

Louisiana Cotton Bulletin

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ARTICLES THIS ISSUE

Crop Report

Dr. Donald Boquet, Jack and Henrietta Jones Endowed Professor of Agronomy and Interim Cotton Specialistp. 1

Plant Growth Regulator Application for Post-Cutout Cotton

Dr. Donald Boquet, Jack and Henrietta Jones Endowed Professor of Agronomy and Interim Cotton Specialistp. 2

Update on Cotton Insects

Dr. Roger Leonard, Professor of Entomology and J. Hamilton Regents Chair in Cotton Productionp.3

Upcoming Events and Field Days p. 6

List of LSU AgCenter Cotton Personnelp. 7

Crop Report, August 5, 2009

Donald J. Boquet, PhD

The summer rain events that began on July 6 have been continuous enough to keep the cotton crop growing and setting bolls. The recovery from the June drought conditions has progressed well for most fields but the effects of the early summer drought are still obvious in that most of the state's crop is only fair to good with only 20% in excellent condition. About 75% of the crop has reached cutout; more technically, the number of nodes above the uppermost first position white flower is fewer than 4. This means that all the bolls that will be harvested are already on the plants and it would not be useful to try and set more bolls. Bolls set after today will require a long time to mature or will not mature in a time frame that would contribute to yield. Only the late-planted cotton fields need additional time to set more bolls. In Louisiana, bolls set as late as August 15 will have enough heat units to mature but reduction in sunlight quantity will greatly extend the time from boll set to boll maturity making it difficult for these bolls to reach harvestable maturity. From an agronomic standpoint, there are two potential problems on the horizon we should be aware of that will be addressed in this newsletter and the next newsletter. First, because of the type of season we have had, many fields will have nutrients and water to continue growth after cutout. This could cause problems with boll rot and with defoliation and harvesting. The dilemma is how to fill out the bolls while limiting new plant growth. The article below on PGRs addresses this problem to some extent. Secondly, many fields have gaps in the fruiting pattern that were caused by the drought and then by cloudy weather associated with the rainy periods and possibly by insects. In fields where the top crop is much later than the bottom crop, defoliation will have to be timed to



maximize boll development of both crops. Bolls on the bottom and middle of the plant usually contribute more to yield than top bolls and this should be the primary consideration when timing defoliation.

Plant Growth Regulators Donald Boquet, PhD

Plant nutrient uptake by this year's cotton crop was limited during June and early July. As we are now seeing, these nutrients did not disappear but were retained in the soil and with rainfall have become available to the cotton crop. During July and early August, the cotton plants have responded in a positive way to the available water and nutrients. As we progress further into August, however, the cotton crop has retained all the bolls it can support to maturity and additional plant growth will be a hindrance rather than beneficial. The question is, How can growers mature the crop and at the same time limit this undesirable plant growth? The available options are few and not likely to be clearly successful and beneficial.

Plant growth regulators in the mepiquat family of chemicals are the only option, but are designed to be in-season applications and have not been extensively evaluated to control growth using post-cutout applications. It is important to recognize that the basic mode of action of the mepiquat PGRs is solely to inhibit actions of gibberellins thereby limiting cell elongation. When applied to cotton plants, these PGRs primarily function by shortening the internodes, which makes a shorter and more compact plant structure and may reduce leaf size. There is little to no effect on total plant development. Usually total plant height is shortened by 10% to 20%. Very high rates of 24 oz per acre or more may or may not give greater responses. To be functional, PGRs must be applied before plant growth occurs and application timing is therefore critical as are the rates of application. The results from PGR applications are affected by many factors and are, therefore, expected to be highly variable.

Can PGR application, then, be useful in limiting unwanted post-cutout growth? In limited research that evaluated PGRs for this purpose, the results were not encouraging, which is not surprising considering the variable results obtained with in-season applications. One fact that is clear from research is that, to obtain any growth reduction, very high rates are needed. Still, as with in-season applications, the effects will vary by field depending on growing conditions, nutrients and water. But, in addition, in the case of post-cutout applications, results will be affected by boll load relative to overall capacity of the plants to support all sink demands, which will be an unknown dynamic in all cases. Once the lowermost bolls on the plants are mature, plant and soil resources are available for new plant growth and it will be difficult to control this additional growth. It is important to recognize that PGRs will not prevent growth; it will only shorten the total height of new growth. The effects will vary and, in general, will not be as large as desirable. If results are equal to in-season applications, the height of new growth will be reduced, at best, only 10 to 20%.

