Feb. 2, 2021 Soybean Production meeting

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00:02:43,000 --> 00:02:48,000

Welcome to the 2021 soybean production meeting online.

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00:02:48,000 --> 00:02:55,000

My name's Jeremy Ross and under soybean extension, agronomist with the University of Arkansas System Division Agriculture.

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Thanks for joining us for the 2021 virtual version of our county production meetings.

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We've got a great program and we'll be ready to answer your production questions at the end.

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This meeting is being recorded and the recordings will be available at the same page from which he registered.

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Before we get started,

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I like to mention that today's program counts forward 2.5 seed for certified crop advisors and Arkansas agricultural consultants.

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The seeds for this session are a half a credit for nutrient management.

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One point five credits for integrated pest management and a half a credit for crop management.

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Please remember that for full credit. You need to stay for the full event at the completion of all of our online production meeting programs.

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We will submit C use for all attendees who submitted their license number, please.

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The. Send an e-mail to Jerry Clemens at J.

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C. L. E. M. O. N. S. at u.a.e. x. dot edu.

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. If you have any questions for those of you that are new to our production meetings, we hope this event is informative and helpful.

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I'd like to stay say welcome back to anyone who has joined us from our previous commodity production meetings.

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We do miss seeing each of you in person and hope we can return to face to face meetings next year.

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And I know we all are missing the barbecue and let the catfish lunches.

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But still, we hope. Do you find this online a bit useful?

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And as you make your twenty one soybean growing plans,

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we've got six presentations to share today going over updates from our extension specialist after each presentation.

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We'll take a question or two if there's any any questions.

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And but once it all presentations are over, we'll have a question and answer session that we hopefully won't get to all your questions.

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We expect the entire program to run about three hours. So I get to go first today talking about Soybean Day and variety technology comparisons.

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Hello, my name is Jeremy Ross.

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No soybean agronomist with the University of Arkansas System Division of Agriculture today for the soybean virtual production meeting.

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We'll be presenting the twenty twenty one Arkansas soybean update.

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There were several significant events that occurred during 20-20 early in the season.

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We had a slow and wet start trying to get to soybean crop planted.

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However, the planning progress was much better than what we experienced there in 2019.

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This chart shows the Arkansas planted and harvested soybean acreage from 2011 to 2020.

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Prior to 2019,

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we had well over three million acres of soybeans planted in Arkansas due to adverse weather conditions and flooding in several parts of the state.

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We saw a dramatic decrease in planted soybean acres in 2019. This was the lowest planted acres in the state since 1961.

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We were hoping to see a rebound in soybean acres in 2020 and be back to the three million acres.

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But day two, low commodity prices and again, some adverse weather.

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For the second year in a row, we were well under three million acres of soybeans in Arkansas.

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For most of the growing season, we experienced moderate weather conditions. We did have a hot and dry period during July and August.

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That might have caused some yield decline in certain areas of the state.

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The most significant weather event there in 2020 was Hurricane Laurel.

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Even though we did have some damage to row crops from Laura. Overall, the damage was minimal.

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The day after, Laura. We agronomists divided up the state to assess the damage.

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I traveled from central part of the state to northeast Arkansas. The farther north I went, the less damage that was observed.

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These two pictures represent the most severe damage to soybeans that I observed fills with the taller than waist high.

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Soybeans had the most lodging. Fields was short of soybeans planted, had hardly any lodging issues at all.

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I would consider 2020 a typical year for most insects and diseases.

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Some areas did see increase infestation as some pests, but nothing that we don't typically experience in any given year due to warmer winters.

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Last year we were concerned with red banded stinkbugs, but only a few areas had to be treated for this pest in 2020.

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Fellow diseases did come in late because of some of the wet conditions we had late in the season.

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The most were light enough not to cause yield and economical losses.

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We did have an increase in soybean process from this time last year and I think this will

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drive the soybean acreage back to levels which we saw prior to the twenty eighteen season.

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This graph represents a number of soybean varieties that were tested in the University of Arkansas system division.

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Agriculture is soybean variety performance trial.

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Over the last 10 years, as is shown in the graph, there have been fluctuations with the different herbicide technologies.

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We can see very large spikes with the introduction of new technologies like to roundup ready to yield varieties

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represented by the gray line and extend varieties represented by the Green Line with most of the lines on this graph.

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After the initial spike, there is a gradual decline in the number of varieties tested within each technology.

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As new technologies are introduced with introductions of herbicide resistant soybean varieties,

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the number of conventional varieties tested has declined and continues to decline.

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The yield data for 2020 was obtained from six locations across the eastern side of Arkansas.

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These locations include Causer, Mariana Newport Pantry, Raw in Stuttgart.

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Each goes location. This planet as early as weather allows.

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All locations were irrigated and the starter location had an additional non irrigated test as well.

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Besides the yield data, other data was that was collected included data, maturity, lodging shattering prior to harvest and mature plant heights.

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Additional data is collected for each soybean variety. It is entered into the variety test.

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This includes (?)information taken from seed companies which include relative maturity, flower pod pubescent (?) color and Growth Habit,

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Nematode and disease ratings measured (?) tolerance and corroborating data is

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generated by University of Arkansas System Division of Agriculture Faculty Members.

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These last three characteristics are projects that are funded by the Arkansas Soybean Promotion Board,

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and I'd like to take this time to thank them for their support.

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Contained to look at the varieties that were entered into the 2020 soybean performers trial.

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This graph shows a breakdown in the varieties by herbicide technology. The herbicide technologies tested in 2020.

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Soybean variety trials where a conventional roundup ready roundup ready to yield Liberty Link El LGT 27 and list and extend

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the largest percentage of varieties where the extent varieties at fifty eight point five or one hundred individuals.

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Soybean varieties. Some may ask about Extendflex for these tests and in 2020.

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We did not test any ExtendFlex varieties in 2020 trials because these varieties

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were still regulated at planning and were not deregulated until later in the seasons.

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The next largest group was the list varieties with 36 entries, or 21 percent of the total varieties tested.

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The rest of the technologies may have made up the remaining 20 percent of the total varieties tested in 2020.

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This side represents a breakdown majority groups tested each year, the largest group of varieties tested are the late maturity group Fores in 2020.

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DeLay group for years represented 67 percent of the varieties tested.

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Twelve percent were the late 30s and early 40s and 21 percent of the varieties were in the maturity group.

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Five Test. These percentages have been fairly consistent for the last few years.

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In our Braddy testing, that replaced the trend in maturity groups that soybean producers have been planning in recent years.

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To compare herbicide technologies to next three graphs had the soybean varieties provided by individual herbicide technologies.

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The first column is the herbicide technology. The next column is the number of varieties from each herbicide technology.

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The next column is a number. Test testing locations. The next column is the average yield across the irrigated locations for those technologies.

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The next two columns are the maximum and minimum yield yielding Verratti per herbicide.

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Technology and the last column is a difference in yield between the highest and lowest yielding variety within each technology.

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From the late 30s and early forties, the list for I.D. had the highest average yields.

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El LGT 27 and extend technology said similar average yields.

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There was a wide range in yield with the extended varieties with eight point eight bushels per acre.

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But this is not surprising with the large number of varieties for this particular technology.

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The other two technologies had a difference of two bushels per acre or less.

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In the late forties, there were soybean varieties from all six herbicide technologies deliberately.

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Technology had the highest average yield of seventy four point three bushels per acre,

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with the extended average yield of seventy two point six bushels per acre compared to the late thirties and early forties.

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There was a larger range in yield for each technology, but this could be due to the large number of varieties tested for each of the late for a test.

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The difference between the highest and lowest yielding variety within a technology ranged from one point two till eleven point six bushels per acre.

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The greatest difference was in the extent technology with the difference of eleven point six bushels per acre,

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which could be explained by the take out this technology having sixty seven individual soybean varieties.

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The group filed test only for the herbicide.

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Technologies were represented, the greatest difference between the highest and lowest average yield was 2.8 bushels per acre.

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However, the test did have the greatest range in yield for each of the herbicide technologies,

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with the illest roundup ready extend technologies having greater than 10 bushels per acre.

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Differences between the highest and lowest yielding variety within each technology.

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So in conclusion, with variety testing, so every race relations becoming more complicated and will continue to become more complicated in the future.

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Education is key. Learn as much as you can about the variety show you are looking to plant.

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Look at multiple sources of data from seed companies to university data.

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For the most part, when comparing the average yield across herbicide technologies,

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there is not much of a difference between the yields of the herbicide technologies.

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However, there is a large range in individual variety yields within technology,

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so don't assume that an individual variety will yield well just because it has a certain herbicide package.

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Now we're going to kind of switch the focus and talk about foliar fee products,

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so farmers must ask at least two fundamental questions about every product they are asked to purchase and apply to their crop.

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No one was the frequency or crop response. Number two, what is the average yield increase?

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They answered these two questions should be based on adequate amounts of unbiased,

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repeatable research with a large number of foliar fertilizer products on the market.

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And there is no way that each product can be thoroughly researched by university scientists.

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I do want to make the comment that there is not a university scientist that doesn't want

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to discover or recommend farming practices or products that enhance yield and profit.

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If there is a failure, applied fertilizer or Bobbi's stimulant that increases yield a 10 to 20 percent for a minimal cost.

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We want to do the research and promote these products. Both tissue testing and failure.

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Feed feeding have a place in row crop agriculture, but they must be adequately understood to ensure that they are properly implemented.

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Recommendations are being made to farmers based on crop tissue analysis.

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Most tissue nutrient concentrations used to define what is deficient or sufficient typically are approximate.

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So textbook values, these values are not always based on research.

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For many of the nutrients,

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critical concentrations are simply based on a survey of tissue collected for a large number of fields at a specific crop growth stage.

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This information from survey based critical concentrations is agriculture astronomically enters interesting,

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useful, especially for troubleshooting problem fields. However, for many nutrients,

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there is little or no published information showing a valid relationship between crop yield increases and tissue

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nutrient concentrations that provide a good reason for making widespread recommendations to a portfolio fertilizer.

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We have examined various products and have yet to find products that produce significant

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yield increases beyond what a solid fertilization and crop management program provides.

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Most critical nutrient concentrations are specific to a particular part, plant part and growth stage.

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Any deviation from that specific plant part? Our growth stage may cause a critical nutrient concentration to change.

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There are not enough is the single nutrient concentrations that can be used for the duration of a growing season to define nutrient deficiencies,

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especially dhan reproductive growth. For most will fertilize a well watered crops,

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biomass accumulation will be more rapid than nutrient uptake down much of the critical growth periods when

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yield potential is set and will cause plant tissue concentrations to decline continuously as a plant develops.

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In 2019, 13 states establish a research study evaluating foliar fertilizer products in 20

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different environments to see if these products would increase soybean yield.

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Most of the states in this project received funding from their stake, USS Bees.

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And we receive funding from the Arkansas Soybean Promotion Board for this project.

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The same products that were evaluated in 2020 as well. We evaluated six different foliar products from four companies.

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We approached several companies to participate, and these were the only ones they elected to provide product.

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Each company made the decision on which product to test.

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The trials were small plots, with treatments arranged in a randomized complete walk design, and each treatment was replicated six times.

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Each product was applied at the recommended rate provided by each company, and our products were applied to our three soybean growth stage.

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So soil samples were collected from each blood and tissue samples were taken twice, once prior to the application.

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And then again,

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two weeks after application recommended fertility was applied according to soil test results and university recommendations for each state.

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Foreswear harvested at maturity and yields were adjusted to 13 percent moisture.

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This table is the products tested, corresponding companies and the product grades.

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We had two products from agro liquid and one from Stohler, two from Branton and one from New Chian.

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This table listed nutrient supplied impounds per acre for each product tested individual nutrients and amounts varied between each product.

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The number of nutrients in each product ranged from two in maximum impact K to 10 and the Hybris more urea made.

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This is the map of the 20 locations in 2019 with the average yield for each location.

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Average yields range from twenty seven point eight to eighty two point eight bushels per acre.

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This study represented several different environments and a significant portion of the soybean production region of the United States.

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The next four slides are the results from the two locations in Arkansas in 2019 and 2020.

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Tests were established at the Newport Extension Center in Newport, Arkansas, and Pinetree Experiment Station near Colt, Arkansas.

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So MINGERING yields and bushels per acre is on the left axis and the treatments and rates are on the bottom axis.

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All treatments had average soybean yields between fifty three point one fifty six point seven bushels per acre.

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When we analyze the yield data for the 2019 Newport location,

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no significant yield differences we're seeing when the products were compared to the entry to check.

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And no differences between products. In twenty nineteen at a pine tree location, similar results were observed.

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The average treatment yield ranged from sixty point two to sixty five point two bushels per acre.

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Three products had average grain yields that were numerically greater than the entry to check,

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and three with average grain yields that were numerically less than the entry to check.

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Similar to the 2019 team results at Newport,

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the 2020 tests show no significant differences in yield when the products were compared to the entry to check.

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And between products, the average soybean yield for the treatments ranged from fifty four point five to fifty seven point five bushels per acre.

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The one location for the last two years in Arkansas where we saw a significant yo gain was at the pine tree location this past year,

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one product Shirk had is statistically greater yield than the entry to check three point six bushel per acre increase in yield.

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All the other products were not statistically different from the entry to check.

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The average grain yield for the treatments was sixty point two to sixty six point six bushels per acre.

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With the untreated check mean yield at sixty three point zero bushels per acre.

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Looking back at the nutrient support for each of the products is hard to explain, why should they yield a greater than the other products?

