

PPO Resistance Confirmed in Georgia Palmer amaranth Population

PPO Resistance in GA Palmer Amaranth		
Herbicide	Level of resistance	
Reflex	= $\geq 227$ times	applied post emergence ←
Cobra	= $\geq 1244$ times	
U. Blazer	= $\geq 296$ times	
BAS 850*	= $\geq 9$ times	
applied preemergence →		
Herbicide	Level of resistance	
Reflex	= $\geq 3$ times	
Valor	= $\geq 31$ times	
Goal	= $\geq 2$ times	
BAS 850*	= $\geq 7$ times	

\*BAS 850 = Trifludimoxazin (Vulcanus)

Controlling Volunteer Peanut

1. Roundup + Liberty or Roundup + dicamba are effective; peanut must be larger than a saucer plate for consistent control by Liberty alone.
2. Sequential Roundup applications are almost always needed with the continual emergence of peanut.
3. For residual control, Cotoran + Staple is currently the best option with only fair control.

Control Nutsedge Patches Before it Takes the Field

1. If nutsedge patches are up prior to planting, apply 60 oz/A of Roundup PMAX 3 or equivalent and follow with paraquat 5-7 days later.
2. Reflex applied preemergence suppresses yellow nutsedge only.
3. Sequential applications of Roundup in-season are critical to overall success; Envoke is labeled overtop of cotton and is effective but one needs to be prepared for cotton yellowing and possible stunting.
4. A directed layby application is absolutely required; diuron + MSMA + Envoke or Roundup + diuron + Envoke are extremely effective.

Pesticide Stewardship

Protecting pollinators, endangered species, the environment, pesticide applicators, & consumers of agricultural pesticides must be a top priority for all of Georgia agriculture. Growers and their applicators must ensure pesticides are applied on and remain in the targeted area!

Numerous Herbicides Face Immediate Regulatory Challenges



- Growers and their ability to steward these tools will determine the future particle use of all pesticides.
- UPW 2023 will occur in March/April; all applicators of XtendiMax, Engenia, and Tavium must attend the in-person training!



Managing Grasses in a Dicamba System

Reduced grass control, especially goosegrass, occurs with nearly every Roundup + dicamba application when grasses are  $\geq 4"$ , goosegrass  $> 1"$ , when treated (Fig 1). Be timely (Fig 2) or make sequential applications.

Fig 1. Texas Millet and Large Crabgrass

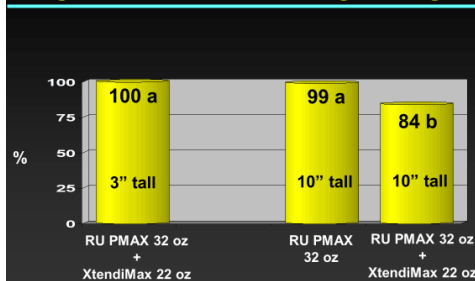


Fig 2. Minimizing Grass Escapes From a Roundup + Dicamba System

1. START WITH THE CORRECT PREEMERGENCE!
2. Full rate of Roundup (PowerMax 3 = 30 oz/A)
3. Grass  $< 4"$  grass; goosegrass  $< 1"$ , when treated
4. Environmental conditions have huge impact
5. Not timely – make sequential applications

Managing Tropical Spiderwort

Spiderwort infestations continue to expand across Georgia agronomic fields. Effective residual herbicides must be overlapped throughout the season and it is critical to make a layby directed application just prior to row closure.

Spiderwort – Loving a Weak Dicamba System



Fig 3. Spiderwort – Overlap Effective Residuals

1. Warrant, Dual, and Outlook residual are excellent
2. Gramoxone and 2,4-D are excellent on emerged plants
3. Dicamba – sequential applications fair at best
4. Roundup – fair if very small
5. Liberty – no good
6. Layby – excellent options, must use residual!

Potential programs

- Warrant + partner (for pigweed) applied preemergence
- RU + Auxin + Dual/Warrant/Outlook OR RU + Staple Post 1
- RU + Auxin + Dual/Warrant/Outlook Post 2
- Direx + MSMA + Dual, Warrant, or Outlook OR RU + Direx + Dual, Warrant, or Outlook at Layby.....layby is the key!

