

HatchTrakSM



Don't Forget Your Pre Herbicide! "Maximize Soybean Yield Potential and Fight Herbicide Resistance"

The goal of every farmer is to control as many variables that determine yield. One of the key aspects of yield and profit maximization is to eliminate the affects of early season weed competition on soybean yields. The Authority[®] Brand herbicide family of soybean herbicides provides excellent choices for foundation weed control.

Which one would you rather have 30 days after planting?

Authority[®] Assist herbicide @ 9 oz./A



Untreated Check



On the next page you'll see a article taken from the 3/29/2016, IPCM newsletter from the University of Missouri. It does an excellent job talking about weed management programs in soybeans. With all the complexities of products, weed resistance, etc. Dr. Bradley makes 5 good points on weed management. On page 4 are some additional remarks from Dr. Mike Owen.

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Text on this page and the next is taken from: University of Missouri , [Integrated Pest & Crop Management Newsletter](#): “ Don’t Get Lost in the Weeds: 5 Thoughts on Soybean Management in 2016.”

#1: Even when commodity prices are low, we cannot afford to skimp on weed management. There are few things more discouraging than listening to all the predictions about commodity prices and farm income right now. And when times are tight financially, one of the first things many farmers will try to figure out is how they can reduce input costs. I certainly don't have all the answers to this one, but I would submit that we cannot afford to cut costs when it comes to weed management. I have talked to many farmers who are tempted to cut costs by cutting the rate of their pre-emergence residual herbicide, or by choosing a cheaper, less-effective herbicide than they had originally planned on using. The problem is, many studies have shown that this just doesn't work out in the long-term. For example, a recent economic modeling study sanctioned by the Weed Science Society of America showed that following good weed resistance best management practices like mixing effective herbicide sites of action can involve higher weed-control costs initially, but provides better weed control, higher yields and more revenue over the long-term. In fact, depending on the cropping system, farmer profits were increased by 14 to 17 percent in this study over a 20-year period.

#2: Prevented plant acres and fields with weed failures last year will almost certainly be areas with high weed pressure this year. We set all kinds of records last year for the number of acres of corn and soybean that were never planted. Many of these prevented plant acres grew up into weedy messes. In some of those fields the weeds - mostly waterhemp or horseweed - produced viable seeds that were deposited back into the soil. Waterhemp produces about 300,000 to 500,000 seeds per plant and I would guess that the average density in those fields was about 2 to 3 plants per square foot so you can do the math. The bottom line is, the number of weed seed sitting in the soil waiting to germinate this spring may be unlike anything we've ever experienced before.

#3: Continue to be on the lookout for Palmer amaranth. Waterhemp (*Amaranthus rudis*) is still the most common and troublesome weed in corn and soybean production throughout most of Missouri, and I'm not sure if that will ever change. But Palmer amaranth (*Amaranthus palmeri*) is the #1 "weed to watch" in most of Missouri and throughout most of the U.S. right now. I say most of Missouri because the bootheel has had Palmer amaranth for decades, but it has not been present in the rest of the state until recently. Palmer amaranth is a much more aggressive and competitive pigweed than waterhemp, and over the past four to five years, we have watched this weed move northward into areas of the state where it did not previously occur. Palmer amaranth seed can be transported in used equipment; in feed, seed, or hay coming out of the southern U.S.; and as we have shown in a recent study, waterfowl can also transport Palmer amaranth seed. One of the primary ways to differentiate Palmer amaranth from waterhemp is by the presence of the leaf petioles that are usually as long as or longer than the leaf blades themselves. Palmer amaranth leaves are also more diamond-shaped in outline, and often have a poinsettia-like leaf arrangement when viewed from above.

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#4: Herbicide resistance in waterhemp is here to stay. I wish it weren't the case, but so far I haven't seen any evidence to the contrary. The fact is, so far in our history with waterhemp we've never seen resistance disappear from a given population or geography. On the contrary, we've only seen herbicide resistance permeate throughout more waterhemp populations over a wider geography. A case in point is with the group 2 ALS herbicide resistance that started to appear in the late '80's/early '90's in waterhemp. This was a result of the continuous application of herbicides like Scepter and Pursuit at that time. Fast-forward a couple of decades to today and now we can't find any waterhemp populations in Missouri that don't have resistance to these group 2 ALS herbicides, and none of them provide any appreciable control of waterhemp. Another obvious example is with glyphosate; we discovered the first glyphosate-resistant waterhemp population in Missouri in 2004. At that time there were no other "official" glyphosate-resistant waterhemp populations identified anywhere in the U.S. By 2009, we conducted a survey of soybean fields at harvest and found that 69% of the waterhemp populations were resistant to glyphosate. By then, 7 other states had also found glyphosate resistance in waterhemp. Five years after that we conducted another survey and found a similar or higher percentage of glyphosate-resistant waterhemp populations, but by this time most of the waterhemp populations exhibited resistance to 2 or 3 other classes of herbicides, some even with 4- and 5-way resistance. And at this same time in 2014, 13 states other than Missouri now had glyphosate-resistant waterhemp, most of which were also starting to see outbreaks of multiple resistance. My fear is that we don't appreciate the significance of resistance in waterhemp, how quickly it can spread throughout a wide geography, and how quickly we can lose an entire herbicide site of action that once provided effective control of this weed. Consider the timelines I have described above when you decide on your waterhemp management program for 2016. We have very few effective herbicide sites of action left for waterhemp, so we have to preserve those herbicides sites of action that still work by using them appropriately.