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There is not a single nutrient or combination nutrients in common between Shirt K and the other

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three products that had soybean yields not statistically different from two sugar shear K,

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which were smart BMO Smart Quattro Plus and maximum impact K.

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We are still waiting for the results of the tissue samples to see if there's any

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nutrient concentrations that could explain these increases in yield from Shirkey.

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Just a few thoughts I want to consider.

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We're talking about roots and root hairs are specifically specialized for uptake of water and nutrients from the soul.

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Thus, they provide the best route for getting a deficient nutrient into the plant.

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Laser designed to collect sunlight, conduct photosynthesis,

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transport photosynthetic products to other parts of the plant, and transpire water vapor to cool the plant's leaves

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Surfaces are not conducive for absorption of fertilizer nutrients because very small amounts of nutrients can enter.

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The plant leaves the macro nutrients, nitrogen and phosphorus and potassium should not be considered for foliar applications.

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Micro niches. Supply is a foliar.

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Fertilizer may provide benefit to the current crop, but only if deficient symptoms deficiency symptoms are confirmed.

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There is no substitute for a strong soil fertile fertility program that is based

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on solid test results to support the maximum yield potential as soybeans.

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So to conclude, in twenty nineteen of the 20 sort of being 20 sites where we tested six different products,

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only one product showed a significant yield increase compared to the treated check in Arkansas in 2020.

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We observed one product at the pantry location that had a significant yield increase compared to the untreated shade.

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Lower nutrient products do have a fit and wrote crop production when nutrient deficiencies are observed.

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However, we do not see an economical benefit where deficiencies are not seen and followed in nutrient products are used as a blanket application.

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Tissue testing is a great idea.

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When done properly, the results can help identify potential problems that require additional research or crop management adjustments.

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And in some cases, a research based recommendation can be implemented to correct an existing nutrient deficiency,

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while tissue sampling is encouraged at the appropriate critical growth stage.

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Mid and late season your fertilizer applications based on tissue analysis results we believe is largely unwarranted.

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So some final thoughts for the 2021 one production year.

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We are seeing better soybean prices than a year ago, so I'm expecting an increase in soybean acres in 2021.

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We need to ensure that our soybean crop has the nutrient, the nutrients it needs to maximize yield.

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And the best place to start it is our current soil sample to determine what nutrients and rates need to be applied.

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We still do not recommend widespread use of foliar fertilizers based on data.

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What we've seen over the last two years. We also need to scout the scout.

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Often our soybean feels for pests and apply proper pesticides at the proper timings.

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I'd also love to encourage producers to do their own research on their farms.

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The best data is data generated on your farm, work with companies in your local county extension agents to help conduct some of this research.

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I want to thank you for watching the presentation today.

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If you should happen to have any questions, please feel free to contact me there about phone or email.

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A lot to remind everyone to use the Q&A box to submit any questions you have about the research you're hearing about today,

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after the presentations conclude, our presenters will be answering your questions.

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And so the Q&A is open right now. We're gonna move on.

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So up next, we have Ben Thrash. Who will be given you the inset management update and the latest on his work with Heligen.

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Hello, everybody, my name is Ben Thrash. I'm extension entomologist for the University of Arkansas System Division of Agriculture.

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And today I'm only talking a little bit about soybean insect management.

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So the first thing I want to talk about is what happened to the red banded stinkbugs this year.

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And, you know, by all indications of our kind of a ditch bank, Sarbaz, earlier this year,

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we were we were picking up some pretty good numbers of red bands in the crimson clover growing along the roadsides.

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And by all indications, it looked like we were going to have a pretty serious red banded stinkbug year.

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But of what we think might happen, why they didn't get as bad as they did in 2017 is that when you look back at the planting dates for this year,

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2020, compared to 2017, the planting was about two weeks behind this year as it was in 2017.

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So why is that important? Well, typically we get red bands in Arkansas.

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Whenever Louisiana starts to harvest their soybeans, they start harvest and down in south Louisiana.

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And what happens is a red bean stinkbugs just keep getting pushed farther and farther north looking for more soybean fields to feed on.

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Well, because they're playing was horrible, was delayed. So as their harvest.

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And so that actually might have delayed those red beans and stinkbugs getting in Arkansas.

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Now, it also seemed like there wasn't just a whole lot of crimson clover out there forced to scale.

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So there really might have just not been as many overwintering here as we originally thought.

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But that's kind of what we're thinking happened to the red banded stinkbugs.

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So hopefully everybody's seen this chart before, we've we've been talking about it for several years.

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This was developed by the animal agist in Arkansas, Mississippi, Tennessee and Louisiana.

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And we all worked together to develop this (?)for (?) soybeans.

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And really, this is working the way that a threshold really should work in a crop.

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It takes into account our crop value. And it takes into account our control cost.

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So, for instance, if we have ten dollars soybeans in dollars per bushel and our control cost is about is 40 knowledge per acre,

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then we're going to treat whenever we reach about seven larbi per twenty five sweet seven Corney range between sweeps.

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And that's good. That Jarle. That's all.

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No. This chart back. I don't want to get into how we came to this.

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How we how we get these numbers and let y'all in on kind of what happens behind the scenes.

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Another thing I want to mention is sometimes people comment on this.

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Why does it bottom out at five Cornier worms down here, no matter what, your crop value goes up, too.

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And the reason that is, is because our research shows that soybean can compensate for about five corn earworms per 25 sweep's out there in the field.

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So there's really no use in treatment when corn earworm numbers get below that because

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a soybean plant is going to compensate for any injury from corn or worm out there.

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So the equation that we use to generate our economic thresholds is this right here.

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And what it takes into account is our cost of control in dollars per acre.

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The value of the crop in dollars per bushel, as we discussed earlier,

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it also takes into account the damage per insect in bushels per acre per twenty five sweep's for corn earworm,

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for instance, and the reduction in deer in injury by control.

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So basically the percent control you're getting from your insecticide application.

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And that's something not a lot of people think about going into the equation.

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So we'll put some real numbers to it and kind of let go. Let us see what's happening with this equation.

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So over here on the on this on the right side of the screen, let's say, for instance,

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we have an insecticide that provides 100 percent control versus one that's provided only 50 percent control.

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Well, for the one that provides 100 percent control, the control cost is twenty dollars per acre.

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But the cheaper one at ten dollars per acre is only provided about 50 percent control.

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So whenever we multiply these together, our value in dollars per bushel, our damage caused by word.

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Now that's a real figure.

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We average about Cordie or meet's about point one, four bushels of soybeans per acre on average winter to attach in one per 20 top sweeps.

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And that's after you get up after that. That five kind of lower threshold that you saw before.

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And then you multiply that by your percent control to get what your losses that you're seeing in that in in your words.

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So if we go with the twenty dollar control cost and we get 100 percent control, well, then we're just out our control costs.

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Twenty dollars per acre. And we're not incurring any additional losses because we killed 100 percent of those words out there.

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Whereas we have. If we have a ten dollar control costs and we're only getting 50 percent control and you're still even

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seven worms out there now we're on the left side of our economic injury level at fourteen point three.

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So let's just say that's the number of worms that's out there in the field. So if you're still even seven worms out there in the field.

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Well, they're still eating ten dollars worth of soybeans.

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So you're not coming out any money ahead by leaving worms out there and going with the cheaper insecticide in this case.

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So what happens that equation, if we actually are picking up more worms in the field, let's say we're picking up 28 worms per 25 sweeps.

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We doubled the amount worms we're finding. All right.

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We still got the same control costs that we were dealing with before and our values are the same over here on the right side.

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So what does that do? Twenty dollar control cost. We kill 100 percent of the worms out there.

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We incur zero losses. So we get 20 dollars across the board that we're spending on controlling.

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So our losses plus our cost. If we go with a cheaper insecticide, say it's ten dollars, so it's two dollars for insecticide.

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A dollar for an airplane. It costs ten dollars and you only get 50 percent control.

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And you believe 14 worms out there. That's a lot of worms. They're still eating about twenty one dollars at the soybeans.

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So now you're up to thirty one dollars that you're losing in profit because you want

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with a cheaper insecticide that you're only getting about 50 percent control if.

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Well, you might say, well, at the end, you know, I'm getting I'm getting better control than that.

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I'm getting like 80 percent control with my cheap insecticide. So let's kind of look at those figures.

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Let's say on the ten dollar control cost, you're getting about 80 percent control with an insecticide.

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So you're running about six worms that you're leaving out there from your initial twenty eight that you had.

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Well, those six worms that you're leaving out there are still eat about eight dollars and 40 cents worth the soybeans.

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And so when you add that together to your control cost of ten dollars, you're running about eighteen dollars and 40 cents in your losses plus cost.

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So compare that to your more expensive insecticide that cost twenty dollars per acre that

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you may be getting a 100 percent control with your save and only yourself about a dollar,

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60 per acre. So let's say the soybean value goes up like it is right now.

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It's actually higher than twelve dollars per acre. But let's just say it's twelve dollars per acre out.

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Now, if we go with our cheaper control cost and we're getting 80 percent control and you're leaving, you're still even about six worms out there.

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Well, because the soybean value went up. Those worms don't know that soybean value went up.

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They're still eating the same amount of soybeans out there in the field as they were previously.

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So now those worms are eating about ten dollars per acre of soybeans.

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Pleasure. Ten dollars and control costs. So really, you're breaking even if you would've went with your 20 dollar application and you would killed

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all the worms out there versus going with the cheaper insecticide and got 80 percent of them.

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You're really about breaking even at this worm population.

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Keep in mind that 28 worms for 25 sweeps, which is a pretty high population.

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But where you start running into some serious issues is whenever your whenever you've got to have a repeat application.

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So let's say you went with that cheap insecticide and it didn't provide any residual control.

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And you've got to reapply. You've got to make another application.

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Well, now you get another application that's costing you another ten dollars.

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So now you're at equal control cost. Twenty dollars per acre, plus your leave in six forms out there after the first initial application.

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And then you're leaving another six worms after the second application.

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So now they're eaten about sixteen dollars and eighty cents worth the soybeans out there in your field.

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So sixteen, eighty plus twenty dollars for having to spray.

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Two times. Now you're out. Thirty six. Eighty. When you could have just been out.

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Twenty dollars initially and got 100 percent control. So remember, these these values in here are our theoretical numbers that just made up instances,

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and if you want to, you can kind of play with the number of worms that you had out there per acre.

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Now, the damage for one. That's a real figure. Leave that alone.

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But you can look at this equation and you can kind of punch in some of your numbers and

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and check it out for yourself and see how that how that those values change for you.

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So we have some cover crop plots where we've really been trying to get some insects into these cover crops.

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But for some reason, they entomologist can't seem to get any any bugs in their cover crop plots.

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Whereas some other people, I'll trade you here in a second, seem to be able to get quite a few bugs.

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But what we've been doing is we've been evaluating some some different insecticides, seed treatments.

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So in this trial, we've had a fungicide only see treatment, a cruiser, Max,

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soybean or insecticide seed treatment, a max plus Fortin's and a cruiser Max plus Fortin's.

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Well, our research has shown so far it doesn't matter which one of those insecticide seed treatments you put on the sea.

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We're getting about the same yield response, no matter which one of those insecticides it is.

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And another thing that we're saying is that it didn't matter which one of our cover crops we had that insecticide UAM.

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So whether it was at a bland, an Austrian winter pea cereal or or if it was just in a fallow.

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We were getting on average,

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we were getting a two bushel yield yield increase and our insecticide treated soybean versus our fungicide only the same treatment.

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So where we recommend using insecticide see treatment, even if you're if you're just putting it in clean, if you're putting it in a Fallowfield.

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We recommend insecticides seek treatment. We do see the old benefit from them.

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But especially if you're going in a cover crop using insecticide,

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see treatment on a cover crop can really help you avoid some problems later on in the later on in your once those soybeans come up.

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This is an example of what insecticides a tribute can do for you.

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This was actually from Japanese beetles, which aren't real common in Arkansas, but this was over at Kibler.

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This was some Trent Roberts plot where he had an insecticide C treatment over on the left side.

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No insecticide, same treatment over on the right side.

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And you can see how much benefit that insecticide C treatment provided against those Japanese beetles.

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Something I do want to say is it's very important to scatter cover crops for you playing into them,

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your recommendation is burning down a cover crop at least three weeks prior to planting into.

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And the reason that's our recommendation and not just playing into it and spraying is because sometimes

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those cover crops can produce a really thick mat that it's hard to get insecticide to penetrate.

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We've had cases where people have called us and they've sprayed sprayed insecticide four

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times and we're still not able to get in insects under control in that cover crop.

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And that's due to that fake man on that cover crop, not allowing the insecticide to penetrate that man and kill those worms.

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And still, after after four for insecticide treatments, those pea leaf weevils in this situation still eat that.

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Eight, those beans that the guy pointed down to the ground. So you can't always spray your way out of those situations.

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And that's why I recommend you Scattergood cover crop before you playing into it.

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And you you burn it down three weeks prior to at least at least three weeks prior to planting into.

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So this was a bold term efficacy trial that we had in in weeks of this year.

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And you can say we got pretty good control with with all the products that we tested this year.

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00:42:08,000 --> 00:42:12,000

Intrepid is insect growth regulator and it pretty slow.

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This is an extremely high rate of intrepid. It's not generally one of our recommended products for bull worms,

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but our insecticides issue that we tested provided pretty good control of both worms.

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This is another efficacy test we had on both worms. And this was down in Taylor, Arkansas.