We have had calls asking if post-cutout applications of PGRs could increase yield. The limited data available indicates no yield increases from post-cutout applications. Research results have shown that, with in-season applications, PGRs may increase yield about 20% of the time. These yield increases have usually been rather small, in the range of 1 to 3 percent. Potentially, small yield increases could result from early post-cutout applications but any increases will likely be too small to measure.

Recognizing all of the limitations of PGRs for post-cutout growth reduction, if PGRs are used post-cutout, they should be used at high rates; 16 oz per acre as a minimum but it is likely higher rates will be needed. As

Louisiana Cotton Bulletin

with in-season applications, requisite rates will be determined on a field by field basis. With support of an established root system and plant structure in place and adequate water and fertility, low rates will not control growth long enough to accomplish the desired effects. Fortunately the cost of the mepiquat type PGRs are currently lower than ever. All formulations of mepiquat PGRs have performed similarly in field studies, so price should be the primary factor in selecting a product to apply. Some formulations of PGRs contain additional chemicals along with the mepiquat and can be used but the cost may be higher. Stance™ (mepiquat + cyclanilide), for example, could be used at a 4 oz per acre rate. This rate would probably be as effective as a 24 oz rate of mepiquat products and with the auxin inhibition from the cyclanilide may suppress new growth a little better than mepiquat alone.

Update on Cotton Insects Roger Leonard, PhD

Tarnished plant bug pressure remains relatively high and another generation is underway. We will likely have to continue to apply insecticides for much of this month or at least until the cotton plants in each field reach “cutout”. To this point, most of our control has been sufficient even though we have not zeroed out the populations in many fields. Many consultants have relied heavily on Diamond which I believe has greatly added to our success during this season. Using Diamond on a 14-21 d interval with an adulticide has performed very well, especially if one continues to examine square and small boll retention. Diamond generally does not show immediate effects at 2-3 d after treatment, but at 7-14 d post-treatment tarnished plant bug nymphal development is suppressed.

Unfortunately we are not finished with cotton IPM for 2009 and much of the crop still needs protection. We are about to complete our legal annual use limits for several of our products recommended for tarnished plant bug control in LA cotton. Remember that we only have:

- 2 applications of Bidrin @ 0.5 lb AI/acre after flowering;
- 2 applications of Centric @ 2.5 oz [form]/acre;
- Up to 6 applications of Orthene (acephate) @ 1.0 lb [form]/acre can be used, but I would not rely on it to finish the season.

There are other insecticides (Carbine, Trimax, Lorsban, Vydate, Intruder, dimethoate) that can still be used, but I do not think we can finish the season successfully with these products.

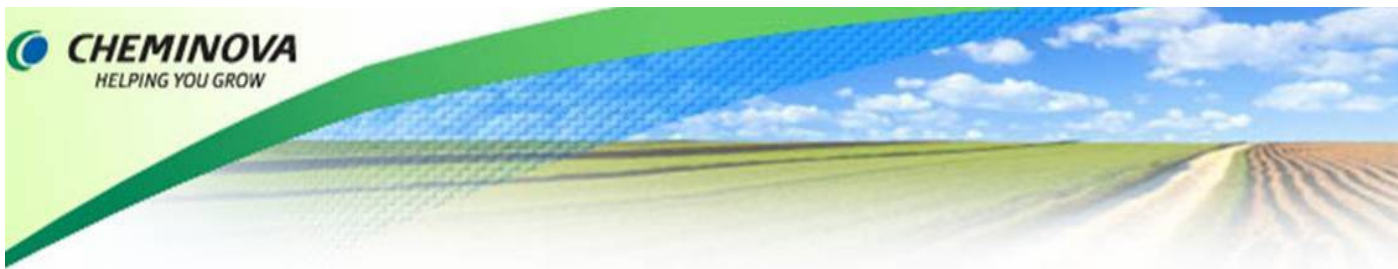
One additional treatment option for tarnished plant bug management that I do have some confidence in recommending is a pyrethroid + Malathion ULV combination. This treatment must be applied at 32 oz total volume / acre and a copy of the label should be in the hands of the applicator at the time of the application. Louisiana’s Agricultural Commissioner, Dr. Mike Strain, and his staff have approved an exemption to use this treatment for 2009. Now is the time to begin these applications.

