



Post-Directed and Layby Herbicide Recommendations—Daniel Stephenson, Ph.D.

Cotton is off and running and weeds have been controlled in most fields. Hopefully, the decision was made to tank-mix a residual herbicide such as metolachlor (Dual Magnum, etc.) or Staple LX with a glyphosate application. Assuming the residual herbicide of choice is performing well, it will not long before it begins to break and more weeds emerge. That leads up to

post-directing and lay-by herbicide applications in cotton.

In Roundup Ready Flex cotton there is a temptation to forego a layby and spray glyphosate over-the-top. Glyphosate alone over-the-top is an option, but there is an opportunity to prevent possible weed resistance to glyphosate by switching herbicide mode of action

(Continued on page 2)

National Cotton Council Conducting Farm Bill Informational Meetings June 18 and 19

National Cotton Council staff will review key provisions of the new Food, Conservation and Energy Act of 2008 in 45 informational meetings across the Cotton Belt during the weeks of June 16 and June 23. The meetings are being sponsored by the NCC and area interest organizations.

Being conducted as a service to NCC members, the presentations are aimed at providing the best available information on the new farm bill and will conclude with a question and answer period.

Other industry, media and agribusiness representatives also are invited to attend.

"All NCC members should try to attend one of these meetings," NCC Chairman Larry McClendon said. "I believe others involved in the cotton industry and agriculture also can benefit from attending these informational sessions."

The schedule of meetings in Louisiana is as follows:

June 18, 3 pm—Alexandria, Dean Lee Research Station DeWitt Livestock Facility

June 19, 10 am—Rayville, Civic Center

Inside this issue:

Post-direct and layby recommendations	1
PGR Suggestions	3
Do you have resistant weeds?	5

Upcoming Dates:

- NCC Farm Bill Meeting, Alexandria—June 18
- NCC Farm Bill Meeting, Rayville—June 19
- Northeast Research Station Field Day, St. Joseph—June 24

Post-Directed and Layby Herbicides (cont'd from Page 1)

(Continued from page 1)

and applying a residual when you direct spray. It is the same principle LSU AgCenter personnel have been talking about since before the start of the season – switch herbicide chemistries and apply residuals. The post-directed and lay-by application in cotton is a perfect time to do it.

As a rule, direct herbicides in manner to obtain maximum coverage of weeds with minimum contact to cotton foliage. Some herbicides require specific heights and the presence of bark before application, so always check the herbicide label for specific instructions. The following table provides you with options, but glyphosate should only be applied in Roundup Ready cotton. In Liberty Link cotton, Ignite

280 at 22 – 29 oz/A may be substituted for glyphosate as a tank-mix with each herbicide in the table below, but Ignite 280 does not provide the grass control that glyphosate does.

The recommendation is to make both a post-directed and lay-by application to ensure your cotton will be clean until harvest. If cotton is presently clean and/or the intention is to apply glyphosate or Ignite 280 over-the-top of prior to lay-by, use a combination of Direx/Karmex, Reflex, or Valor tank-mixed with MSMA. Using this lay-by treatment will allow a residual to be applied and to switch herbicide chemistries away from glyphosate. Good luck and call if you need some help.

POST-DIRECTED

Herbicide	Rate	Weeds controlled	Time of application	Precautions
Aim 2 EC	0.75 - 1.5 oz/A + 1% crop oil concentrate	Broadleaf weeds except prickly sida (teaweed)	12-inch cotton	Add MSMA or glyphosate for grass control
Caporal 4L or Cotton Pro 4L + glyphosate or MSMA	0.5 - 0.7 qt/A + labeled glyphosate rate or 2 lb ai/A MSMA + surfactant if no glyphosate	Broadleaf and grass weeds with less residual control	3-inch cotton	Minimize contact with cotton foliage. MSMA must be applied prior to 1 st bloom.
Cotoran 4L or Meturon 4L + glyphosate or MSMA	0.8 – 1.2 qt/A + labeled glyphosate rate or 2 lb ai/A MSMA + surfactant if no glyphosate	Broadleaf and grass weeds with more residual control than Caporal	3-inch cotton	Minimize contact with cotton foliage. MSMA must be applied prior to 1 st bloom.
Suprend	1 – 1.5 pt/A	Morningglories, sicklepod, yellow nutsedge	6-inch cotton	Minimize contact with cotton foliage
Direx/Karmex 4L + glyphosate or MSMA	0.4 – 0.8 pt/A + labeled glyphosate rate or 2 lb ai/A MSMA + surfactant if no glyphosate	Annual seeded grasses and broadleaf weeds. Provides most residual control	6-inch cotton that must be actively growing	Greatest potential for carry-over to sensitive crops. MSMA must be applied prior to 1 st bloom.
Cobra 2 EC	12.5 oz/A + surfactant	Broadleaf weeds	8-inch cotton	Minimize contact with cotton foliage
Goal 1.6E + MSMA	1-2 pt/A + 1-2 lb ai/A + surfactant	Annual grass and broadleaf weeds	8-inch cotton	Minimize contact with cotton foliage. MSMA must be applied prior to 1 st bloom.
Linex 4L + MSMA	1-1.5 pt/A + 1-2 lb ai/A + surfactant	Annual grass and broadleaf weeds	8-inch cotton	Minimize contact with cotton foliage. MSMA must be applied prior to 1 st bloom.