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You see our private thorn in Besiege and Intrepid Edge all provided really good control.

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Initially, Intrepid Edge doesn't have quite as good or doesn't have as good as of residual as private on in the siege.

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So you can see as we got out to Kabul within eleven days after application, those numbers start kind of going back up.

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We started having more malls in the field. And that intrepid edge kind of lost a residual by that time.

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Now in that same in that same field, we actually got an infestation of loopers behind those boll worms.

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And you see, our private thorn was still holding pretty good. This is 11 days, 17 days and 24 days after application.

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But a private time is still holding pretty good. The siege actually was let up a little bit more than than the Pentagon was.

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And that's due to the power Detroit component of that siege. It tends to knock out a bunch of beneficial insects.

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And we commonly see this when we compare Besiege and Trevathan, the Intrepid Edge look good for loopers all the way up to 11 days after application.

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Would you say it kind of loses residual control once you get up to that 17 days?

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Twenty four days after application.

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Now, this is strictly a Luper trial that we had in Mariana, and we sampled it at three and seven days after application.

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You can see the siege denim, intrepid edge, Cravath, Thorne, all provided really good control of absorbing loopers.

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Well, our general recommendation for four loopers is spray an Intrepid Edge or Intrepid for four loopers.

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It tends to be a little bit better of a Looper product than that than the dynamite también.

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Sometimes the dynamite to leave a little, leave a few worms out there in the field, which we were seeing this year.

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You can see he row over there on the right side. He rows of mixture of two powdery Freud's backed interim and Zyda Sopot Matheran.

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And it really makes Luper of man power through a door no good on loopers.

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So don't try. Also as a fate, as fate is no good on loopers either.

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So Belt don't use either of those products for four Lubert control.

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Something else I want to mention is that we have some new formulations for Killoran Formula Prole.

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So what everybody knows is predatorial. Besiege Vaikunta Core is coming out.

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It's got a higher load than Prevot on. It's about it's it's five pounds of active ingredient per per gallon.

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And so that equivalent rate is is one point two ounces of Fanta core equals 14 ounces of Prevot the lime.

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So for denounces or parabens or recommended rate and soy beans.

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And so the equivalent rate is one point two ounces of Manticore because it's a lot higher load.

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Elvis is a mixture of Clore, Antonella Proehl and by Fimpen.

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And so a six point seven five ounce right of all of this is equivalent to 14 ounces of Prevot on plus four and a half ounces,

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about intron or seven point two ounces of besiege, which besieges is corn for your pro plus land to side with her.

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So it's a little bit different than than L best. But anyways, whenever you see those out there, that's what these products are.

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Something that we saw quite a bit of this year was a was disease later on in late August.

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And we had we had a cold front come through.

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You can see in these pictures we had the what the what worms in their boat, worms that got infected with some with some fungus.

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You see the soybean luper there in the middle. And then over on the lower right, you have a three cornered alfalfa hopper infected with the Varya.

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But really what brings that on is whenever we get some cool bales here in the summertime, some cold, wet weather, it can really promote disease.

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I mean, we saw this coming from a or we get ahead of time. I mean, yes, we're talking and we're alive.

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We're alive, man. Look at that cold weather that we're about to get our looper populations about crash in this field.

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And you could see it really did. So, you know, you can let that let that cold weather weigh on.

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If you're watching if you're watching the population come on the edge about treatment and you see some cold weather in the future,

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you know, you may let that weigh in. If you're going to treat, treat or not, I'm kind of run out of time.

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So the good thing I want to talk about, as is the complaints for heat login,

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we're down to about a tenth of what they were in two thousand and that team.

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So that really tells me that people are starting to learn how to use this product.

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They're putting it in places where it belongs. Keeping it out of places where it doesn't belong.

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And so that's really good. And I'm glad this product's really working for some people.

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Just remember, we're trying to those worms eat 90 percent of what they're going to consume and their

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whole larval lifetime during the fifth and sixth and stars in those last instar.

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So you want to spray those worms early before they get before they get big because it takes a little bit of time to kill them.

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Would then feel free to call us any time, if you're getting questions.

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Thank you, Ben. Just a reminder, if you've got any questions, please add them to the Q&A box.

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So, Ben, we've got one question for you. So what do you think?

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Do you think we'll have a problem with redbandeds this year, especially with the cold weather we've got coming?

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You know, in the next seven days or so, yeah, it looks like we might have some cold weather that hopefully knocks him back a little bit.

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But that's kind of what we do, those ditch bank surveys early in the year just to kind of see how many are out there,

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how many made it through the winter. So we'll kind of have some more information on that once we did, as did part of bank, this firm.

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All right. Thanks, Ben. So next on the agenda is Terry Spurlock, extension plant pathologist.

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[INAUDIBLE] be addressing Taproot decline and foliar diseases. My name is Dr. Terry Spurlock,

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and I'm an extension and research plant pathologist with the University of Arkansas System Division of Agriculture Cooperative Extension Service.

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And today I'll be giving you a soybean disease. So in 2020, there were a couple of diseases that were uncharacteristically active for our area.

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I think the first one of those was aerial blight

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This is a disease caused by Rhizoctonia Salana. The same one that caused a sheath blight.

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And we see a lot in rice and soybean rotations. But this last year, it was especially severe in many fields.

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I got more aerial black calls this year than I've gotten since I've been in this job, I think.

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And I think it was the most severe that we've seen in the state since two thousand, eight or nine.

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But a lot of lot of this initially starting is kind of this right necrosis at the base of the leaflet and then advancing underneath

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the canopy where you can see aerial mycelium that's diagnostic for Aerial Blyde and lots of lots of leaf necrosis and pods rotting.

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And unfortunately, a lot of this where the aerial blind, you can see through the top of the canopy,

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meaning it's advanced all the way up and spread a lot in these these areas.

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And then the leaves the leaves start falling off and the plants fall over.

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And that's not a good situation. Aerial blight can do a lot of damage underneath.

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The thing to remember about aerial blight and going into next year,

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that all these little white these little white masses that you see on the stands and the leaves,

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those are sclerosing, will act as an occupying next year. They will act as kind of a reproductive structure.

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And so if you've had an aerial blight event going into rice or you've had a sheath blight field for four this year going into soybean next year,

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you know, the environment's right. That could that could be a problem.

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So, you know, one of the things we recommend for for this particular for this particular situation is some tillage,

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because these fluorosis don't survive. Well, once they've been tilled a little bit down into the soil.

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So something to keep in mind, moving in to a crop.

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You're 20, 21, another disease that was especially severe in the southeast in many areas.

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Fortunately, not in Arkansas, but but we saw quite a bit of it with soybean rust.

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And it was here a little earlier. We normally see soybean rest every year,

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but it was here a little earlier and we started tracking it in the state just a little bit before Labor Day, if I recall.

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And this image on the map is from nine 16. By the time we all finished all the extension plant pathologist in the states around is finished with this.

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There was soybean rust found up in southern Illinois and Kentucky. So there was kind of a plume of it up here.

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But we saw some examples of severe damage in south central Mississippi, Alabama, all the way over into South Carolina.

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And so I started getting lots of text and calls and pictures texted to me of this odd yellowing of the lower leaves in the canopy.

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That's pretty characteristic of this disease. It's just it's a different kind of yellow and moving upwards into the mid part of the canopy.

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Of course, you turn these leaf over and you see these pustules that look like little red brown volcanos under like a 20 X handle and so have a trial.

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There was enough. So, I mean, Russ, that I had some, you know, an on farm trial and we'll talk about that a little bit,

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but certainly an odd an odd year for us to have that much soybean rust.

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But it was a rescue. One thing I want to point out, and we had a good variety test road this last year and.

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Right. And a lot of diseases. And we plant this test very light.

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We try to create follow your disease pressure. So it was good that we were able to do that and get a writing on all these diseases.

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I think it's posted now. The results of those tests are posted for Row crop Blog for our guide targeted by soybean rust and stem canker.

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We also have a project funded by the Arkansas Soybean Promotion Board where

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we're working as there's a group of us working on grain quality abatements.

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Part of that. So we're looking at stinkbug feeding is in addition to some of these diseases that are known to cause quality problems like farm off to,

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say, decay or purple seed stymying, which is caused by the same pathogen that causes cost relief.

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So this will be out in the form of a report,

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hopefully in a couple of weeks and there'll be a Twitter alert directing you to the link to download that with some variety data performance,

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stay f grand quality, as well as some some fungicide trials that we put out.

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Another project I'd like to talk about is another one funded by the Arkansas Soybean Promotion Board and this.

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These are on farm fungicide trials. And so the goal here is just to take two products or three products in this case of these two.

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Next year, it'll probably be three of its newer products that we need efficacy data on.

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We had 11 locations, all on farm, except one was on raw station, a bigger field there, raw.

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And the idea was to just apply these at a timing that we would expect to see efficacy for second four leaf line.

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So cercospora leaf blight is our most consistent foliar disease, especially south, and we see an increased severity.

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The farther south we go, I think this year, cercospora leaf blight, it's unique in that we can't wait around to see symptoms.

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We have to apply fungicide ar3 or are to to get efficacy against it.

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At least that's what the data tells us. And so if we wait around, we're not going to see that kind of efficacy.

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So it's a bit of a tough disease to manage. And so we had these trials on on farms and replicated the treatments with an untreated to crow control.

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Three times the trials were all 30, 40, a little bit bigger.

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We had one that was over forty five acres and we applied a product at these rights and 10 gallons of water with our ground rig.

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So good coverage, really good coverage and rated disease that our six.

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And here's the summary. So far, we're still missing yield data from a couple of those more working on getting it.

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We had a couple of trials. This went into QEI where we had a harvest problem and then a raw we had some herbicide drift.

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But in this application day column,

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you'll see there in order of when we applied product and you can see we had some diseases that we righted here, a lot of set Torian targets spot.

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For the most part, the story sectarian target thought was pretty light with the exception of this loan.

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Oakfield and I'll talk about that one in more detail in just a second.

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But what I want to point out is that even though we saw the fungicides control in these diseases,

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that's what this Lastra asterisk is for soybean sorry, that Toria Brown spot.

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Know, we didn't see a yield response to treatments for for these these fields that were moving through the reproductive stages early like this.

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So no response to the treatments, but a 60 bushel yield on average.

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Shiko county, no response. Seventy one bushels at White County, no response.

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But just under 50 bushels there. A little bit of target spot. Not much, really.

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Really not much target spot at all. In Phillips County. But we don't have yield there yet.

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But in these later planted and later maturing fields,

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we started getting yield responses and we had a lot of disease, was a lot of aerial blight in Arkansas County.

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A lot of soybean rust in Prairie County. And quite a bit of Frog II, even though Frog overall was Latin 20.

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Quite a bit frog on acid can. We didn't see a response there to the fine decides it was that that frog.

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I was kind of patchy. And so there was a lot of zeros factored in there.

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But we saw yield response to the to the product there.

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Saw your response in both of those.

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And again, this will be out in a report later, a more complete report that will point you to to download for the full report.

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All these trials.

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But I want to go over these two in Arkansas, in Prairie County and talk about the disease control there, as well as this one in Lono.

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So this is three trials in Chico alone, Oaken, the one that was on the Lincoln County Jefferson County line.

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And we've gotten good controls set for your brown spot. So here this is incidents.

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So to explain incidence and severity, when I write these tests,

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I walk out and those big fungicide blocks or strips and I drop the G.P.S. point and I kind of rate the plants there around me and meter and a half,

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two meters. And so this is all the plants incidents as all the plants with the disease and severity is simply those plants that have disease.

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How much disease is there? And so we saw good control out of both of those products over the control different.

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That's what the letters mean, significantly different. Revy Tech was a little better here.

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Rovi Tech was little better here, not as much story of Brown Spot, but pretty good control there and very low severity.

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But in the slow, no county field, there was a lot of it. And every year I get calls about a lot of that toread.

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Should we spray it? It's up in the top third of the canopy and it seems to be happening on a more regular basis.

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I got a lot of separate calls early on this year.

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And in this this field, I think, was representative of that that level of disease that in the past we've said, well, this is kind of rare.

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This is kind of. Well, now it's got to be more common place.

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And so it's something to pay attention to the both the products did a good job here and I don't.

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Again, don't have yield, so I don't know if there is a yield difference. That's that's kind of a big question here.

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But I wanted to go ahead and talk about it and show this kind of ledge and kind of let you know this is this is the kind of story that concerns me.

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You can see it all the way up in the top third of that canopy, just looking down through the top.

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You can see that sectary and those blotted leave. So so this is becoming a thing.

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And I think we need to keep an eye on this disease moving forward.

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But good to know that a lot of products do very well controlled and supported right now in these two newer fungicides.

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We're no different in three locations. The Arkansas County Field had a lot of aerial blight.

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And I'm really fortunate that our farmer let us run this trial out and finish it because there was some damage in untreated areas of this field.

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But we saw a lot of this. These pockets, aerial blight, and I rated the aerial blade a little different.

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I'll walk out of those G.P.S. positions and I take a five meter circle around me and count the patches.

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I can see aerial black. So these pockets.

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And both products did really well, the mervis top doesn't have a strobing learn, but there was good control here.

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And the yields were were different than the control, but not different than each other.

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And we saved about twelve bushels. And here's the plot map of that field.

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01:00:44,000 --> 01:00:49,000

And let me back up here. This is the plot map of that field. And you can see this is untreated.