Cheminova (Richard Myers) developed a product use guide and a copy of that document is attached below as a reference. Cheminova is recommending their pyrethroid (Declare), but others may be substituted. I also have listed some key points to make this a successful treatment. These are important considerations.

Louisiana Cotton Bulletin

- Pyrethroid + Malathion ULV treatment for tarnished plant bugs must be applied at 32 oz total volume / acre. **Do not rely on Malathion ULV alone, it has performed inconsistently without co-applying the pyrethroid.**
- Not all pyrethroids are labeled for use in ULV applications. Read the labels.
- Do not add any other product – all ratios change, the products may not mix, and efficacy may be compromised.
- **Warning : Do not substitute a crop oil for the vegetable oil – Crop phytotoxicity and poor control may occur.**
- These are examples of vegetable oils: **AMIGO (CPS/LOVELAND), SOYDEX (HELENA) and SOYSURF (SANDERS). An emulsifier is not needed.**
- This treatment is approved for aerial application and applicators must use a boom approved for ULV work.
- Do not add water or water-based additives.
- Target use rates - 16 oz malathion + pyrethroid (depends on which one, but Baythroid or Karate @ 2oz are standards) + vegetable oil (enough to bring total volume to 32 oz).
- Example calculation of the treatment: 16 oz Malathion +
2 oz Baythroid +
14 oz vegetable oil
32 oz – total volume

I do not recommend use more than two applications on weekly interval; but it is likely that residual efficacy may extend beyond 7-10 days.



FACT SHEET: Aerial ULV Insecticide Application for Cotton

FYFANON® ULV + DECLARE™ insecticides + VEGETABLE OIL (Malathion ULV) + (Pyrethroid) + (Non-Petroleum oil)

PRODUCT RATES for Lygus/Plant Bug Control:

FYFANON ULV ----- 16 fl.oz./ac.

DECLARE ----- 2 fl.oz./ac.

Vegetable Oil ----- 14 fl.oz./ac.

MINIMUM VOLUME TO SPRAY -- 32 fl.oz./ac.

Note: if other labeled and state approved pyrethroid is used, applicator must follow all specific label information, including pyrethroid rate and minimum volume.

NO OTHER CHEMICAL OR COMPOUND CAN BE ADDED OR USED TO THE PRESCRIBED TOTAL MIX OF 32 OZ./AC.

ONLY REFINED VEGETABLE OIL CAN BE USED:

I. E.	AMEIGO	CPS/LOVELAND
	SOYDEX	HELENA
	SOYSURF	SANDERS

NO OTHER ADJUVANTS ADDED:

I.E. CROP OIL CONCENTRATES
NON-IONIC SURFACTANTS
FERTILIZERS OR MICRONUTRIENTS
METHYLATED SEED OILS

AERIAL APPLICATION ONLY: MIXING PROCEDURES

APPROVED ONLY FOR ULV SYSTEMS

1. WHEN TANK MIXING WITH DECLARE™ insecticide, ALWAYS ADD DECLARE LAST. SEE LABEL FOR FULL DETAIL.
2. AGITATE IN MIX TANK BEFORE LOADING AIRCRAFT WITH THE DESIRED QUANTITIES OF FYFANON ULV, PYRETHROID AND VEGETABLE OIL.
3. DO NOT APPLY TO WET FOLIAGE.
4. ALWAYS FOLLOW LABELS FOR SPRAY DRIFT REQUIREMENTS.
5. FOLLOW LABEL FOR BUFFER ZONES; USE MOST RESTRICTIVE.

Ameigo is a trademark of Loveland Products, Inc.

Declare is a trademark and Fyfanon a registered trademark of Cheminova.

Soydex is a registered trademark of Helena Chemical Company.

Soysurf is a trademark of Jimmy Sanders, Inc.

Louisiana Cotton Bulletin

Upcoming Events

Dean Lee Research and Extension Field Day – August 20, 2009

Contact John Barnett or Danny Coombs for information – 318-473-6528

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dcoombs@agcenter.lsu.edu

Below is a list of contacts, parish and area field agents and state extension specialists. They are prepared to assist you with any questions or problems you have.

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PARISH	AGENT	PHONE	EMAIL
Avoyelles	Trent Clark	318-253-7526	tclark@agcenter.lsu.edu
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