#5: We must preserve the new herbicide-resistant trait technologies, and use them wisely. Most are aware by now that there will be Roundup Ready 2 Xtend soybean varieties commercially available during the 2016 season. The Xtend trait confers resistance to dicamba and glyphosate but at the time of this writing there is still no label for over-the-top applications of any dicamba product to these varieties. Also at the time of this writing, Enlist soybean varieties have not been approved for sale yet during the 2016 season. Whenever these traits and accompanying herbicides get approval, it is very important that we preserve these technologies. What I mean by that is that we cannot afford to misuse the Xtend or Enlist traits right out of the gate and/or view them as the answer to all our weed resistance problems. If they are being promoted as the "solution" to weed resistance, those who are doing so are wrong. Both traits offer another tool in the toolbox to help with resistant weeds like waterhemp. But if you don't use pre-emergence residual herbicides, mix effective herbicide sites of action at every application, and make timely applications to small weeds, you will not be happy with the results. Also, let's not forget that there are 2,4-D and dicamba-resistant weeds already. In fact, we have recently confirmed the presence of a 2,4-D resistant waterhemp population in a corn/soybean field in Missouri, as have weed scientists in Illinois. And although there are no known dicamba-resistant pigweeds in the U.S. yet, weed scientists in Arkansas selected for a dicamba-resistant Palmer amaranth in a greenhouse setting using less than labeled rates of dicamba over 3 generations. Although this was done in a controlled environment, this study proved that "abusing" the technology will result in weeds that are resistant to dicamba as well. *If* we do get a label for the use of any dicamba product in Xtend soybean in 2016, we must use these herbicides appropriately. This means using full-labeled rates on weeds that are less than 4 inches tall at the time of application, and preferably mixing more than one effective herbicide site of action at each application. It also means being aware of the risks of off-target movement of dicamba.

Here is a quick reminder and article from the Iowa State University Extension office. Without a doubt **Authority**® Brand herbicides are the best first step to increase yields by reducing weed competition. Authority Brand herbicides are also the best first step in a weed resistance management system. But it is also important to remember that flexibility is received while using these products. With so much work needing to be done at plant, EPP applications are a great way to save what is often the most precious resource...TIME! The flexibility and benefit of longer residual is provided by **Authority** Brand herbicide products. Remember, don't put off to tomorrow what can be done today. With so much to do this Spring don't forget to apply Authority Brand herbicide products early before planting and get ahead of the rush.

Stewardship, Yields, Money and Resistance

By Mike Owen, Department of Agronomy and Tamsyn Jones, Corn and Soybean Initiative

A consistent theme the last few years has been the need to provide stewardship for glyphosate- and glufosinate-resistant crops in order to preserve the value these traits bring to agriculture. Consider that there are a number of ways to provide stewardship, and one way that does not. Unfortunately, the one way that does not provide stewardship – recurrent use of the herbicide to which the crop is resistant – continues to prevail. I anticipate that we will have a breakout year for glyphosate-resistant weeds, particularly waterhemp. Thus, the many ways to provide stewardship must be considered – or crops and growers alike will suffer the consequences.

Soil-applied residuals for weed stewardship

One option is the use of a soil-applied residual herbicide(s) that is/are cleverly selected to control the most problematic weeds (i.e. waterhemp). However, appropriate application timing is an important part of effective stewardship.

The worst way to use a residual herbicide is to apply it post-emergence to the crop and weeds alone or in combination with a post product such as glyphosate. While this type of application is convenient and simple, it results in loss of most of the stewardship benefits (e.g. yield protection and better time management) accrued by residual herbicides. Applying soil-applied residual herbicides post-emergence allows weeds to compete with crop yield potential and does not provide any time management benefits relative to the other suggested herbicide application timings.

The best and least risky application timing is early pre-plant (EPP) – which means now is the time to make applications. An EPP application results in the herbicide being in place to control weeds as they begin to germinate and precludes the loss of yield potential attributable to early-season weed interference. Importantly, the EPP timing does not interfere with planting, thus providing the greatest time management benefit.

The next best timing is pre-emergence (PRE) application timing. The PRE application timing also potentially provides similar weed control benefits as the EPP – but there is greater risk of insufficient rainfall to provide the appropriate environment for effective weed control. Also lost is the time management benefit provided by the EPP application timing.

Considerable data generated from a five-year field-scale on-farm project (Benchmark Study) conducted in Iowa clearly and consistently demonstrates the benefits of soil-applied residual herbicides when the application timing is correct. The benefits include: greater yields compared to post treatments, regardless of whether the latter included a residual herbicide more profitability; and other stewardship benefits resulting from this tactic, such as mitigation of herbicide-resistant weed populations.

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