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Mayor of his top, Revy Tech, Revy Tech in the red. So untreated, one, two, three, untreated, one, two, three, untreated.

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If you look at this drone image, this vegetation index, you can see all this yellow is kind of more severe, aerial blotz, more damage.

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And there's that untreated and there's that untreated in the three fungicide strips.

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So you can see that as we went west, we had more aerial blyde, and that's where we got some efficacy from those products.

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So, so good efficacy there against a pretty severe area of blight disease.

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And a lot of this a lot of plants falling over in those untreated controls and big pockets of that disease that you could see easily walk out there.

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In Prairie County, there was quite a bit of soybean rust and in fact there was a lot of soybean, Ross.

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Just a little bit of aerial blot out there, but a lot of soybean rust. And this was this was pretty surprising.

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Seventy eight percent of those plants had soybean rust.

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And a lot of it, the fungicides fly that are two and a half did a very good job controlling soybean rust.

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Again, really encouraging that we got that kind of control.

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Keep in mind, we're getting really good coverage here, though, so we've got a longer residual that we're working with from my ground.

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And I was a little bit surprised that these yields actually separated,

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but they did statistically speaks to the consistency of the of the yield data through all these blocks.

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Not nearly are not a lot of variability, but 71 bushels, 70 bushels and 68.

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01:02:26,000 --> 01:02:28,000

So a difference of a couple of bushels there.

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I'm not sure if there'd be enough to always pay for these applications, but it kind of gives us an idea of the damage the soybean rust did late.

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This field is north of I-40. But at least at least we know we got good control and we probably could've lived without that fungicide out there,

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even though we had a lot of soybean run.

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So, again, we're fortunate in Arkansas that when soybean rust is severe in the southeast, we're far enough north that we kind of don't see any.

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So some considerations for fine decide timing.

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Think about that trend we saw in the in the data where we those earlier applications, we didn't see any response to the treatments in yield.

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We saw some a little bit of disease control that disease. But but that didn't show up in a.

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In a savings. We did we didn't save money there with those applications.

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But in those later planted fields, later maturing fields, we absolutely did.

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So think about that. Late, planted, late maturing, susceptible varieties.

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That's that's the biggest key. Here's susceptible varieties.

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01:03:43,000 --> 01:03:48,000

So using that variety data, we generate, if we can,

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to understand what could be coming down the road if the weather changes and it's all about environment,

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this disease triangle, the pathogens will be here, will have some susceptible hosts on occasion to some of these diseases.

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Certainly. And when that environments conducive is when we're going to see the best

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opportunity for a positive return on investment out of that fungicide application.

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Certainly some other considerations, farm and field history of disease that applies for all of those diseases we've discussed today,

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except for soybean rust, it has to be blown in. But aerial blight, Scottsboro Target spot, all of those spores are in the soil, in the fields.

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They're going to be there. They're going to be blowing around from other fields.

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01:04:32,000 --> 01:04:37,000

So we have a lot of monocular. But if there's a farm, that is it.

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01:04:37,000 --> 01:04:43,000

It gets an especially high amount of Scottsboro. Targets fire a field for whatever reason.

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We don't always know why those environments or those particular fields are more conducive.

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But sometimes they are. And so it's good to understand field history.

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01:04:52,000 --> 01:04:58,000

I mentioned coverage that adequate water volume is superimportant for as long residuals we can get with product

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and then also moving it down for control of products that move from the bottom up target spot set toria.

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And aerial. And then, of course, we want you to spray when there's disease present.

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01:05:14,000 --> 01:05:18,000

And always remember this right here, fungicides not gonna fix bad things.

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01:05:18,000 --> 01:05:27,000

Our data tells us that fungicides don't add yield to keep it. And when we have a disease is when we need to find a side or we have a susceptible.

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01:05:27,000 --> 01:05:33,000

And we have a pretty good idea that we're going to getting this disease pressure.

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01:05:33,000 --> 01:05:42,000

OK. Very quickly, a review of Taproot decline in 2020, Travis Foskey and I have found it.

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And these counties so far, I bet we add to that twenty twenty one, in fact, on pause that we will.

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I think it mostly occurs in fields planted earlier on time.

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I kind of categorize this as early on time and late.

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01:05:58,000 --> 01:06:11,000

I think fields that are planted in an April 1st part of Maine in April be where we'd see the best opportunity for maybe more severe taproom decline.

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01:06:11,000 --> 01:06:16,000

One of the things we've noticed with Taproot decline is there seems to be an

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01:06:16,000 --> 01:06:23,000

association with with more taproot decline in lighter soils fields that have root,

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01:06:23,000 --> 01:06:29,000

not nematode. But I don't think these are directly related. I think we just are able to plant those sooner.

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01:06:29,000 --> 01:06:35,000

In this particular pathogen, looks like it's more active in cooler soil,

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01:06:35,000 --> 01:06:41,000

more active on early planted beans or Bane's planted on time rather than those light beans.

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01:06:41,000 --> 01:06:49,000

Certainly we've been some some situation like that. There is also some lower stand's associated with fields that had Tafuri decline.

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01:06:49,000 --> 01:06:54,000

So looking very hard there and doing some research there.

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01:06:54,000 --> 01:07:01,000

But it's beginning to look like this particular disease could be part of the seedling disease complex

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01:07:01,000 --> 01:07:07,000

with the rhizoctonia is few areas that we know are part of that that could affect some stand.

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01:07:07,000 --> 01:07:15,000

So the symptoms of Taproot decline and the signs we see just familiarized with those this slide.

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01:07:15,000 --> 01:07:20,000

And the next one are probably going to make their way out into the world on a on a

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01:07:20,000 --> 01:07:25,000

downloadable PDAF that you can keep within the truck if you choose your on your phone.

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01:07:25,000 --> 01:07:32,000

But these yellow tops for that are what most consultants see.

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01:07:32,000 --> 01:07:40,000

You can see those from the Tyran Road driving by and they just stick out like a sore thumb that flagging their when you get out into the field,

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01:07:40,000 --> 01:07:43,000

early infections and plant death look like this.

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01:07:43,000 --> 01:07:51,000

This plant died pretty early on in the vegetative stages and there was a later infection here of an adjacent plant.

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01:07:51,000 --> 01:07:55,000

It's yellow and stunted. No taproot. That's why it gets its name.

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01:07:55,000 --> 01:08:04,000

Taproot decline. You pull those plants out of the ground and you don't get a tap root there with some stroma on the tap root.

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01:08:04,000 --> 01:08:12,000

It's after that roots washed. You can see that that black there, that's actually part of the fungus, as are these dead man's fingers.

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01:08:12,000 --> 01:08:17,000

This is a Zeiler area. Fungi in the genus Zile area produce these.

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01:08:17,000 --> 01:08:22,000

Some of them look like this, some of them or are bigger around and little different color.

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01:08:22,000 --> 01:08:27,000

You see those out in the woods sometimes by rotting log.

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01:08:27,000 --> 01:08:33,000

And then these stunted plants that Justin Baily's held in here with this characteristic sort of

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01:08:33,000 --> 01:08:41,000

yellow modeling across that leaf that progresses into a necrosis and eventually the leaf falls off.

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01:08:41,000 --> 01:08:45,000

So this will be the second part to that hand that will make available.

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01:08:45,000 --> 01:08:52,000

But this this yellow blotting happens in the lower part of the canopy and then just just not nece.

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01:08:52,000 --> 01:08:58,000

I don't necessarily see this on the top, but this you certainly do.

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01:08:58,000 --> 01:09:01,000

And as that disease progresses, you know,

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01:09:01,000 --> 01:09:10,000

those leaves will start falling off if they become necrotic and and had these symptoms here that look a lot like STF for some.

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01:09:10,000 --> 01:09:16,000

But you see the two, you see that S.T. is flashin side by side with this taproot decline necrosis.

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01:09:16,000 --> 01:09:21,000

You realize they look quite a bit.

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01:09:21,000 --> 01:09:31,000

The last slide I had today is just an example of the classic Taproot decline field, that's maybe more on the severe side for this disease.

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01:09:31,000 --> 01:09:36,000

So I got a call from county agents, hey, you got to see this field.

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01:09:36,000 --> 01:09:39,000

It's there's the most Tabart client I've ever seen.

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01:09:39,000 --> 01:09:47,000

And when I went out there and started taking pictures of Laucke and, you know, there was oh, it seemed like every plant in the field had declined.

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01:09:47,000 --> 01:09:54,000

It was pretty good pod load. I was told this is a pioneer, moderately resistant route not being.

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01:09:54,000 --> 01:09:59,000

So there's a lot of room not in this field by your own. Again, good pomelo.

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01:09:59,000 --> 01:10:05,000

Don't think there was a ton of damage here, but when I pulled the plants, I couldn't find one that didn't look like this, honestly.

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01:10:05,000 --> 01:10:15,000

It was a lot of this, the characteristic black stroma on on the roof there and no taproot, lots of them breaking or very rotten.

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01:10:15,000 --> 01:10:26,000

And when we look at the drone image in the NDB, I just just notice how consistent this light green and yellow is.

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01:10:26,000 --> 01:10:32,000

Looks like there may have been a different variety plant here. I'm not sure about that rectangle there.

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01:10:32,000 --> 01:10:37,000

But for the most part, there's some healthier areas on the borders.

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01:10:37,000 --> 01:10:42,000

But there was kind of that yellowing and some damage from taproom decline all the way across the field.

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01:10:42,000 --> 01:10:46,000

Lo and behold, if you look at the soul map, that's fine. Sandy loan caelum.

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01:10:46,000 --> 01:10:51,000

And that's what we see. This is just a classic example of when we see.

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01:10:51,000 --> 01:10:58,000

More severe, your tapper decline field lost ground.

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01:10:58,000 --> 01:11:02,000

Route, not nematode there, even though there's probably not a direct association.

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01:11:02,000 --> 01:11:09,000

But but but still we're we're seeing exactly the scenario that we get a lot of taproot decline.

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01:11:09,000 --> 01:11:16,000

So having said that, we're going to put a variety test in this field next year and seed treatment it in for a fungicide.

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Trump I wish that I had good varieties suggestions at this point for you.

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01:11:21,000 --> 01:11:24,000

We just simply don't have those yet.

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We do have some efficacious in farro fungicide avocations that if you heard Tom Allans talk, he mentioned those thow, Finnick methyl and some others.

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01:11:34,000 --> 01:11:45,000

The same treatments are a bit lacking, but we really need to test those in a larger test, in kind of a strip type test with some different varieties.

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01:11:45,000 --> 01:11:50,000

And so that's what we're gonna do this next year and and have a little bit bigger test move out

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at the small plot scenario and try this on fields that have a lot of consistent taproom decline.

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01:11:57,000 --> 01:12:00,000

That's also been one of the issues with this disease.

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01:12:00,000 --> 01:12:06,000

A lot of times we see it, we have it in our station fields, but the patches are so small, it's hard to get a good test.

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01:12:06,000 --> 01:12:10,000

It's hard to get good disease pressure all the way across that test.

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01:12:10,000 --> 01:12:16,000

We're moving to an on farm trials scenario to hopefully help us collect some better day.

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01:12:16,000 --> 01:12:24,000

So still a lot of work to do with tappa declined. But the good thing is, in almost all situations, this is not a huge yield, Roger.

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01:12:24,000 --> 01:12:32,000

It's a lot of eye candy. The symptoms look bad. There's a lot of this tap root damage here and whatnot.

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01:12:32,000 --> 01:12:36,000

But for the most part, I don't think we're losing a ton of yield to this particular disease.

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01:12:36,000 --> 01:12:43,000

But in some scenarios, it's enough to body. So we're certainly working with that.

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01:12:43,000 --> 01:12:47,000

I'd like to recognize the extinction plant theology group that's working on soybeans.

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01:12:47,000 --> 01:12:53,000

Myself and Travis both work with all the the diseases that I talked about today.

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01:12:53,000 --> 01:12:56,000

And our contact information is there for those on farm trials.

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01:12:56,000 --> 01:13:04,000

I want to recognize these agents that helped me get all those Leben trials out, or they can do without their help in my lab people.

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01:13:04,000 --> 01:13:13,000

And and certainly if you had soybean disease identification age, you can always text pictures or call Travis.

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01:13:13,000 --> 01:13:23,000

And I would be happy to help you. But also Sheree Smith and Katie Ariah in the Plant Disease Diagnostic Clinic can receive samples in Fayetteville.

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01:13:23,000 --> 01:13:24,000

And certainly last,

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01:13:24,000 --> 01:13:32,000

I'd like to thank the Arkansas Soybean Promotion Board for their support of my lab and extension plant pathology in the state of Arkansas.

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01:13:32,000 --> 01:13:38,000

Thank you very much. Thanks, Terry.

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01:13:38,000 --> 01:13:45,000

And again, I want to remind you to place any your questions in the Q&A box.

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01:13:45,000 --> 01:13:55,000

And so, Terry, we do have one question in the fungicide on farm studies that you looked at were mainly in mid and south Arkansas.

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Did you not see enough fungal activity to test in northeast Arkansas?

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Yeah, thanks for that question. Well, we put out 11 trials and we just we just did all we could and found farm cooperators where we could.

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And that was the first year of that project. And so, you know, we already have folks committed, like in Walden Burg and north of I4 40.

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So we're hoping for twenty twenty one. We can get more trials farther north.

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01:14:27,000 --> 01:14:33,000

We know that there was plenty of fields last year, many that were light planted up there and there always are.

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01:14:33,000 --> 01:14:37,000

They probably had good disease pressure and would've made a great place for a trial.