Post-Directed and Layby Herbicides (cont'd from Page 2)

LAY-BY

Herbicide	Rate	Weeds controlled	Time of application	Precautions
Caporal 4L or Cotton Pro	1.2 - 1.6 qt/A + surfactant	Broadleaf and grass weeds with less residual control	15-inch cotton	Minimize contact with cotton foliage
Cotoran 4L or Meturon	1 qt/A + surfactant	Broadleaf and grass weeds with more residual control than Caporal	15-inch cotton	Minimize contact with cotton foliage
Direx/Karmex 4L	0.8 – 2.0 pt/A + surfactant	Annual seeded grasses and broadleaf weeds. Provides most residual control	15-inch cotton that must be actively growing	Minimize contact with cotton foliage. Greatest potential for carryover to sensitive crops
Linex 4L	1 - 3 pt/A + 1-2 lb ai/A + surfactant	Annual grass and broadleaf weeds	8-inch cotton	Minimize contact with cotton foliage
Reflex 2L	1 – 1.5 pt/A + surfactant	Good residual control of pigweed.	6-inches, but only after cotton has 4-inches of bark	Adding glyphosate or MSMA will improve control of larger grasses
Valor SX	1 – 2 oz/A	Good residual control of pigweed.	18-inches, but only after cotton has 4-inches of bark	Adding glyphosate or MSMA will improve control of larger grasses

Suggestions for Mepiquat Applications-Sandy Stewart, Ph.D.

A lot of Louisiana cotton is either at, or quickly approaching the stage when mepiquat applications will be initiated. Because of the growth habit of DP 555 BG/RR, many producers have been focusing on early, pre-bloom applications of mepiquat. While these are usually called pin-head square applications, the reality is that most go on sometime between the 8 and 12 node stage.

Pre-bloom applications of mepiquat can be very effective at controlling plant height, but also carry the most risk of inducing early cutout if drought conditions prevail following the initial applications. For a tall, full-season variety like DP 555, this is less of a concern. However, none of the newer Roundup Ready Flex varieties exhibit the rank growth potential of DP 555. Early, pre-bloom applications, therefore, should be approached with caution on these newer varieties.

Mepiquat has been around since the early 1980s. Although most have a lot of experience with its use, there remains some confusion about mepiquat and its overall effect on the plant. Mepiquat is a PGR and the actual response is dictated greatly by growing condition at and following applications. A number of theories and management approaches surrounding mepiquat have emerged over the years.

In an effort to simplify mepiquat decisions and provide some guidelines, a “Mepiquat Decision Aid Chart” has been developed and is shown on page 4. Hopefully, this will aid in the decision-making process and provide some logic for deciding whether mepiquat is necessary, and if so, for choosing a rate. It is in a one-page format

(Continued on page 5)

MEPIQUAT DECISION AID CHART

Growth Stage	Suggested Rate Range per acre	Situations Favoring Higher End of the Rate Range	Situations Favoring Lower End of the Rate Range	Situations Where No Mepiquat Should be Applied	Notes
8-12 Nodes	4-10 oz (2 oz Stance)	-Good soil moisture -Tall variety -Irrigated -High fertility -Square retention <80% -History of rank growth	-Marginal soil moisture -Short variety -Plant height <18 inches -Square retention >90%	-Dry soil moisture -No history of rank growth and no irrigation	-Use caution with early, short season varieties. -This timing carries the most risk if dry conditions persist following application.
Two Weeks Prior to Bloom	8-16 oz (2-3 oz Stance)	-Good soil moisture -Tall variety -Irrigated -High fertility -Square retention <80% -Plan height >25 inches -Internode length* >2.25 inches -History of rank growth	-Marginal soil moisture -Short variety -Square retention >90% -Plant height <25 inches -Internode length* <2.25 inches	-Dry soil moisture -No history of rank growth and no irrigation	-Mepiquat at this timing is usually very effective and carries less risk than earlier timings.
Early Bloom	12-18 oz (2-4 oz Stance)	-Good soil moisture -Tall variety -Irrigated -Plan height >36 inches -Internode length* >2.5 inches -NAWF >9 -No prior mepiquat applied	-Marginal soil moisture -Plant height <30 inches -Internode length* <2.5 inches -NAWF ≤9 -Prior mepiquat has been applied	-Dry soil moisture -NAWF <7 -Internode length* <2 inches -Plant height <24 inches	-Early bloom applications carry little risk -drought stressed, short cotton with high fruit retention requires little or no mepiquat.
Full Bloom	16-24 oz (3-4 oz Stance)	-Good soil moisture -Low overall fruit load -Internode length* >3.25 inches -NAWF ≥8 and not decreasing	-Marginal soil moisture -Good overall fruit load -Internode length* <3 inches -NAWF <8 and decreasing	-Dry soil moisture -NAWF ≤6 and decreasing rapidly -Cotton drought stressed and less than full canopy	-Full bloom cotton responds poorly to mepiquat; higher rates will be needed to manage rank growth. -Good insect management and irrigation is a better PGR than mepiquat in full bloom cotton.

