Resistance Control

Trials Show Ways To Overcome Glyphosate Resistant Pigweed

Part 3 of 6

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Pigweed has made a strong comeback in Arkansas having broke through the glyphosate barrier with a vengeance last year. However, officials planning their own attack stress the time-honored rule – start clean. The effect of that strategy was visible at a University of Arkansas Field Day recently.

"Put down a residual herbicide at planting," Dr. Ken Smith, University of Arkansas Extension Weed Scientist, advised. "Do not try to do total post, because when we try to do total post it gets away from us."

Smith has been working with the problem on the Sid Fogg farm in Central Arkansas since last year.

"Sid called and said 'hey we've got a real problem down here on this place; I need some help. I need somebody to come down here and look at this.' Sure enough we came down and by the time we got here, pigweed infestation was really really severe. It was probably the worst case of glyphosate resistant pigweed that I had ever seen," Smith said.

The glyphosate resistance was showing up in all the crops, all of which are dryland. Somehow, Fogg struggled through last year, spending a lot more money than he should have and ending up unable to control the pigweed which grew faster than any treatment could catch up. Soybean harvest amounted to 10-12 bushels per acre with multiple weeds per square foot.

With such devastating results last year, efforts to overcome the pigweed infestation began early for this year's crop.

"Over the winter, we continued to visit with Mr. Fogg about what his plans were," Smith said. "Fogg said he was going back with soybeans because without irrigation, soybeans is the crop of choice on this land. So he started out clean with a preemergent herbicide. Some of this has Valor applied in March, some of it was untreated, but in all events where we did not put Valor down in March we came back and prior to planting ran a field cultivator just to make sure we were clean. He planted these April 15, and we normally think by April 15 we're still clean, we don't have pigweed. But I came out here a few days prior to planting and we had little pigweeds everywhere that we did not have Valor down. So I said 'Sid, we better do something, let's run the field cultivator and clean this up and start clean. And we did."

Then at planting Fogg came back with a preemergent herbicide, with different preemergent herbicides in some areas where Valor was not applied. In areas where Valor was applied in March he used the preemergent Authority MTZ. Valor is produced by Valent, and Authority MTZ is by FMC.

"We have some that has Prefix down which is a Syngenta product, so I guess the story here is that there are several of these to be seen on the tour," Smith said.

"It's too late to wait to do a post application, and I have farmers who told me earlier this morning they have the cleanest crop in places where they followed the planter with the spray rig," he continued. "That is the message that we must have in order to control pigweed. There are a lot of different preemergent herbicides, and it really doesn't make a whole lot of difference which one you use as long as you use one of them."

Different plots on the tour were treated with different preemergent herbicides, and all the plots were clean.

"Nothing is 100 percent, we've got a scattered weed here and there and at some point we will have to start addressing that as well; but from multiple weeds per square foot last year to one per acre or one per 10 acres this year, that's such a remarkable turnaround that we feel like this is a real success for Mr. Fogg," Smith added.

In the test plots, the Prefix treatment was used at a one-quart rate, the Valor was used at a two ounce per acre rate, and the Authority MTZ rate was applied according to the soil. On a light soil 10 ounces was used, on silt loam the rate was bumped up to 12 ounces.

With those treatments rounding out the preemergent program, the LibertyLink beans were treated with Ignite or Ignite plus Dual.

"We've got some that we sprayed two shots of Ignite at 22 ounces per application, when the weeds germinated," Smith explained. "When we see a weed, we spray it. We don't let it get ahead of us. Both plots look good.

"Now we'll see an area where we sprayed and the day after we sprayed we got some rain. Then in another plot within an hour or so after spraying we got rain. Obviously by the time we got back into the field the weeds had grown so much that they got away from us. That's the point of this not going total post. Don't push the envelope on these pigweeds. You can't push the envelope on them," he said.

The pigweed had grown uncontrollably after that rain. Pigweed grows so fast and timing is so critical that treatment just can't wait.

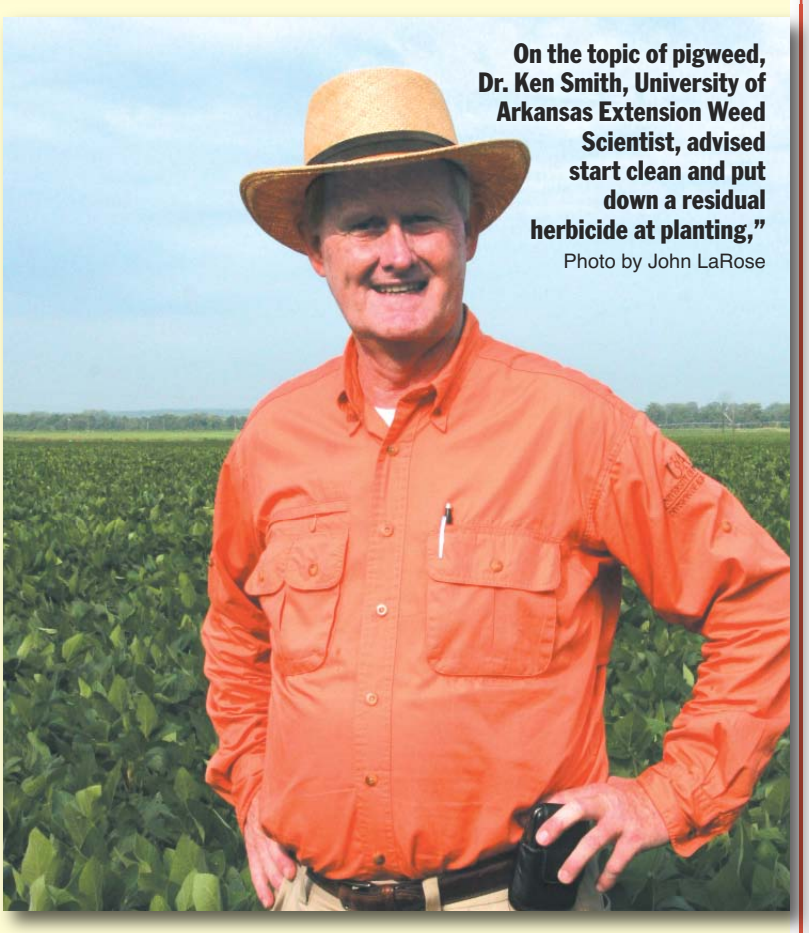
Smith said spray will not kill a 10-inch pigweed. But it's important to be consistent.