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01:14:37,000 --> 01:14:42,000

And to be perfectly honest with you, we just put out as many as we can.

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01:14:42,000 --> 01:14:50,000

And and, you know, hopefully we get in a few more than 11 this this next year and test more location.

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01:14:50,000 --> 01:15:03,000

Thanks, Terry, for that answer. Up next is Travis Foskey, extension plant pathologist with the presentation on nematodes.

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01:15:03,000 --> 01:15:08,000

Hi, my name is Travis Foskey, since I'm plant pathologist for the University of Arkansas system,

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that these environ culture and today will talk about management options specifically for the Southern root nut,

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01:15:14,000 --> 01:15:20,000

nematode and soybean, because it's really one of our most problematic pests in the state.

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And then Midsouth, there's several species of Moloto guy that can reproduce on soybean.

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01:15:26,000 --> 01:15:28,000

Log on habla Aryan area.

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01:15:28,000 --> 01:15:37,000

But in our state and across the mid-South, melodeon incognito or the southern route, not nematode is the most problematic species.

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01:15:37,000 --> 01:15:49,000

And specifically race three, which probably has to do a lot with our long history of cotton production in the region.

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01:15:49,000 --> 01:15:54,000

So how do I get rid of nematodes? Well, we don't ever really get rid of them.

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01:15:54,000 --> 01:15:58,000

And that goes for almost all the soil borne diseases that we have.

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01:15:58,000 --> 01:16:07,000

Once they're in the soil, we don't get rid of them. We kind of manage them or try to reduce their population density by some form or fashion.

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01:16:07,000 --> 01:16:13,000

But one of the ways we tend to try to control them is, is utilizing the mad asides.

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01:16:13,000 --> 01:16:16,000

There are some Cheam against not commonly used in the states,

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01:16:16,000 --> 01:16:24,000

almost specifically talk about the seed Applied Materials, which it's been a lot of time researching.

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01:16:24,000 --> 01:16:29,000

One of the first ones that was registered is the evicted material.

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01:16:29,000 --> 01:16:32,000

This is ivermectin. It is a very toxic medicine.

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01:16:32,000 --> 01:16:39,000

It breaks down relatively quickly in the soil and about half life, about 30 days, which which can be a good thing.

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01:16:39,000 --> 01:16:44,000

You don't want chemicals lasting for a long time. A leveaux is powder room.

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01:16:44,000 --> 01:16:54,000

It's so unique because it's an HIV fungicide. So there's also the benefit from a fungicide activity activity as well as controlling nematodes.

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Nima Strike was touted as a fan registered by Bayer and from Monsanto in 2017.

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And that was voluntarily pulled by Bayer last year. I had it listed here because all show you some field trials were still included as a comparison.

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The newest one is Salto to flip the Defen, which is the active ingredient from Syngenta registered in 2020.

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It is also in SDH Fungicide. So it's kind of interesting to make some comparisons between the soft troll and illegal type materials,

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and we haven't had anything to compare to for quite a while.

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01:17:39,000 --> 01:17:42,000

This group here is what I would consider the biologicals.

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01:17:42,000 --> 01:17:53,000

Now, some may consider that ivermectin is a biological because it's actually produced by Stripped of my seeds ever meant tell us in fermentation bats.

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01:17:53,000 --> 01:18:02,000

But given its toxicity and how it's utilized in the field, I kind of consider it to be more of a chemical also,

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01:18:02,000 --> 01:18:09,000

although it's not synthetically produced like some of the the fungicide slash demand-side materials,

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01:18:09,000 --> 01:18:18,000

though TVO has been around for a long time, living organism needs to grow and develop to protect Bildstien Demand-side 100 or Nemecek is.

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01:18:18,000 --> 01:18:24,000

He killed Burkel dairy bacteria. So this one does act like more of the chemical materials.

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01:18:24,000 --> 01:18:29,000

It does need to come into contact with the nematode to be effective.

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01:18:29,000 --> 01:18:35,000

Avail. Easy is another bacillus bacillus amwell liquidations.

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01:18:35,000 --> 01:18:39,000

Another biological again needs to grow and develop to be effective.

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01:18:39,000 --> 01:18:45,000

True Nemko. I'm not so sure about the bacillus strand here,

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01:18:45,000 --> 01:18:50,000

but the mad aside component tends to be the cyst jazzman and this stimulates a systemic

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01:18:50,000 --> 01:18:58,000

acquired resistance response in soybeans that limits the nematode development.

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01:18:58,000 --> 01:19:02,000

And finally, O'Clery, the key in this is pasturing Nishizawa.

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01:19:02,000 --> 01:19:09,000

This is specifically for Swagman, systematized only if this is put in a field with this other route, not nematode.

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01:19:09,000 --> 01:19:16,000

It does absolutely no good. I want to begin by talking a little bit about the man aside, movement and soil,

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01:19:16,000 --> 01:19:26,000

so specifically those chemical components would would fall into this category most more so than the biological materials.

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01:19:26,000 --> 01:19:36,000

So the solubility so of all the chemical, no matter sides, move through the sole in the water phase.

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01:19:36,000 --> 01:19:40,000

So they've got to be dispersed by water to come in contact with the nematode.

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01:19:40,000 --> 01:19:48,000

And so a lethal being more soluble than Invicta. There's certainly more opportunity for movement there.

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01:19:48,000 --> 01:19:56,000

So mobility, this is the man, Assad's ability to move through this whole profile, specifically binding to soil particles.

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01:19:56,000 --> 01:20:06,000

So both them will bind to soil particles relatively quickly, specifically the the smaller particles, the silts, the clays and organic matter.

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01:20:06,000 --> 01:20:12,000

But illegals probably a little bit more mobile because it's a smaller molecule than that of a victim.

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01:20:12,000 --> 01:20:22,000

And this also depends on soil porosity, so you see by this figure here, something coarse textured soles has more pore space.

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01:20:22,000 --> 01:20:30,000

Remember that nematodes actually move through this force base kind of on the water film that is on the surface of these small particles.

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So the bigger the force base,

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01:20:31,000 --> 01:20:41,000

the more they can move and the more that to matricide can actually move through this whole profile in the finer textured soils declines the silts,

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01:20:41,000 --> 01:20:43,000

there's there's less opportunity for movement.

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01:20:43,000 --> 01:20:52,000

So we often recommend the chemical type, no matter sides in the course, for textured soils compared to the fine textured soils.

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01:20:52,000 --> 01:21:02,000

Water infiltration rates, this is really important. So because it has to move in the water phase downward movement of water is going to be important,

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01:21:02,000 --> 01:21:10,000

specifically rainfall or irrigation, overhead irrigation specifically to help move it downward.

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01:21:10,000 --> 01:21:18,000

And that poor space is going to be important to more movement, of course, than in the fine textured soils.

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01:21:18,000 --> 01:21:24,000

All right. So the goal of ending the madnesses is really to produce nematode infection,

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01:21:24,000 --> 01:21:30,000

almost all of this is really happens at the early season development of the root system,

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01:21:30,000 --> 01:21:42,000

primarily because if we can slow that part of it down and allow the root system to expand, we usually generally see a lower impact by the nematodes.

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01:21:42,000 --> 01:21:48,000

So here at first this want to show you kind of a greenhouse experiment. This is 18, 20, 20 on a susceptible variety.

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01:21:48,000 --> 01:21:53,000

So this is uniformly inoculated all in.

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01:21:53,000 --> 01:21:59,000

There's a couple of things I want to point out. So this is the non fee to control. Here's the Invicta compared to leave out.

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01:21:59,000 --> 01:22:01,000

Now, this is this is water overhead.

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01:22:01,000 --> 01:22:10,000

So you can see where in that core sand, something that has that's more mobile probably moves a little farther like a leveaux down,

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01:22:10,000 --> 01:22:17,000

were evicted, probably did get bound up a little bit quicker, even within the sand.

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01:22:17,000 --> 01:22:23,000

Again, here's Nemitz trying to kind of fall between the two. And then Sandro here, certainly higher.

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01:22:23,000 --> 01:22:29,000

If you comparing against the Leveau, the materials here are quite different.

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01:22:29,000 --> 01:22:34,000

The toxicity for LeBeau's is much higher, and that's probably a contributing factor.

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01:22:34,000 --> 01:22:41,000

The biologicals, we do see something from the tree. Nemko Probably that cyst jazzmen going on rather than the bacillus.

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01:22:41,000 --> 01:22:48,000

Given what we see with a video, a little bit of reduction with TVO, but the combination of the material,

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01:22:48,000 --> 01:22:55,000

again, the illegal being a major component here, I will say that most times in the greenhouse.

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01:22:55,000 --> 01:23:03,000

Using the biological materials in sterilize soil or pasteurize, I don't see a huge response.

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01:23:03,000 --> 01:23:08,000

It's really by the chemical material. So this is not uncommon and pretty standard.

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01:23:08,000 --> 01:23:15,000

OK. This is a field trial for twenty nineteen. I'll point out here, I've got Bould each time, the sole texture.

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01:23:15,000 --> 01:23:23,000

So this is sandy loam, but it's really close to a loan and you can see a numerical reduction by all or sides.

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01:23:23,000 --> 01:23:30,000

Our final nematode population density and I use this is to compare to what a farmer consultant

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01:23:30,000 --> 01:23:34,000

may be dealing with because they're pulling soil samples at the end of the season.

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01:23:34,000 --> 01:23:42,000

So he f stands for the population final and this will be sampled at harvest.

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01:23:42,000 --> 01:23:46,000

So everything's getting a little bit of reduction in your benefit.

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01:23:46,000 --> 01:23:51,000

We see here forty two bushel for our non fee control.

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01:23:51,000 --> 01:23:55,000

Not bad, not the reduction of the stress that I would normally see.

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01:23:55,000 --> 01:24:00,000

This has a little bit more silt and clay. So not as much pressure as we normally would.

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01:24:00,000 --> 01:24:05,000

None other than the major signs were any better than an entree to control.

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01:24:05,000 --> 01:24:09,000

And it's not uncommon to see differences between the matter sides.

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01:24:09,000 --> 01:24:11,000

But that's kind of inconsistent over time.

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01:24:11,000 --> 01:24:20,000

So here we have a Victa and both TVO yielding less than Trinko, but we see the Alito and that's actually a plus vote.

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01:24:20,000 --> 01:24:25,000

TVO again, numerically higher on entree to control.

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01:24:25,000 --> 01:24:29,000

This is 20, 20. The whole texture class is alone.

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01:24:29,000 --> 01:24:37,000

So we have more silt and more clay. And it was very interesting to me the percentage of root system Gauld was.

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01:24:37,000 --> 01:24:42,000

Was pretty even across all of these treatments. I haven't had that happen before.

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01:24:42,000 --> 01:24:46,000

Certainly a little higher than we had in twenty nineteen. But no.

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01:24:46,000 --> 01:24:49,000

No difference numerically or otherwise.

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01:24:49,000 --> 01:24:57,000

Maybe a little reduction was Celltrion, but that's probably just some of the population densities in the field yield.

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01:24:57,000 --> 01:25:07,000

Forty five was the average for the non-trading control. We see positive for the victor, the Alito, the vote TVO and the Alito plus four TVO.

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01:25:07,000 --> 01:25:16,000

And here we have one bushel for the value. I'm usually looking for at least two or more intelli is for of benefit.

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01:25:16,000 --> 01:25:23,000

Again, this is not uncommon. If you compare years, sometimes one to matricide does a little bit better than the others.

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Looking at multiple years, typically in my trials, the illegal material tends to fare a little bit better in the leveaux.

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01:25:31,000 --> 01:25:38,000

Plus TiVo. TiVo does well, try Nemko. Again, it's one of those it's that's been higher.

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01:25:38,000 --> 01:25:40,000

And both TiVo is another one that does well.

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01:25:40,000 --> 01:25:47,000

So I think some of these could be regionally and someone could be really related to the soul texture class as well.

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01:25:47,000 --> 01:25:52,000

The final nematode population density here, you can see, is lower than what we had before.

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01:25:52,000 --> 01:25:56,000

So maybe a little less impact as well. All right.

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01:25:56,000 --> 01:26:05,000

So some of that variability among the seed applied to mad asides. There's some truisms here that we talk about toxicity evicts.

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01:26:05,000 --> 01:26:11,000

Certainly more toxic than a leave vote in is more toxic than Salto. And this is based on some in vitro assays.

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01:26:11,000 --> 01:26:15,000

So even though there may be limited movement by Invicta,

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01:26:15,000 --> 01:26:24,000

only a small amount of it is needed to kill as many nematodes as a leveaux or Salto longevity.

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01:26:24,000 --> 01:26:29,000

Leveaux last longer than evicts. So that material is going to hang around.

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01:26:29,000 --> 01:26:35,000

That sole zone of protection is probably gonna last longer than maybe something with a victim.

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01:26:35,000 --> 01:26:44,000

But typically the zone of protection is going to be limited as the root system expands, as it gets away out of that zone protection.

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There is no longer any protection on the root system.

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Also, the new matricide movement we've talked about earlier is also going to be affecting here the nematode and the message that aside,

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mobility, the water infiltration is also going to affect that.

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So but generally, zone of protection is is close around where the C-code is.

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And then just some general limitations. And this goes for all seem to apply to mad asides where they're reporting that

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chemicals or biologicals really only a small portion of it washes off the sea.

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Specifically the chemical component. So sometimes I've seen as much as 10 percent come off the seed.