* The largest of the internodes below the third or fourth main stem leaf from the top.
ALWAYS BASE MEPIQUAT APPLICATIONS ON PLANT MONITORING AND FIELD CONDITIONS AT THE TIME OF APPLICATION.

PGR Suggestions (cont'd from Page 3)

(Continued from page 3)

for ease of use. Additionally, some key bullet points about mepiquat are offered below:

Key Points Concerning Mepiquat Use in Louisiana

- *Mepiquat is a management tool. A positive yield response occurs occasionally, but should not be expected.*
- *Pre-bloom cotton is most sensitive to mepiquat.*
- *Fruit retention enhancement with mepiquat is over-rated.*
- *Most varieties respond similarly, although some are more tolerant of higher rates. Full-season varieties are usually more tolerant, and early varieties are most sensitive.*
- *High rate applications to pre-bloom cotton carry the most risk of early cutout.*
- *Low rates (4-6 oz) on full bloom cotton are usually a waste of time.*
- *There are few, if any, effective differences among formulations (except Stance). Because of the formulation, the labeled rate range for Stance is different (currently 2-3 oz/A).*
- *Louisiana research has never indicated clear benefits from "cutout" applications of mepiquat.*
- *In late-planted cotton in Louisiana, mepiquat can be used to manage for some earliness.*

Do You Have Resistant Weeds? - Daniel Stephenson, Ph.D.

(Part 1 of a Two-Part Series.)

We have all read or heard about the problem of weed resistance to various herbicides, specifically glyphosate (Roundup, Touchdown, etc.). Popular press articles have focused on horseweed or mare's-tail and Palmer amaranth (a.k.a Palmer pigweed) issues in Arkansas, Georgia, and Tennessee among other states. For example, University of Arkansas weed scientists have identified glyphosate-tolerant Palmer amaranth populations in 13 of the 17 counties screened with some population exhibiting an 8X tolerance.

LSU AgCenter personnel have been urging crop

producers to reduce their dependence upon glyphosate as their only weed control tool and to apply herbicides with different modes of action or residual herbicide applied preemergence or in-crop in an attempt to stave off this problem. I would hope that all producers and/or consultants are taking care to use herbicides with different modes of action other than glyphosate and are watching for any situations where a weed is not controlled by glyphosate or any other herbicide.

It needs to be stressed that a huge gorilla named weed resistance is knocking on our door and the

(Continued on page 6)

Do You Have Resistant Weeds? (cont'd from Page 5)

(Continued from page 5)

possibility of resistance currently residing in Louisiana is very real. In 2008, LSU AgCenter personnel have visited sites within the state where glyphosate has not provided control of some weed species, so we may already open the door for the gorilla.

This two-part article is not suggesting that you should assume you have resistance if glyphosate or another herbicide does not control a weed species or multiple species. There are many factors that could cause weed escapes following a herbicide application. Failure of a herbicide to control a weed can be caused many factors such as:

Herbicide misapplications due to:

- Poor spray coverage where the weeds are completely missed by herbicide spray, poor spray tip pattern, or a clogged tip;
- Applying less than the recommended label rate either by conscience choice or from improper sprayer calibration; or
- Treating weeds when they are too large can cause problems. If you wait until weeds are big (4-inches or larger) to allow for germination of more weeds so that you control more weeds with one application, you will see reduced control.

Adverse environmental conditions;

- If the temperature is too hot or cold at application, a weeds reaction to excessive heat or cold may prevent proper absorption of the herbicide by the weeds, thus decreasing control.
- Drought or excessive moisture may affect the ability of the herbicide to enter the weed either

by soil activity or foliar absorption.

- Insect or mechanical damage may cause stress on the weed, which reduces the ability of the herbicide to enter the weed either by soil activity or foliar absorption.

