Season 2 Episode 11 – Cotton Harvest

September 21, 2022

Speaker 1:

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Scott Graham:

Hey, everybody. Welcome into another episode of the Alabama Crops Report podcast. Scott Graham and Amanda Scherer here today. Today we've got our extension cotton agronomist, Dr. Steve Brown on us. Going to talk a little bit about cotton harvest, defoliation thoughts and things like that. And Steve, how's it going?

Dr. Steve Brown:

It's going very well, Scott.

Scott Graham:

All right. Well, today we are going to talk about defoliation, harvest age, those types of things. With that in mind, this is season, harvest season number?

Dr. Steve Brown:

Probably 47 for me.

Scott Graham:

47.

Dr. Steve Brown:

47.

Scott Graham:

And that dates back to your time as a graduate student or as a?

Dr. Steve Brown:

As a county extension agent here in North Alabama. Yes.

Scott Graham:

So in other words, Amanda, he's done it more times than we have.

Amanda Scherer:

Mm-hmm. I need to catch up. This is only coming on number three for me because I came from vegetables before. So.

Dr. Steve Brown:

I think that was probably before you were born. So.

Scott Graham:

Yeah, just a little bit, just a little bit.

Amanda Scherer:

We weren't trying to highlight that aspect of it there, Steve.

Dr. Steve Brown:

Oh, any gray hair coming, Scott?

Scott Graham:

Oh, well with the new seven month old baby at home, it's getting there. We're getting there.

Dr. Steve Brown:

We'll use discretion and won't ask Amanda. So.

Scott Graham:

Yeah, that's right. That's right. Well, Steve, what do you think, from your travels, what's the crop look like out there? And today, I was just, say is we're recording, today is Monday, November the 12th.

Dr. Steve Brown:

A month ago I was-

Amanda Scherer:

September the 12th.

Scott Graham:

And that's why we're recording.

Amanda Scherer:

I was like, "November?"

Scott Graham:

It is Monday, September the 12th.

Dr. Steve Brown:

A month ago I think I was very optimistic. Though, I knew there were places in the state that had suffered significant drought, but over the past month we've had extended rainfall. We've had cloudy conditions day after day, a little bit of sunshine sprinkled in, but not much. And so maybe the crop is reduced somewhat. It's difficult to determine at this point. USDA has actually downgraded us a little bit from their August forecast, which I thought was way low, but maybe they're right. I hope not. But maybe they are.

Scott Graham:

Amanda, are you seeing or hearing any in some late planted cotton? Any issues with diseases with the weather that Steve just mentioned?

Amanda Scherer:

We've seen a lot of Stemphylium leaf spot, which is a secondary pathogen that's related to anything that really stresses the plant, but primarily potassium deficiencies. So when you have either drought conditions, which we had a lot in the Tennessee Valley area and even parts of central Alabama at certain times of the year, or excessively wet conditions like we've seen in Southwest part of the state, you can get a lot of that Stemphylium, anything that stresses that plant really comes in. And it's really started to defoliate a lot of cotton prematurely. And in the central part of the state and in some of our plots and some grower fields, kind of near Tallassee and

the plant breeding unit, we've seen it start to form a complex with areolate mildew to where probably it's even causing 75% defoliation. And so some of those fields, I'm already seeing a lot of open bolls and that makes me worried about the rain coming in with getting hardlock and boll rot. So it's looking pretty rough in some areas, but then some fields look great. So it's kind of across the board in what we're seeing disease wise, but definitely a lot of Stemphylium this year.

Scott Graham:

And would y'all say maybe on this late planted cotton, June, mid-June planted cotton, is it just let it ride? Or I know the first spot you said, leaf spots you said, remind me of the name?

Amanda Scherer:

Stemphylium.

Scott Graham:

Stemphylium, nothing we can do for that. Now the aerolate mildew, are we beyond the yield impacts of that, or?