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And that's that's a lot. So some of it does bind to the C-code as well.

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That protection range is probably about four to six weeks, which also relates to the root expansion.

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And no seat upon the man's side is going to make us susceptible called farmer assistance.

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So you're getting some suppression,

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but not enough to get you through the end of the season to be similar to something that is has postpartum resistance.

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You want to know more about this, an extension Web site or extension group?

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The Crop Protection Network has an article on this that I was involved in writing, had some more detailed information there, if you're interested.

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All right. The damage threshold fall damage for soybeans was the 60s, 80s for 100 cubic centimeters of soil.

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Everything we saw before was exceeding that. And that's in sandy soil.

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And that's really kind of a start. Most of the time we're past that because by the time we see we have a problem, our numbers are much higher.

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Those chemical nomad's signs often and of course, ticks footstools. The biological is often see a benefit.

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One word. The medium, the long and the silt loans.

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Each year, we kind of focus on these social types and say that this is where we have the greatest impact.

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That doesn't mean that's the only soul type that you will see the southern route, not nematode.

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It can actually be found and so long as longs as well and silts and Sandy play loans.

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But it's it's generally its impact is going to be higher where we see this.

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This darker blue shade. What about interaction with other fungal diseases?

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This is certainly concern as we have more roob not, we often see more other social borne diseases, especially southern white.

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And that's what this is, a really severe case. So we are writing some of the ovie teams this year.

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I noticed this and took a picture here. You can actually it's a little hard, but here's all this groza.

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Oftentimes with the southern route, not nematode.

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The leaves drop, it rains, the fungus starts to reproduce from that organic matter and then infects the root system.

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And actually, it's becoming more common. Some of the worst sudden death syndrome I've seen is actually in fields with a root not.

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We're aware of the interaction with sweet, insists A.D.s.

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But as these goals die, fungi that, like few saryan that cause Estes's can infect that root system.

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Tapper decline one of the relatively new diseases. Not really sure, it seems like in areas where we do see Taghrid decline, it can be seen any.

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So there could be an interaction. But oftentimes it's been in counties, too, that there's little southern route, not nematode issues.

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So I think he kind of stands alone by itself. Also something like stem canker here.

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Here's the tanker also stands alone by itself as a disease.

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So maybe Southern line and Estess, we see a little interaction.

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Some of these others we don't or we don't have enough information about.

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I do want to point out here, I mentioned that Leveaux in SRO were SDH Fungicides and I was part of a larger group

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of multi-state projects looking at the effect of these two materials on SD s.

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So here is the FDX rating. This is an indication of the severity of SD.

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Yes. And the root rod here is just the root condition.

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And you can see both times with a Leveaux material.

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There was a drip reduction compared to our non treaty controls or based fungicides and also with the Celltrion material as well.

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So seeing the benefit from the fungicide here, I do think we're seeing in my trials mostly the benefit of the Neamat, aside from the early vote,

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because it tends to be a little bit stronger as far as being toxic to the southern root nut nematode than than Santorum.

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There we see the yield benefit,

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certainly seeing the yield positive with the illegal material and then as well as the Salto, the others kind of falling.

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In between, so this was several trials and some information about this will be published.

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And also on the crop protection network, that does a good job of having several multi-state type studies.

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All right. The question I get from from consultants and farmers is Southern rootin nematode becoming more abundant?

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And I think the answer is yes. I think we are actually doing a little bit better job of sampling.

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So actually we're seeing more fields with it than we did in the past.

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But it's really following R r rotation system.

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So we look at the hosts that are susceptible to route, not soybeans.

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It's corn, it's grain, sorghum, it's rice and cotton. The only non host we grow in the state is it's actually peanuts.

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Now, rice is a little different because of the flooded rice. We're actually managing the southern route, not nematode.

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So I was curious when we started having more of this grow rice first.

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Is the hybrid rice susceptible? And could we actually recover southern root, not nematode, from some of these rice fields?

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So this was 10 of the objective we had started a couple of years ago.

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We got some of the hybrid rice and put it in the greenhouse. And then we sampled for a couple of years.

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Most of the fields were actually silt, loam type soil.

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Not a soul where I would expect a big impact on soybeans by the southern route, not nematode.

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But again, for the sake of science would survive.

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So here's the home front, potential reproduction, so this isn't a greenhouse.

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Could it reproduce? And so this the scale heel's reproduction factor.

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So I added two thousand AIDS per pot and I got here like with this Fairfield one.

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Fifty three. Ten times more than that. So twenty thousand aids.

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We recovered from that plant. And so that gives it a reproduction factor of ten.

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Anything over one is considered susceptible. So all of these hybrid rice are entry's are susceptible.

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These here with the blue line are actually more susceptible than the seventy five.

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Twenty one. And as well as soybeans.

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So rice is probably not as suitable host as something like soybean, but it certainly could maintain a population if in the right sort of conditions.

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Moving on to the survival part, the first year we sampled the lower end of the field compared to the higher end of the field.

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And there was probably about a 50 percent reduction in the total nematode,

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regardless of what we're looking at for plant parasitic in the lower end of the field compared to the high.

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We did find out. Up in one field, a low population density, about 10 teams for four hundred cubic centimeters of soil at the high end of the field.

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And again, this was a silk long. That doesn't alarm me so much.

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What what alarmed me is if we move this into some of the Sandy alone soils,

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I fear that you're probably not going to be able to maintain a flood as much on this high end of the field.

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And that's going to be a more important field as far as nematode management than some of the silt logs.

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So hosepipe resistance is actually getting better. These are actually in roots infected by route not you can see the Gall's here.

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This came out of the same trial. You can see it's relatively clean.

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This is a list of the cotton cultivars marketed with resistance to the southern route, not nematode.

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Stoneville five or Max five, Engine and Delta Piolín, you can see the majority of those being in that fight engine group.

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Some of those with the two Astra here have two genes that are homozygous for resistance.

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So they could be as useful as growing something like Punin as a non host.

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So really depends on your your rotation sequence here.

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If you if you grew something like this, planting soybeans after this would be a good idea as far as managing the southern root nematode.

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This is a study. My lab did a few years ago just to show the susceptibility for grain sorghum.

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And so oftentimes I still get this question. I am growing grain sorghum.

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It should be resistant. Some are some are better than others.

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Some of these Terrel varieties here.

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And this was done back in 2013 are certainly better than some of the other grains, sorghum hybrids that's that are over here.

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This is this is cotton. So cotton is certainly more problematic as far as maintaining a population of rootin nematode compared to green sorghum.

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But you can see here, this is a corn hybrid.

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These were all collected at the same time, probably about 60 days after inoculations.

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So the numbers aren't real high as it would be towards the end of the season.

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But you can see their potential as far as reproduction where they would fall.

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Most of those grain sorghum varieties would be very similar to corn as far as maintaining the population of bruit, not nematode.

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So just be careful with it. Just don't assume you use your grain sorghum in your control and nematodes host plant resistance and soybeans.

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Also, few options. Each year, the Ovie teams are screened in the greenhouse, looking at galling as well as nematode reproduction.

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And actually, we had some this pasture that were very resistant, resistant.

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We need to double check those in the field because sometimes we do see limited, galling early on and more at the end of the season.

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So these will be some we'll pull in there. But again, I think some of these seed companies are recognizing this as an issue, which is a good thing.

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This is some of our screening that we've done in the field.

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These are not from the 80s, but just cultivars to see companies or marketing for resistance or at least saying it has some type of resistance.

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Anything that's less than four percent of that root system gold, I would say, would be resistant, although we do have some variability here.

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Some of those are right on the line as G.T. Irene. Still to go.

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Forty nine forty. We've just been our standard resistent these trials for years.

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But you can see some of those could be considered as Mollari resistant and would be a good fit for something like a seed.

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Apply the mat aside in combination with the field. Here's our susceptible, which is kind of a standard you would want to kind of compare this.

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This one you would not want to grow. And obviously trying to grow some of these in the field to maintain that nematode population.

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Again, our final nematode count was certainly over 60 at three hundred seventy two.

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Not the worst I've seen, but again, a respectable number.

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But the Sandy loan field wasn't distressful is what we've had in the past.

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Yield was still pretty good for the majority of these. This pioneer variety here would actually be considered tolerant.

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We have quite a bit of a reproduction, but you have a good yield.

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You go to something that is comparable as far as as galling.

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Here's another pioneer. You can see that's about 10 bushel difference compared to this one.

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So this one is more tolerant than this pioneer variety.

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Some of these others actually performed very well. The analyst has been very limited.

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This Delta girl here actually did relatively well.

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There's another group five that probably did a little bit better, but that's the only one that I've seen.

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And it's probably more in that moderately resistant range.

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Typically, the Harborside technology is ahead of any of the resistance, and that's what we're seeing here.

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Here's our options. The majority of the group forth or in the model resistant group.

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Some years they can be resistant. But I'm trying to be more conservative with these.

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You can take these and put them in the field. That's very deep sand, high nematode population, and they will be, at the best, moderately resistant.

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The one, Astrid means we just looked at him one year. Here's the other.

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Enlist in the Delta Gro Group five actually did well.

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It's more that resistant line. I don't have the data here, but in a couple of years we summarized our group fours, fives.

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The five said a 25 percent yield benefit over the group forwards.

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And so I've often said if you have a root nut nematode feel growing a group five is good.

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Actually put more money in your pocket. As far as your liberty, again, no resistance.

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The two pioneers here that are model the resistance have been around for a while,

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very similar to something like the forty three eight forty two that's in the Roundup group and a few of the moderate resistance.

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So relatively limited options here. That information is available on the Arkansas Cross Web site, too.

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If you didn't get it all here, take it certainly. Take a look at it on that Web site.

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Rotation's finally. You know, something like this rotation, just corn and beans.

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Certainly going to rely on mollet resistant to resistant varieties. You can add cotton into your program, something that has a good source resistance.

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Again, going back to the start, you're going to follow your susceptible soybean after the cotton.

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Peanut in the program is probably very limited where these other crops do well.

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Peanuts do not. But if you did, that would be kind of a sequence for managing the southern region of nematode.

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Again, heading to lagoon's and there it could increase issues with like things like Southern,

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but the only way you can know what what's going on with your nematode samples,

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whether that's fruit, not rent a farm, soybeans, says Lesin is by collecting soil samples.

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We do recommended every three to four years. And again, for the past several years, the soybean promotion board has sponsored free samples.

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Last year, we had about 900 samples from that.

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So it was a good year for sampling in the fall. So certainly take advantage of that again.

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If you're an Arkansas farmer, consultants growing beans in Arkansas for the upcoming cropping season.

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With that. Thank you. And hope you found this information helpful and informative.

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Thanks, Travis. So one question we have been thinking about tonight, nematodes kind of.

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If you do have root, not nematodes in a particular field, kind of, what's the systems approach at tackling that problem?

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You know, is a combination of, you know, C treatments and varieties in rotation.

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So what's your thoughts on that? It always seems to be a field by field basis.

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But, you know, depending on the population, that's for those C treatments to have a fit pass,

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that whole plant resistance is going to be the best option and then tend to like that last slide from a systems approach,

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monitoring every few years to see if that sequence of crop rotation is doing you some good or hurting.

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You can kind of help you plan for the future. That be my approach.

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All right. Thanks for that answer. So up next is Trent Roberts, who we'll be talking about fertility.

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Hello, my name's Trent Roberts, and I would like to welcome you to the nutrient management portion of the soybean winter production meeting.

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So as for a topical outline, today, I will be discussing common nutrient concerns in Arkansas soybean production.

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We'll cover a little bit of the economics of potassium fertilizations specific to soybean.

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We'll discuss late season potassium applications, our new dynamic critical tissue potassium threshold,

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some new information on chloride toxicity and then wrap it up with some key takeaways at the end.

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So two things to really think about as it relates to nutrient management in

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terms of deficiencies and toxicity specific to Arkansas soybean production.

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The major nutrient that we're most likely to see a deficiency of is going to be potassium.

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And that really needs to be the focus of our fertilization program or our nutrient

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management program as it relates to both irrigated and non irrigated soybean.

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Even though chloride is considered a plant essential element, most of the time in our production system,

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an excess or a toxicity of chloride is going to be an issue that we need to be concerned with.

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This is becoming more and more important in our specific production system.

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And I will cover that more in depth in a minute. So just to start with fertilization, fertilization, economics and productivity.

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This is from our 2021 Cooperative Extension Service budget for irrigated soybean.

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If you look at irrigated soybean in particular, 15 to 20 percent of the total production budget is dedicated to fertilization.

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And that's typically associated with potassium and phosphorous fertilization.

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You'll see that this is quite a bit lower than many of the other nutrients that we've discussed, particularly for like corn and rice.

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That's because for cereal crops, they need nitrogen.

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So that percentage of the budget for those crops is quite a bit larger than it would be for soybean.

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I think the flip side that you have to understand is that even though the percentage of fertilization is lower for soybean,

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in particular because we don't apply nitrogen to this particular crop,

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the productivity or the profitability of soybean is still very tightly linked

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to how well we fertilize and how well we manage that particular nutrient.

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And so if we're looking, you know, from that crop in our prize budget, the current default setting is for a zero 50 75 recommendation,

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which relates to our medium sole test pea and medium soil test K levels.

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If you look at the cost of application for that, it's going to be roughly forty two dollars and seventy five cents per acre.

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Now, just to break this down a little bit further, we have a comparison of the fertilization cost across our range of soil test categories.