# The Cotton Weed Management Program – Systems Approach, Diversified, Integrated, Timely, and with Smart Decisions!!!

## Step 1. Remove weeds prior to planting, especially Palmer amaranth, annual grasses, and tropical spiderwort!

Cover crops, tillage, and herbicides are all important components of farm sustainability. **Cover crops** reduce weed emergence decreasing herbicide selection pressure. **Deep turning** can place weed seeds at a depth where they cannot emerge. All weeds and cover crops, with the exception of cereal grains, should be killed at least 14 days before planting. Valor at 2 oz/A and/or Direx at 1 to 2 pt/A are needed for residual control in most fields. Dicamba or 2,4-D would be beneficial to control primrose, horseweed, fleabane, and radish (2,4-D is much more effective on radish). Gramoxone + Direx offers the most effective option for emerged Palmer amaranth while mixtures of glyphosate + 2,4-D + Valor or Direx or glyphosate + dicamba + Valor or Direx are effective on most weeds. *Follow all plant back interval requirements.*

## Step 2. Apply two residuals at planting, both herbicides should be effective on Palmer amaranth!

<p>1) Brake + Reflex or Brake + Warrant PRE                  2) Diuron + Warrant PRE                  3) Reflex + Direx or Reflex + Warrant PRE                  4) Treflan/Prowl incorporated followed by Reflex + Warrant or Direx PRE</p>	<p>1) Brake at 1 pt/A is an effective rate in mixtures but will require <math>\geq 0.5''</math> rain/irrigation to become fully active. 2) Warrant at 32-40 oz/A, for most soils, is in order. Effective on most grasses, pigweeds, and is <u>essential for spiderwort</u>. 3) Direx at 10-16 oz/A is needed for most soils; lower rates on sands or under intense irrigation. 4) Reflex at 10-12 oz/A is ideal for most soils when used in these mixtures; best option for Palmer.                  NOTE: Add paraquat if pigweed emerged; jar test advised if mixing with Brake.</p>
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## Step 3. Sequential applications are needed for most fields, regardless of cotton technology being grown!

POST 1 ~15-17 d after PRE (assuming PRE is activated)	POST 2 ~ 15-17 d after POST 1 <sup>1</sup> (before 9-leaf cotton)
<b>LIBERTY OR LIBERTY + ROUNDUP SYSTEMS</b>	
Liberty + Roundup + Dual Mag., Outlook, or Warrant* or Liberty + Dual Mag, Outlook, Warrant, or Staple	Liberty + Dual Mag., Outlook, or Warrant* (Including Roundup will improve weed control; crop injury can be significant)

\*Mixtures of Liberty + Roundup + residual can cause 25+% injury in some conditions. Mixing Liberty with Roundup may reduce grass control, maximize Roundup rate.

<b>ENGENIA OR XTENDIMAX SYSTEMS – XTENDFLEX COTTON</b>	
Engenia 12.8 oz/A or XtendiMax 22 oz/A + approved glyphosate** or Tavium 56 oz/A + glyphosate (cannot apply overtop after 6-leaf cotton)	Engenia 12.8 oz/A or XtendiMax 22 oz/A + approved glyphosate** or Liberty + Dual Mag, Outlook, or Warrant

\*\*Warrant (2 pt/A), Dual Mag. (1 pt/A), or Outlook (12.8 oz/A) mixed with glyphosate + Engenia or XtendiMax improves residual weed control; however, more injury often reaching 25+% occurs in some conditions. Visit [www.engeniatankmix.com](http://www.engeniatankmix.com), [www.xtendimaxapplicationrequirements.com](http://www.xtendimaxapplicationrequirements.com), and [www.TaviumTankMix.com](http://www.TaviumTankMix.com) for all application requirements.

<b>ENLIST ONE SYSTEMS – ENLIST COTTON</b>	
Enlist One 2 pt/A + Liberty or approved glyphosate***	Enlist One 2 pt/A + Liberty or approved glyphosate***

\*\*\*Warrant (2 pt/A) or Dual Mag. (1 pt/A) mixed with Enlist One + Liberty or glyphosate improves residual weed control; however, more injury often reaching 25+% occurs in some conditions. Visit web site for latest information on approved tank mixtures, adjuvants and drift reduction agents for Enlist One or Enlist Duo ([www.enlisttankmix.com](http://www.enlisttankmix.com)).

## Step 4. MAKE A DIRECTED LAYBY! Diuron + MSMA or Roundup + diuron are effective options to control many weeds; add Envoke for morningglory or nutsedge or add Warrant, Outlook, or Dual Magnum for tropical spiderwort and annual grasses.