Amanda Scherer:

So if you're more than four weeks from defoliating anyway, and you have good yield potential, a single application of something like Priaxor at four to eight fluid ounces, or Arevatec at eight to 12 or Miravis Top at 12 fluid ounces, excuse me. Miravis Top at 13.6 fluid ounces can help with aerolate mildew and target spot as well. But if you're within four weeks of defoliating anyway, which is mainly what Steve's going to talk about, then it's really not, doesn't make much sense in terms of cost to yield ratio. So you're kind of toting a fine line where a lot of our cotton is within that four week window, but there might be some of those later planted fields where you could still make an application. It might be beneficial.

Scott Graham:

Well, Steve, what do you think about the art of defoliation for this year?

Dr. Steve Brown:

It is a challenge. It's always a challenge. We've got some fields that suffered significant dry weather and now they've gotten a few showers over the past month and they're greening back up. So defoliation, actually, I would say harvest aid applications, because we have different products and we try to do different things when we're putting out those products to ready the crop for harvest. So it's always a challenge. You adjust rates, you tweak them, you learn what's happening in your neighbors field. You see what happened to you a week or 10 days ago and you make some adjustments. So it is somewhat of an art, though, there is a lot of science involved as well.

Scott Graham:

Scientific art.

Dr. Steve Brown:

That's right.

Scott Graham:

So we've got defoliation products. We've got boll opening products. Are there any other types of harvest aids that we're using?

Dr. Steve Brown:

Well, even within when we talk about defoliants, we have products that work well on mature foliage and then we have those that work well on both juvenile and mature foliage. And then we also do something else, we have products that inhibit regrowth. And regrowth can occur from the base of the stalk or the base of the stem, we'd call that basal regrowth. We can also see that juvenile growth in the terminal. So we've got at least those three functions, as you said, immature leaf removal, mature leaf removal. We have boll opening. We might could even do a little bit of weed control, but we want to inhibit regrowth as well. So all those are rolled into what we're trying to accomplish when we're readying the crop for harvest through application of these different products.

Amanda Scherer:

And I actually seen a lot of that regrowth, especially in those cotton that was significantly defoliated by diseases this year. Where you see a lot of those small green leaves, just kind of at the base of the plant starting to kind of show back up.

Dr. Steve Brown:

Yeah, that's right. I was in a field last Friday and I thought it was about 60% open and in fact it was 90 or 95% open. About maybe a foot below the canopy there was a lot of green growth, a lot of juvenile terminal regrowth with some young fruit there even, but right below it was a open boll. So it was interesting that it was that far along. So that's, dealing with regrowth is somewhat of a challenge. And I would say that it almost seems as of today, September 12th, it almost seems like we're turning the page and getting a little bit past the sustained rain and overcast conditions that we've had over the past weeks. And so that's going to be a good thing. We need every bit of sunshine, some would even argue we'd want sunshine from now to Thanksgiving. So that every bit of sunshine is going to help us in this process of harvesting as much cotton as we can.

Scott Graham:

And I'll just say, I could get behind the idea of beautiful days between now and Thanksgiving.

Dr. Steve Brown:

Yes. Me too. Yes.

Amanda Scherer:

Especially with the cooler temperatures, makes it very enjoyable and not only for us, but also for the cotton plants. You get better air circulation with that sun and it kind of keeps those late season diseases from coming in. Less chances of hardlock and boll rot. So, fingers crossed.

Dr. Steve Brown:

We would like to see a reduction in humidity as well, because that again, reduces the humidity we see in the canopy, which contribute as you said to boll rot and to hardlock as well, which prevent again, the normal fluffing of cotton and the grabbing of it from spindles in our harvesters.

Scott Graham:

You mentioned a term there, 60% open. And so do we use that as a threshold of when do I say, "Hey, I need to go put something out."