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So over on the left hand side, we have our phosphate recommendation in pounds of pito, 05 per acre across the top.

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We have our potash recommendation in pounds of K to O per acre.

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And you can see here how the cost of fertilization changes as your rate of application changes for both of these particular nutrients.

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You can see here for our medium sold test K and our medium soil test P,

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that the cost of fertilization equates to that forty two dollars and seventy five cents per acre.

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However, one thing that we need to make sure everyone understands is that our most common recommendation that's currently given

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out by the soil test lab in Mariana equates to a low soil test phosphate and a low soil test potash or K category,

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which would cost roughly sixty dollars per acre to apply.

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So one thing we've trying we've been trying to emphasize to producers is if you're using those crop enterprise budgets,

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you know, they are set up to where you can manipulate that information.

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And so we would encourage you to go in and put in the actual rates of fertilization

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that are recommended from your soil test to get your specific budget,

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you know, based on those actual fertilization rates that you will be applying.

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So let's switch gears real quick. I've talked about this a little bit,

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but I wanted to just remind everyone that we have developed a new profit maximizing K fertilizer rate recommendation support tool.

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I've included the link where you can actually go and look at that particular tool.

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I would encourage you to go look at that and familiarize yourself with it.

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We currently have one for soybean as well as rice. The things that are important about this tool.

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It uses various inputs from your production system to help predict an economic maximizing or profit maximizing K rate for your production system.

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So if you look here, we take into account soil test k, your projected soybean value,

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your projected K fertilizer cost and then any associated application costs.

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This is just a pre preview of that particular K rate profitability maximizing calculator.

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And you can see here the input costs associated different variables that you can input and alter depending on your specific production systems.

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The one thing that you will notice is these input costs do have a significant influence on what our profit maximizing K rate is going to be.

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The one thing that I will tell you, you know what drives in my opinion, you know, the rate changes in this particular calculator are going to be,

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you know, the expected value of your soybean crop and then your expected yield go.

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And we would really encourage you to make sure you use realistic yield goals with these calculators, because, you know,

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that's really going to drive what the fertilization rate is going to be a lot of times with any of these calculators.

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The more information that you have on your input cost and your projected soybean value, the better off you're going to be.

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And it's just kind of like anything else.

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The more data you have, the more input information, the better we can predict what that fertilization rate is going to be.

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Now, to kind of switch gears a little bit.

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I think going forward, you know, using these profit maximizing K rates is going to be important, but it's a great starting point.

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And by starting point, I mean, we can, you know, go out with these rates knowing that we can make corrections or adjustments in season,

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you know, based on yield potential or the crop performance or environmental conditions that we may have that particular growing season.

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And so the next thing. Right. Is the development or response of late season fertilization.

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And so a lot of the work that Dr. Slaten has done, you know, over the past four to five years has been focused on,

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you know, how late we can apply potassium to soybean and still give meaningful yield responses.

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And so a couple of the things to keep in mind, especially for farro arrogated systems,

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are just irrigated soybean systems in general in season K, applications are taken out very quickly.

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So that means if a deficiency is identified or hidden hunger, as long as we're irrigating those soybeans,

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we can apply that potash fertilizer and be assured that it's going to be taken up and utilized very efficiently in a timely manner.

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The next thing to think about is the responsiveness of soybean is really going to be linked to the deficit level of your soil.

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So, for instance, we determine the maximal yield can be obtained with fertilizer applied 20 days after our one.

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And if you have a hidden hunger type situation, which would be more of a medium to low soil test case situation,

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you know, those hidden hungers can be corrected up to 44 days after our one.

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So just to give you a little idea, this is a visual representation of what I'm trying to talk about in this upper panel.

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We have essentially soybean yield response at various application timings for very low soil test case soils.

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And in this particular injury instance, what you'll see is the R1 stage falls right around, you know, 40 days after planting.

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And we can see here that the window where we can still apply potassium fertilizer and maximize our soybean yield is about 20 days past.

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This are one grow stage.

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As we increase our sole test category and we move up to a low soil test kay, you can see that that window of opportunity is significantly increased.

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So in this particular scenario, we can wait as long as 44 days after our one to apply potash fertilizer and still maximize our soybean yield.

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And really, what I'm trying to emphasize here is the development of these tools.

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And the development of this information allows us to be assured that in season we can accurately identify where we might have hidden hunger

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situations or confirm visual deficiency symptoms and apply potash in season while still maintaining or maximizing our soybean yield potential.

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So for the past year, we've been discussing our dynamic critical K concentration curve,

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which I think is one of the most exciting tools that we've come out with for soybean in particular.

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And really what this does is it allows us to take tissue samples in season and identify, you know, whether or not we're suffering from hidden hunger,

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which is potassium deficiencies that aren't exhibiting themselves, as, you know, the visual Clorox symptoms.

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And then the other thing that it does is it allows us to confirm potential or visual potash deficiency symptoms.

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So one thing that you'll notice about this dynamic critical K concentration curve is how are critical concentration changes over time?

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And part of this is, you know, the plant biomass increases.

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We kind of get a dilution fact. And so that critical concentration tends to decrease over time.

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And what we've done here is we've set it up as days after R one.

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And our goal really with this particular approach is to try to stay above this 95 percent maximum yield line with our tissue K concentration.

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So, for instance, in our very low or very low soil test K soils, you know, anywhere from zero to 21 days after our one,

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you know, we're trying to maintain our tissue k concentration, you know, above roughly this one point, six percent K value.

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And then in our low soil tests, soils,

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what you can see here is our window of opportunity really goes out to about 44 days pass that are one growth stage.

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And you can see our interpretation is going to change over time because that dynamic critical K concentration changes.

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What we've done is, you know, the next step in this process is an Excel based tracking platform.

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And we've tried to make this as user friendly as possible. And you can see there are several different inputs here that can be applied.

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But what we really need to know or the planning data and the are one flowering date.

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And this can be predicted using, you know, some type of soybean phonology modeling system like soy map or soy stage or soy pheno.

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And when you come in and put this, that allows you to enter your tissue k concentration values and the associated sampling dates.

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And it will go ahead and just populate that data to this graph that you can see here built within the Excel spreadsheet.

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And to me, the nice thing about that is it visually shows you how your current tissue samples at each of these dates compare.

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Our critical concentration. And so, once again, as long as we kind of stay above this blue line,

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we know that we are most likely going to be maximizing our soybean yield potential as least at least as it relates to potassium management.

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So going forward, you know, how do we propose new OCA management and sort of you know, I think first off, we want to start with soil sampling.

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That's still going to be, you know, the best foundation for our fertility programs and soybeans.

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We want to start with, you know, what is your soil test K level? Because whether using our standard approach with our fertilizer rates just based on

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soil test concentrations or you're using our profit maximizing K rate calculator,

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you still need to know your current soil test level in order to use either of those tools.

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Well, we would like to see people do is start to think about applying these profit

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maximizing K rates based on your input costs and your projected soybean value.

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So start with soil testing. Use the calculators to determine your most profitable K rate.

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And then in season, we would like producers to really start looking at adaptive tissue sampling.

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So go in and verify that the K fertilizer rate you've applied are adequate.

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And what that really does is it. It should ease your mind as to whether or not potassium is going to be influencing

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your yield and whether or not you will be able to maximize your yield potential.

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I think the one thing that the adaptive tissue sampling really brings to the table is the potential identification of hidden hunger,

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which in my particular opinion is probably something that is occurring more often than we realize.

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And we're losing yield to KEH deficiency that really isn't exhibiting itself as those classical or traditional potassium deficiency symptoms.

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So let's switch gears real quick. I want to talk about fluoride toxicity real quick.

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No, this is becoming more of a problem due to declining water quality across the state.

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You know, the other thing that you have to keep in mind and part of why we have this problem,

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you know, much more so than other areas is rice production.

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So part of the we reason that we grow a lot of rice in the state is we have low permeability soils,

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which prevents, you know, the downward flow of water and leaching.

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And unfortunately, what that means is the lack of water movement also leads to an increase or a buildup of salt concentrations in our soils.

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And so if you combine those two things, you know, declining water quality with the inability to leach salts out of the soil profile,

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we start to get a buildup of these salt concentrations over time.

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And even though chloride is a plant essential element, you know, at high concentrations,

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it can enter those toxic zones and start to decrease yield and productivity.

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Another thing to remember is, you know, depending on your soil, your production system, you know,

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Bédard systems can actually exacerbate salt concentrations just the way the water evaporates or flows through the bed and

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lead to areas of much higher salt concentration that you might then you might have in a flat planted production system.

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So I'm not going to get too in-depth into the chloride issue other than to

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tell you that we've developed and implemented a new field based rating system.

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So if you remember back to traditional ratings, they were often done, you know, in short, green house trials.

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And they just had simple, you know, categories include or excluding mixed.

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And a lot of times we would find that, you know, a variety might jump from one to another.

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And that was really an artifact of the testing system that we used.

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And so what we've done is we've actually shifted to a field based rating system

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in association with the University of Arkansas official soybean variety trial,

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where we take samples directly from the field.

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We measure the tissue chloride concentration. We use known checks.

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You know, we use a lot of our research based information to categorize the reaction of those cultivars using our new scale.

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And one of the differences that I really want to point out with our new scale is that to me, it's much more descriptive.

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And so we're going to have five categories that are numbered, obviously one through five with one, you know, relating to a very strong excluder.

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Two is a moderate excluder. Three is a mixed or is a moderate include her.

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And five is a strong include her. And as I've mentioned several times, you know, the more data we have, the better we're able to make decisions.

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And so I think the nice thing about this is it it gives us, you know, a field base, more reliable approach.

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It provides us with more information. And really, to me, you know,

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the increased resolution or the increased description allows producers to pick when

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and where a certain cultivar or a certain variety might fit their system better.

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So just to give you a quick example.

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These are just some varieties that I randomly pulled out of the 2019 Field Base Reporting Light group for samples that we had.

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And you can see here the variety name we have the mean chloride concentration.

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We have the field rating. And then we have the reaction.

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And so typically, you know, all three of these varieties here in the middle of this table would have just been listed as a mixed population.

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But what you see here is that those three varieties are actually very different in how they reacted to the chloride concentrations.

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And this is what I was trying to get at earlier in terms of how we can better predict,

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you know, how the performance of these particular cultivars in chloride affected type system.

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And so to me, if if you have a chloride problem, then you need to really look for those strong excluder, as are moderate exploiters.

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If you don't have a chloride problem, then you're really open to, you know, any of these soybean cultivars.

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But this added level of description to me really allows us to go in and use different information to better pick our soybean cultivars.

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So just some key takeaways. The profitability of soybeans is going to be tightly linked to potassium deficiency

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and irrigated soybean can be corrected well into reproductive growth stages.

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You know, think about that dynamic critical care concentration and how it can allow us to

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diagnose hidden hunger chloride toxicity is becoming more and more of a concern.

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You know, the new system provides more detailed information.

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And what I think it really does is it gives producers more information to look at different agronomic characteristics.

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For those soybean cultivars and use that in conjunction with the chloride response to get the best cultivar for their particular production situation.

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So what else are we missing? You know, going forward, we really need to work on new and adaptive sampling plans for our tissue.

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Concentrations. We need to do some work on calibrating K fertilizer rate in season.

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So when we do identify hidden hunger or potassium deficiencies, what rates need to be applied?

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And then we need to look more at the economics of those in-season applications.

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Lastly, I would like to acknowledge the Arkansas Soybean Promotion Board, the soil test tonnage fee,

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the University of Arkansas system, division of Agriculture and the soil fertility crew.

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As always, if you have any questions about nutrient management and soybean or any other nutrient management concerns, please feel free to contact me.

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Thanks. Thanks, Trent.

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And another reminder, please be sure to add your questions to the Q&A panel.

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And so, Trent, one question we've had. Is there any data or comments on sulpher applications in soybeans?

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Jeremy, thanks for the question in regards to solve for applications and soybeans or other crops.

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I think we we need to keep in mind that over time we are seeing some declining sulfate or sulfur soil test levels in Arkansas.

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But as a general rule of thumb, on the majority of our soils,

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whether they are silt loam or heavier textured soils with adequate organic matter, we're typically not going to see sulfur deficiencies.

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The areas where we're going to see sulfur deficiencies in all of our crops, whether they're cereal crops,

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soybeans or cotton, are going to be our very sandy soils with low s.E.C or low soil organic matter.

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Typically, we we tend to know where those areas are. And I think as a producer, as a consultant,

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we need to decide what proportion of the field is impacted by the sulfur deficiency and whether

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it makes sense to treat the entire field or just those particular areas for something specific,

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like soybean. I think it would be really good to consider alternative potassium fertilizer sources such as potassium sulfate,

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because what that would allow you to do is not only apply your potassium needs to your soybean,

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but you can also potentially meet those sulfur requirements across the field.

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Thanks, Trent. Let's give you one more question while we're here.

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So the new scale for chloride toxicity, what does mix mean?

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Will there be issues or problems with sore sore salt injury?

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So, I mean, the mixed is really just kind of the middle of the playing field.

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And so it still falls right, right in the middle. And I think what you have to do when you're considering the new rating system is,

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you know, what potential chloride problems you think you may be facing.

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And then go in and look at the other astronomic characteristics that you're hoping for in your soybean cultivar.

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So whether that be herbicide technology or relative maturity or potentially nematode resistance or disease resistance.

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And so with disease and nematodes and herbicide technology, we have all this information to really categorize our cultivars.