"We like to spray them down in that two or three inch level, anything more than two to three inches they're getting away from us," he said. "In our LibertyLink soybeans we came back with Ignite or Ignite plus Dual, and in our Roundup Ready soybeans we came back with either Prefix over the top, if we didn't have Prefix down earlier; or we came back with Flexstar GT or just Flexstar and Dual. We put one more residual after planting in almost all of these and that's the critical part of pigweed: Don't let them germinate because they are such large numbers. The numbers will just overrun you."

He said 100 percent kill is needed, and 90 percent is not good enough.

"We've got to be 99 plus percent and so we just keep on keeping that residual down," Smith said. "I did a little quick analysis of the soil. I just pulled some soil samples, carried it in, looked to see how many seeds were germinated, and there were 350,000 pigweed per acre germinating this spring. So that's the type of population that we're trying to control because they are so prolific in producing seeds. What you see out here, if there's one per acre, we've controlled 349,999."

The control methods used here can be used through the state of Arkansas. Also, there are several options the farmer has as to which herbicide to use up front, whether it's LibertyLink technology or Roundup Ready technology.



On the topic of pigweed, Dr. Ken Smith, University of Arkansas Extension Weed Scientist, advised start clean and put down a residual herbicide at planting,"
Photo by John LaRose

"I think there is something here that people statewide can look at and say I can take this home and put this into my farm," he said.

While the treatments worked well in soybeans, glyphosate resistant pigweed is less of a problem in corn. That's because Atrazine still works well for Arkansas farmers.

"Now in the Midwest obviously Atrazine is not as good a product for those guys as it is for us," he said. "But Atrazine still works and we've got a lot of the new herbicides that are coming in, the bleacher herbicides, the HPPDs. There's a lot of new chemistry coming into corn, so pigweed control in corn is fairly easy.

"Now the thing in corn we need to be conscious of is after harvest in August we cannot let the pigweed come in and produce enough seed to give us a seed crop for next year," Smith added. "That's the main emphasis in corn. In cotton we have probably more severe problems than we do in soybeans because we don't have as many options. And so again, we've got to start out with a residual herbicide up front, Reflex from Syngenta has just been a wonderful product for us, people have just told us 'hey this thing is working for us.'"

Reflex is applied 14 days preplant. If the weather cooperates and farmers can get into the fields on schedule, they do not need a preemergence herbicide at planting. If Reflex is not applied preplant or if the weather keeps farmers out of the field for more than 21 days after applying Reflex, a residual like Cotoran is applied immediately behind the planter. In either situation, Dual is applied over the top at 2 leaf cotton stage of growth.

"Metolachlor is another product, and a lot of people make Metolachlor, of course Syngenta makes Dual Magnum and there are several general generic metolachlors on the market as well," he continued. "But we come back over the top with Dual or Metolachlor and then come underneath with a post. We thought we'd never have to go back and get our post-directed rigs out but as I talked to cotton farmers here today everybody's saying 'I'm running my hoods, I'm running back under the cotton.' And that's the story in cotton. You have to keep that soil residual there because once that pigweed germinates in cotton, we have no way of managing it."

Smith said a hoe crew will probably chop 70 percent of the cotton this year.

"We're not chopping every foot, we're chopping one here, 50 foot, 200 foot down the row," he explained. "So I'm trying to get a little bit of an estimate as to how much labor it costs to chop and I'm getting somewhere between $3 and $15 per acre. And that's not where we want to go. I'd like to say we'll never see another hoe in cotton fields."

In the last few years it's becoming more and more common to hoe the cotton. It's not like years ago when there were 15-20 people in the field. Today it's more like three to five people hoeing.

"They just continually walk from one field to another. They're not spending much time per acre actually doing this. We can't chop a full stand of pigweeds. We have to have a very scattered population of pigweed to chop them, but you know at $3-$10, or $3-$15 per acre, that sounds like we don't want to go there. But that's actually cheaper than a herbicide application. So that's not a bad deal if you have the labor and the hoe crew," Smith summed. Δ

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Editor's Note: Be sure to check next week's issue for Parts 5 & 6.