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Cotton Insights Newsletter

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Weed Management Considerations

One of the main foundations of an excellent cotton crop is weed management. Due to the COVID-19 pandemic and with the 2020 cotton market in the doldrums, producers will be forced to consider reductions in input costs. Many difficult decisions will have to be made, but our industry must be poised for any substantial market recovery. Herbicide programs are fundamental. Weeds can compete with the crop and reduce both yield and quality. They can also hinder harvesting operations and have negative impacts on lint grades.

A new cotton herbicide publication written by Delaney Foster, Peter Dotray and Wayne Keeling at the Texas A&M AgriLife Research and Extension Center at Lubbock has been released. This publication focuses on preplant incorporated (in conventional tillage) and burndown (conservation tillage); preemergence options; postemergence options (in XtendFlex, GlyTol/Liberty Link, Enlist, Roundup Ready, and conventional cotton); post-topical residual herbicides; and layby/post-directed residual products. For a copy of this excellent publication, click on the link below: https://lubbock.tamu.edu/files/2020/02/Cotton-Circular.pdf

Growers should consider many factors with respect to weed control. With the unfortunate widespread occurrence of glyphosate resistant Palmer amaranth (Palmer pigweed) noted several years ago, a resulting seismic shift had to occur in producer weed management practices. By and large growers have done a much better job with weed control due to adopting more costly herbicide management programs. We need to keep up the good work and remember that the best Palmer amaranth management program is one that never allows this highly competitive and crop destructive weed to emerge. A couple of years ago, I put some thought into assembling some instructive comments pertaining to ecologically sustainable practices. These are important considerations that I believe are worth revisiting. These are just my thoughts and they are listed below.

- All Palmer pigweeds should be managed as if glyphosate resistant.
- ***Reading the respective herbicide label is important and it is the Federal law for that product's usage.***
- The best Palmer pigweed management program includes the use of overlapping residual herbicides which never lets them emerge.
- In order to accomplish bullet point #3, effective residual herbicides must be deployed and activated in a timely manner. This would include starting clean at planting either by tillage or a preplant burndown, perhaps using a high rate of paraquat if desired. Tank mixed in the paraquat could be a yellow herbicide such as Prowl H2O, or other labeled residual products.
- **Options immediately after planting (preemergence) could include products such as Caparol, Cotoran, Dual, Warrant, diuron, etc. Read and follow important specific label requirements for rates on various soil types.**
- **Overlapping of residual herbicides from preplant through layby is a critical foundation.** Later early post-emergence applications of Dual Magnum, Warrant, Outlook, Prowl H2O, Staple LX etc. can be made to extend residual weed control later in the season, and these can be tank mixed with glyphosate-based products to increase the weed control spectrum. Do not rely on glyphosate singularly to control Palmer amaranth as many of these weeds may be resistant to that herbicide. Each of these products have specific label requirements/restrictions with respect to crop size. Of the above listed products, only Staple LX can control small emerged weeds, but it has problematic rotational restrictions that must be recognized (e.g. corn, sorghum, peanuts, soybeans). **Dual Magnum, Warrant, Prowl H2O, and Outlook do not control emerged weeds. We are depending on these herbicides to provide future residual control after they are activated by rainfall or sprinkler irrigation.**
- **Liberty herbicide can be used post-mergence over-the-top in LibertyLink trait containing varieties.** Liberty rates of up to 43 oz/acre (maximum single application rate) can be used. In our area, sometimes we are not as successful as we prefer with this tactic due to moisture stress. The caveat is that Liberty is a contact herbicide and must be properly applied with high carrier volumes, and all growing points on the weed have to be killed, so coverage is critical. Several residual products that can be applied over-the-top can be tank mixed with Liberty, which is important, as Liberty herbicide provides no residual activity.
- Depending upon the technology planted (whether XtendFlex – dicamba tolerant or Enlist – 2,4-D choline tolerant), producers currently have powerful options for over-the-top post-emergence control of many weeds, including Palmer amaranth. The attitude should be that these herbicide technology systems will be used to control Palmer amaranth plants that have managed to escape the residual herbicides. **Do not plan on using dicamba or 2,4-D choline solely for broadleaf weed control. Residual herbicides must be included in the overall comprehensive weed management program. Sole reliance on dicamba or 2,4-D applications is a short path to weed resistance and that is how we got to where we are today with glyphosate resistant weeds. For more information see the next page of this newsletter.**

- **For XtendFlex cotton varieties, a properly labeled dicamba product is required to be used. These are the only dicamba products that can be legally applied to XtendFlex cotton. These include XtendiMax, Engenia, FeXapan, and Tavium.** XtendFlex varieties are genetically engineered to be tolerant to glyphosate, glufosinate (Liberty) and the labeled dicamba products. The labels for these products are unlike any others we have seen in the past. It is imperative that producers read, understand and follow these labels. XtendFlex varieties are not tolerant to 2,4-D and will be killed or badly damaged by misapplication or drift of these phenoxy type herbicides. **For a complete list of record keeping requirements, tank-mix partners, additives, approved spray nozzles, etc. that are currently allowed, visit the respective websites below for the latest information.**

    a. XtendiMax Herbicide with VaporGrip Technology: http://www.xtendimaxapplicationrequirements.com/Pages/default.aspx

    b. Engenia Herbicide Stewardship Portal: https://www.engeniastewardship.com/#/

    c. FeXapan Herbicide Plus VaporGrip Technology: https://www.corteva.us/products-and-solutions/crop-protection/fexapan.html

    c. Tavium Plus VaporGrip Technology: A fourth dicamba containing product from Syngenta was recently labeled for use in XtendFlex cotton. This product is a premix of the diglycolamine salt of dicamba (with VaporGrip technology) and S-metolachlor (the same active ingredient in Dual Magnum). A link to the label is provided below: http://www.syngenta-us.com/current-label/tavium. For the current list of labeled tank-mix partners go to the website below: http://www.syngenta-us.com/herbicides/tavium-tank-mixes

- **For the Enlist traited varieties, a premix of 2,4-D choline and glyphosate sold as Enlist Duo is available. Enlist One is a 2,4-D choline only herbicide formulation that was labeled for use in 2018. *These are the only 2,4-D products that can be legally applied to Enlist cotton varieties.***
- Enlist varieties are tolerant to glyphosate, glufosinate (Liberty) and the labeled 2,4-D choline products above. The Enlist Duo and Enlist One labels are also very different from any labels we have previously seen. They are also complicated and producers should read, understand and follow the label. These varieties can be killed or badly damaged by misapplication or drift of dicamba containing products. **For a complete list of tank-mix partners, additives, and approved spray nozzles that are currently allowed go to:**
    - a. Enlist One: https://www.enlist.com/en/approved-tank-mixes/enlist-one.html
    - b. Enlist Duo: https://www.enlist.com/en/approved-tank-mixes/enlist-duo.html

Layby and Post-Directed Products

- Layby and post-directed products such as diuron, Caparol, Valor and Zidua can be applied. It is imperative that producers read these product labels and understand that these have specific application requirements.
- **For other residual herbicide products not discussed in this newsletter, it is imperative that the rotational crop restrictions must be fully considered and understood.**