Dr. Steve Brown:

There's a lot of ways to time it. There are considerations of logistics, but let's talk first about the crop. The long term traditional observation was that you'd wait till the crop was 60% open and not many people go out and count, but it was assumed that if you reach that point, and that assumes a rather uniform fruiting pattern over the course of the season. That if it's at least 60% open, you could make an application and not impact yield or quality. There's some more sophisticated measures and probably more accurate measures. One would be, if we have a first position cracked open boll, we can count at least four nodes above that, if there's a first position boll there, we know that boll is sufficiently mature to proceed with harvest aid application. It may even be node five or six past that, that it is again, it's mature enough to proceed.

Another method is using a pocket knife, a sharp pocket knife, and trying to cut through those bolls. And really, I kind of like that method to say, all right, this is the last boll I expect to harvest and as I try to slice through it, when it becomes extremely difficult to slice through, or is if as you slice through it, or even you can use a pair of cutters, some sort of shears or pruning shears, you might physically cut through. And if you see the discoloration or the darkening of the seed coat and in cross section you know, hey the cotton is reaching maturity and you can proceed with an application. So a lot of ways to time it. On the logistical side, you have to think about is my cotton picker ready? Can I get there? What else do I have to do ahead of that? So you have to figure that in. You want to be 10 to 14, no more than 20 days out from being ready to pick that particular field.

Scott Graham:

So Steve, when you think about what are we applying and maybe, I don't know if you want to dabble into rates or not. I know with insecticides we have a lot of different generic names. Sometimes they have different formulations. So it's hard to give a label recommended rate, but what are some things, and maybe you just use a well known brand name that folks can move out, or.

Dr. Steve Brown:

There are many ways to get to the same point. And there are a lot of different products that are available, but we do have to think about the different functions of leaf removal, growth inhibition, and boll opening. And normally in probably 90 plus percent, maybe even greater percentage than that, we use a mixture of applications, a mixture of products to make our applications. A single product, even at the highest and the best rate is not nearly as consistent as putting two modes of action type products together. For example, a standard product might be one that people traditionally associate with cotton harvest is a phosphate product, Def or Folex. And when you smell that in the air, actually what you're smelling is not the active ingredient, but something else, but you smell it. That does a good job of removing mature leaves. Then we might add a boll opener with that.

And the initial product that carried the trade name was PREP. Most people recognize it still today as Ethephon is the chemical. And so we'd mix those, we might even add a third product that might be to inhibit regrowth, a product called Thidiazuron, or Dropp. And Dropp is both a good defoliant, but also a very good regrowth inhibitor. It is the regrowth inhibitor of choice. I should back up and talk about the boll opener, Ethephon. Not only does it help bolls to open, a little bit almost even force them open, but it also is a pretty good defoliate. So when you mix multiple products like that together, you get much more consistent results. And so that's what we're really trying to do. We want to remove as much foliage as possible. We want to inhibit regrowth. We want to open bolls to facilitate once over harvest.

Amanda Scherer:

For those that are they're different kind of application means, in terms of aerial versus ground application, what do you kind of recommend producers do? Or does it vary from field to field?

Dr. Steve Brown:

Well, aerial application is not just routinely available to every farmer. Most areas, they're going to have to rely on ground application. The bad thing about ground application is you got to run through the cotton. In some cases that cotton is lodged or turned, it's hard to get through. And so you tear up some cotton when you do that and that's just how it's going to be. But ground application does give us the opportunity to do a good job of making an application to every acre. Our gallonage needs to be up, most would recommend 15 gallons an acre of water as a carrier. If you get less than 10, you probably going to see diminished results. Pressure might be an important thing, as long as you don't get too much off target movement from drift, you want to blow it down in the canopy to get coverage. Particularly the Ethephon products by which we're trying to open bolls, it's not systemic so it has to actually contact the boll to be effective.

So good pressure, good volume, those are going to be important. Where we have aerial application and are willing to spend the money, we need to be three gallons, maybe some would even argue five gallons and there's not a lot of folks that want to do that. And that adds significant cost, of course. So aerial means can do a very good job for us. If the plane is set up right, it can force spray down in the canopy. If it's not set up right, you can get a rooster tail effect off the wings and you can miss some things there. But most of what we're going to see in Alabama is probably going to be associated with ground application.