Rainfall or irrigation may wash-off postemergence herbicide applications.

- Postemergence herbicides generally have a rain-fast or rain-free time period on their label. If you get heavy rain or overhead irrigate soon after application, then efficacy may be reduced.

Excessively high weed populations at application.

- Typically, weeds of different sizes will be present within the population.
- Essentially, herbicide spray is intercepted by the larger weeds preventing the smaller weeds underneath the large weed canopy from being contacted by the treatment.

New emergence following treatment.

- When spraying herbicides with no soil activity, such as glyphosate, only weeds that have emerged and contacted by spray will be controlled. If you spray glyphosate or any other non-soil active herbicide today and a weed emerges tomorrow, you cannot expect to control newly emerged weeds.

In the next part of the article, I will discuss factors that may indicate weed resistance to herbicides.



Dr. Sandy Stewart
Burch and D&PL Associate Professor
and Cotton Specialist

Dean Lee Research Station
8105 Tom Bowman Drive
Alexandria, LA 71302

Phone: 318-473-6522
Cell: 318-308-5625
E-mail: sstewart@agcenter.lsu.edu

LSU AgCenter Cotton
Extension

www.lsuagcenter.com

Parish	County Agent	Phone	Email
Avoyelles	Carlos Smith	318-253-7526	Csmith@agcenter.lsu.edu
Bossier	Joe Barrett	318-965-2326	JBarett@agcenter.lsu.edu
Caddo	John Levasseur	318-226-6505	JLevasseur@agcenter.lsu.edu
Caldwell	Jim McCann	318-649-2663	JMcCann@agcenter.lsu.edu
Catahoula	Cliff Watts	318-334-0700	CWatts@agcenter.lsu.edu
Concordia	Glen Daniels	318-336-5315	GDaniels@agcenter.lsu.edu
DeSoto	Hubert Wilkerson	318-453-1615	HWilkerson@agcenter.lsu.edu
East Carroll	Donna Lee	318-282-1292	DRLee@agcenter.lsu.edu
Evangeline	Keith Fontenot	337-363-5646	KFontenot@agcenter.lsu.edu
Franklin	Carol Pinnell-Alison	318-267-6713	CPinnell-Alison@agcenter.lsu.edu
Grant	Matt Martin	318-627-3675	MMartin@agcenter.lsu.edu
Lasalle	Jim Summers	318-992-2205	JSummers@agcenter.lsu.edu
Madison	R.L. Frazier	318-267-6714	RFrazier@agcenter.lsu.edu
Morehouse	Terry Erwin	318-282-3615	TErwin@agcenter.lsu.edu
Natchitoches	Hubert Wilkerson	318-453-1615	HWilkerson@agcenter.lsu.edu
Ouachita	Richard Letlow	318-282-2181	RLetow@agcenter.lsu.edu
Pointe Coupee	Miles Brashier	225-281-9469	MBrashier@agcenter.lsu.edu
Rapides	Matt Martin	318-473-6605	MMartin@agcenter.lsu.edu
Red River	David Yount	318-932-4342	DYount@agcenter.lsu.edu
Richland	Keith Collins	318-355-0703	KCollins@agcenter.lsu.edu
St. Landry	Keith Normand	337-296-6859	KNormand@agcenter.lsu.edu
Tensas	Dennis Burns	318-267-6709	DBurns@agcenter.lsu.edu
West Carroll	Myrl Sistrunk	318-267-6712	MSistrunk@agcenter.lsu.edu

SPECIALISTS

Cotton Specialist	Sandy Stewart	318-473-6522 318-308-5625(cell)	sstewart@agcenter.lsu.edu
Weeds Specialist	Daniel Stephenson	318-473-6590 318-308-7225 (cell)	DStephenson@agcenter.lsu.edu
Entomology Specialist	Ralph Bagwell	318-435-2157 318-334-0393(cell)	Rbagwell@agcenter.lsu.edu
Nematodes Specialist	Charlie Overstreet	225-578-2186	Coverstreet@agcenter.lsu.edu
Pathology Specialist	Boyd Padgett	318-435-2157 318-308-9391(cell)	bpadgett@agcenter.lsu.edu
Economics Specialist	Gene Johnson	504-388-4081	GJohnson@agcenter.lsu.edu
Fertility Specialist	J. Stevens	318-427-4408 318-308-0754(cell)	JStevens@agcenter.lsu.edu
Extension Associate	Brandi C. Woolam	318-290-0625(cell)	bgarber@agcenter.lsu.edu

Louisiana State University Center Agricultural Center, William B. Richardson, Chancellor

Louisiana Agricultural Experiment Station, David J. Boethel, Vice-Chancellor and Director

Louisiana Cooperative Extension Service, Paul D. Corell, Vice Chancellor and Director