellent	None
Aim	55°F	Excellent	Excellent	Poor	None
ET	55°F	Excellent	Excellent	Poor	None
Resource	55°F	Excellent	Excellent	Poor	None
Blizzard	55°F	Excellent	Excellent	Poor	None
Prep/SuperBoll, others	60°F	Fair	Poor	Poor	Excellent
Finish	60°F	Excellent	Poor	Fair	Excellent
CottonQuik/FirstPick	60°F	Excellent	Poor	Poor-Fair	Excellent
Paraquat	55°F	Desiccation	Excellent	Poor	Fair

## Top Varieties Planted in Louisiana

Sandy Stewart, Ph.D.

A recent report released by USDA titled *Cotton Varieties Planted 2007 Crop* reveals some interesting information concerning the most popular cotton varieties planted in Louisiana in 2007. The top ten varieties and their percentage of acres planted in the state are shown in the following table.

<b>RANK</b>	<b>VARIETY</b>	<b>LA Percentage</b>
<b>1</b>	Deltapine DP 555 BG/RR	54.08
<b>2</b>	Deltapine DP 164 B2RF	18.85
<b>3</b>	Deltapine DP 445 BG/RR	5.22
<b>4</b>	Stoneville ST 4554B2RF	3.74
<b>5</b>	Deltapine DP 515 BG/RR	3.12
<b>6</b>	Deltapine DP 444 BG/RR	1.99
<b>7</b>	Stoneville ST 5599BR	1.17
<b>8</b>	Deltapine DP 167 RF	1.06
<b>9</b>	Deltapine DP 147 RF	0.96
<b>10</b>	Deltapine DP 117 B2RF	0.92

Any number of inferences or analyses of the information contained in the report could be made. However, some of the highlights of interest are as follows:

- While more than 36 cotton varieties are reported to be planted in Louisiana, only 5 make up more than 85% of the total acres.
- Over 99% of Louisiana cotton is transgenic in some form.
- Deltapine DP 555 BG/RR remains the #1 planted variety in Louisiana with its percentage almost unchanged from 2006.
- Roundup Ready Flex acres increased from 10.4% in 2006 to 28.9% in 2007.
- Second generation Bt cotton (Bollgard II or Widestrike) was planted on 26.4 % of Louisiana acres in 2007.
- Acres planted to varieties with Roundup Ready technology (either Roundup or Roundup Ready Flex) amounts to 99% of the Louisiana crop in 2007. To say this increases selection pressure for glyphosate on many weed species would be an understatement.

These are just some of the highlights. The full report can be accessed online at [http://www.ams.usda.gov/cottonrpts/MNPdf/mp\\_cn833.PDF](http://www.ams.usda.gov/cottonrpts/MNPdf/mp_cn833.PDF) .

Below is a list of contacts, both agents and specialists, in Louisiana cotton-producing parishes. They are ready and willing to assist you in any way they can.

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