Scott Graham:

And what about any use of adjuvants or things like that?

Dr. Steve Brown:

Spray adjuvants are important. Some products, actually, there's a whole group of products, we would call them PPO inhibitors. They're herbicides like AIM, ET, and there's a few others in that same class. Most of those products actually require crop oil concentrate when we make the applications. Now for our other application, we don't routinely use non-ionic surfactants, for example, until we get a little on the cooler side. If it's a little, it looks like we passed the 90 degree days, but sometimes when we make applications and it's real warm and we add an adjuvant, we can get some leaf stick and that's a negative. Because we get leaf stick, as that leaf deteriorates, it's going to create more trash in the lint sample. So we add adjuvants when it gets cooler, more routinely than in most of our pesticide applications.

Scott Graham:

What is cooler?

Dr. Steve Brown:

Cooler is probably going to be when we stay well below 80. And when we get down to 60, for sure, we're going to start using adjuvants routinely just to get a little more activity, a little better uptake.

Amanda Scherer:

So Steve, how long does it take these products to work and then, until they can actually harvest?

Dr. Steve Brown:

Most situations, if we put on a good defoliant program, a good harvest aid program, we're going to see leaf drop begin in, let's say, four or five days. In fact, some cases we may have the leaves completely off that soon, but often the boll openers take a little longer than that. They may take 10 days, 14 days. And over the past years we've seen rates go to higher and higher towards the maximum, just to expedite and push that, to speed that ahead. If the crop's ready in seven days, let's go get it. We need to take advantage of that if we have the picker ready and available, but most people are going to think 10 to 14 days. Certainly no more than 20 days, they're going to be making, trying to move in with the picker to gather the crop.

Amanda Scherer:

So Steve, you've covered a lot of great information today on this podcast. Are there any webpages or references that are available on the ACEs website that producers can utilize to help make some of these decisions?

Dr. Steve Brown:

We have a publication on the website that I think it's ANR-2688, but it's, if you type in our search engine, how to defoliate cotton, or cotton defoliation, it'll get you there, that will have some more specific discussions about rates and products and mixtures. Another publication that's done on an annual basis is a Mid-South Defoliation Guide that we participate in. If you type that in, I think you'd find the 2022 version of that and it would list a bunch of different products and we would talk about specific modes of each of the products. So those are some references that people would look at for particular specific mixtures to proceed at different times of the year based on temperature.

Scott Graham:

And that's ANR-2688?

Dr. Steve Brown:

That's right.

Scott Graham:

All right, Steve. Well, thanks. Recurring guest on the podcast here, occasional host as well. Anything else we need to mention? Why don't you tell folks about the newsletter?

Dr. Steve Brown:

Yes. Monthly we put out the Alabama Cotton Shorts and both the podcast hosts here routinely participate. And we hope to publish one on September 16th and we're already taking information from that. So it's a monthly thing and we have a lot of different current information. Then we might even take a historical perspective and throw a few things in. So we seek to inform as well as occasionally entertain.

Amanda Scherer:

So how can our listeners sign up to receive the newsletter?

Dr. Steve Brown:

They can probably type in Alabama pod, excuse me, not Alabama podcast, but Alabama Cotton Shorts and I think they would find it. And then you can go to the ACEs website and you can sign up for it. If you would contact any of us. My email is, cottonbrown@auburn.edu. So any way you can get there to sign up for it, you can get it regularly on a monthly basis. And you can also access what was done over the past year or two in terms of that newsletter, it's been going on now for three years or so.

Scott Graham:

Absolutely. All right. Well, Steve, appreciate your time today. Enjoyed it. Amanda, good to see you.

Amanda Scherer:

Yeah. It's great seeing both of you.

Scott Graham:

Yeah. All right. Well, we appreciate our listeners for tuning in. Be looking for another exciting episode of the Alabama Crops Report podcast, and as always, if any of us can ever do anything to help, please don't hesitate to reach out and let us know.

Speaker 1:

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