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And so that's what we're trying to do with the chloride,

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is give us a higher resolution to tell differences in our cultivars between what's going to react adversely to high chloride and then what will be,

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you know, better able to stand up or tolerate high levels of chloride.

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So that mixed ones, again, is just kind of right in the middle of the pack. It doesn't really, you know, express excluder include our properties.

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It's just kind of there in the middle. All right. Thanks for trying for those answers.

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We've got one more presentation today. That's going to be our weed scientist, Dr Tommy Butz.

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Hello, my name is Tommy Butts, ext weed scientist with the University of Arkansas System Division of Agriculture.

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And thank you for joining me today for the weed control portion of the twenty twenty one Arkansas soybean production virtual meeting.

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Now, the first thing that I wanted to jump into and discuss is the bad news, which is Palmer Amaranth resistance update across the state of Arkansas.

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Also, the first thing that you'll notice is the across the state we have confirmed resistance and Pollner to six different modes of action,

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that the glyphosate, the DNA or the yellow herbicides and HLS inhibitors are very common.

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Almost greater than 90 percent of all our populations basically have those three resistances in their populations already.

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We also have confirmed HPV D inhibitor resistance peepee in Hope PPO inhibitor resistance and the Group 15 resistance,

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which if you look at these maps that we've created, has really started to take off as well.

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Across the state in distribution is spreading farther, more and more counties across the state.

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This top figure, every county that's colored blue, has a population that has been screened.

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And Dr. Nords, where these program and has resulted in less than 60 percent control from an HPD inhibitor herbicide and a label rate.

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So you can see several instances there across the entire state of Arkansas where there's pretty good suspected resistance.

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HPD herbicides in the bottom figure. Every county colored in red or black has had a population that's been screened and confirmed, resistant to a PPO,

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inhibiting herbicides that has really broad into its reach across the state and is widespread at this point now as well in Pollner.

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And even scarier is the three counties in black have been confirmed to have Group Fifteen resistance as well.

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So the dual Magnum's residual anthem outlook war and all of those, there's confirmed resistance in the states in three counties.

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So those herbicides as well. Also, even scarier news on the resistance front is that we do have a population.

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This was collected in Mississippi County by Tom and Dr. Nords, where they had done some screening in Fayetteville on it.

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And as you can notice, Glew Farzaneh is losing its effectiveness on this population pretty significantly right here in this second box.

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You can see a 32 fluid ounce per acre rate, so a labeled rate of liberty on top of that pigweed.

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And it's growing strong, showing barely any symptoms and surviving and even way over here on the far right.

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At a two hundred and fifty six fluid ounce per acre rate or an eight x ray, we have survivors growing in this population.

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So we have not confirmed glyphosate resistance yet. But as you can see from the pictures and from initial testing,

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it is a very high likelihood that we have a confirmed glyphosate resistant pigweed population in the state of Arkansas.

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So basically, this all comes to the conclusion of I feel like Kevin McCallister and Home Alone,

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where we have a lot to be worried about and scream about with some of our herbicide resistance concerns and Pollner in the state.

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And so we really need to take a diversified approach and manage these pigweed populations from a whole lot of different facets to achieve season long.

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We control and effective control at that. Now, this diversified approach really starts off with pre emergence, residual herbicides.

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And when I say pre mergence residual herbicides, I mean using multiple effective sites of action within these pre emergence, residual herbicides.

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So right off the bat, Group 15 herbicides and Metro Buzan are very critical to having our mixes and make sure that we can make these effective.

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Now, in the pictures that you can see here, I've highlighted a few different options that have done really well for us in some small plot research.

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Tri vents is a great option with multiple effective modes of action.

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It's got three different modes of action in there, two that are really effective for polymer the Metro Buzan and the Fluey Oxes Inter PPO Park.

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Now, if you are in a PPO inhibitor resistant area,

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mixing in like a two and a half fluid ounce acre rate of residual can really help try events out and give you those multiple effective options there.

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Boundary continues to be a very good residual product with its mix of S until Clore and Metro Buzan and fierce tends to be a very good option as well.

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Again, it's a mix of Fumi oxes in a PPO, plus our pirates', a cell phone residual or anthem component.

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And they also fierce also has a fierce MTC product. Our Valen, I should say, has a fierce MTC product for our PPO inhibitor,

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areas where we can get the metric using and with that pyrolysis phone component and again,

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have both of those effective pre mergence projects, products working in our residual scheme.

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Also, a benefit to using these multiple diverse, effective sites of action is it also provides us a broader spectrum we control.

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As you can see here, we really achieved pretty good grass control along with the palmar control by having these diversified strategies in there.

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So these aren't the only products out there.

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But I just want to highlight a few that we hadn't seen in testing this year that were that were really successful and give you those options,

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that there are several options out there and some of the different tank mixes that

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we can use to make sure we have multiple effective sites in our residual program.

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Now, I want to jump in to some recommendations for our different herbicide trait technologies.

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And before I get into that, I figured I'd start with the dicamba regulations for twenty twenty one.

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Really, it's the same regulations as 20 20. Not much has changed.

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So make sure to check your the Arkansas State Plant Board Web site for updates and buffer zone requirements and all that kind of stuff.

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Make sure to check your specific product Web sites for Tain't Nix's and restrictions.

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They are. And applications, all that kind of stuff. The main couple of things I wanted to highlight was the fact that there is a training required

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again this year to apply these products and that training is given through the companies.

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However, do the pandemic encoded these trainings? Have they are accepting an online training now for this instead of an in-person one?

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So the company trainings can be taken online and will account for being able to apply I.

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Campbell, in crop this year. Once again, we have a May 25th cutoff.

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One difference is that from the federal label, we have to add in a volatility reducing agent.

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And there's currently only to label vapor grip extra and centrists. So make sure to abide by all these rules.

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And again, check out the different Web sites and stuff for any updated rules and regulations as we go along.

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Now, jumping into the program checklist, I wanted to hit on several things for each of our herbicide traits and what we should look out for.

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So I wanted to start with Extend Flex, our newest approved soybean herbicide trait technology out there.

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This has resistance to dicamba glyphosate, Anglo Farzaneh.

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One of the first things we wanted to recommend is to consider using Dicamba at planting with our PRIX'S.

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And the primary reason for this is, one, hopefully we have an opportunity to use that gamba ahead of the cutoff date,

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but also that Kamba has a decent residual activity for Pollner, especially in low moisture conditions.

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And so if we have a situation where we apply our pre mergence residual herbicides,

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but we don't have an activating rainfall or inactivating activating moisture right away that CAMBA can carry us through until we get that moisture,

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and then it'll activate our next residuals that we had applied with the dicamba that will activate and take over and prolong our residual control.

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So it's kind of a risk management standpoint from a moisture perspective that it'll

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give us residual control even in a dry environment once we get that moisture.

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It activates our other residuals and it'll take over for that CAMBA. So it's a very good option to try and include it as a pre.

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Also, we want to make sure that we're adding in group fifteen residual herbicides with our first post to overlap our pre emergence application.

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No matter what our technology is, we want to be overlapping those grew 15 herbicides to help us effectively eliminate germination and not eliminate,

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but at least reduce the germination those pigweed so there's less available that the post herbicide applications have to take care of.

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When we talk about extend, which is resistant to dicamba and glyphosate, again, the same goes for the Dicamba.

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I'm trying to use it prae as much as possible and get it out in advance of the cut off.

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If you are in a PPO resistant Pollner area, once we pass that May 25th cut off with extend soybean,

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there's basically no options post to try and successfully manage that pigweed.

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So you have to rely on overlapping those residuals and getting them out in a timely fashion to not let Palmar ever get out of the ground.

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So very, very challenging environment in that situation and extend soybeans.

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When we look at enlist E three, this is resistant to two four D glyphosate angley fascinate.

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What we really want to recommend here, along with overlapping those residuals again in that first post emergency application.

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We also want to highlight the importance of tain't mixing and list one Anglophiles eight together for pigweed control in the system.

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We've seen that can manage a lot of risk and really gets us that are big pig boot,

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unique pigweed control on the whole instead of using those products alone by themselves.

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So the tank mix is really a good option with enlistee three. And finally, there is El LGT twenty seven soybeans available.

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These are resistant to glyphosate, Lou Farzaneh and I Sock's Food Tor, which is an HPD inhibitor.

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Unfortunately, these soybeans are only Tuller to pre HPD not post and that herbicide chemistry elite.

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Twenty seven is not registered in most of Arkansas counties.

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So these basically become liberty linked soybeans. But you have the benefit of using glyphosate post for grass control.

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But for pigweed control, we have to manage it like it's a liberi link system and rely on either PPO herbicides or sequential.

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Zurfluh fascinate to take care of that pigweed.

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So with that, I wanted to jump into some more specifics for our different chemistries and our herbicide trait technologies.

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And the first one I want to start off with was extend flax. So these next few data slides actually come from one.

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A doctor knows where these graduate students loss increase.

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And this is from some of his dissertation projects where he was looking at sequential applications within an

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extended flex system and also the timing between those sequential applications to optimize our polymer control.

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The first thing I wanted to highlight on this graph is when we're looking at pigweed that are small, so less than four inches.

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You can see over here we have a lot of different sequential options or or programs that we're able to get us greater than 90 percent control.

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So that's really good that if we have smaller pigweed, we have a lot of options to get us that level of weed control that we're looking for.

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Now, just to highlight what the best treatment was on these small pigweed, you can see that was right here highlighted by this green box.

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It was Dicamba, followed by Glew Fosun eight at a 14 day interval.

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So we sprayed Kamba 14 days later. We came back with Blue Farzaneh, and that got us our best level of pigweed, control.

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But now this was on less than four inch pigweed. And the next thing I want to highlight is when we go to four to 10 inch pigweed.

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So our pigweed gotten a little out of hand. It's off. It's big, maybe off label.

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Now, if you look over here at our 90 percent control bar, you'll see we only have one bar that gets us a greater than 90 percent control.

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And we've lost a significant amount of control with all these other strategies.

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So this really highlights the fact of how we need to be timely with these post applications to really get the most control out of these systems.

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Even with something like Diane Blair 240, we have to be timely to get the most out of these and achieve our maximum levels of control.

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Now, once again, even with this bigger pigweed, our best treatment was dicamba, followed by Glueck phosphate at 14 day intervals.

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But now the last thing I mentioned here is when we look at the different time intervals with that sequential application,

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we see another interesting thing emerge.

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If we look at Dicamba, followed by GGU Farzaneh, at 14 or 21 days, you'll see we got our greatest levels of control that's in that yellow box there.

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But if we look at dicamba followed like 2008 in shorter time intervals.

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So at seven days later, three days later, or even in the same day,

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you'll notice we have a significant reduction in our level of weed control and that sequential application.

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So basically, in an extent flex system, when we make that dicamba application,

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we really need to wait at least 14 days before we apply our sequential glyphosate application to maximize our we control in that system.

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Now, also, I like to mention there was a tape mix included in this of Dicamba Farzaneh down here.

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Now, that is an off label application. And so we don't recommend from that standpoint.

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But also, if you look at the level of weed control of the tape mix compared to our sequentially, you'll notice it's significantly less as well.

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So from both the standpoint of the tape mix is an off label application and we have a significant reduction or weed control.

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It's really not something we want to be doing.

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We want to make sure that we're using these sequential applications to maximize our effectiveness and extend flex system.

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And just to help prove that I'm not a complete liar. Here's some pictures to back up, back up some of that data in this picture right here,

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you can see the dicamba followed by Farzaneh on a three day interval.

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And you can see all those pigweed that are still there as opposed to here in this plot.

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When we look at that Kamba fall by the fascinate with that foot recommended 14 day interval, you can see how much better pigweed control we have.

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And there's only a few more small escapes at that point and so much better weed control

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with that 14 day interval than when we tried to show shorten up that interval.

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So that was extend flaks. Next, I wanted to get into some enlist E3 recommendations.

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And so here's a few plot pictures from Raw, Arkansas this past year.

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The first thing I wanted to highlight in the second picture here,

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you can see is a three way tank mix of enlist one plus round up our max plus liberty.

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And you'll notice quite a few pigweed escapes in that plot.

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This tank mix, this is definitely something I don't recommend in our soybeans, wheat, wheat, similar to Extend Flex.

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We consistently see better control and we can use sequentially than we do when we use that tank mix all up at once.

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Also with this tank mix, we've seen that this can get pretty hot with the chemistry,

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especially if we're adding in a group fifteen overlapping residual with that four

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way mix and we'll get more speckling and more crop response because of that.

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And at high load of surfactants and everything in that mix. So this is really something we're not recommending at all.

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But now as we move to the right and look at some of these other plots where they were sequentially used,

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you can see how our levels of weed control increased. This middle picture was in list one plus Roundup plus Moccasin or S Matola law.

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And then we followed it with a single shot of liberty. The fourth picture here was in list one plus roundup.

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And we followed it with an list one. And the final picture over here was in list one plus roundup.

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And we followed it with liberty. And so you can see in all three of these plots, we actually have really good weed control.

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There's very little Palmer Amaranth that escaped through those sequential applications.

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So very, very good weed control and good options for our situations in the field.

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However, there's a couple of caveats that I want to mention with these treatments.

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First, if we look at this middle plot versus this fourth plot, you'll notice that because we added that overlapping residual like we've talked about,

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we have no extra flushes coming up in this plot as opposed over here where it was just in this one in Roundup and no overlapping residual.

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You can see all these seedlings coming up in that plot,

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both grass and pig weeds that are going to either causes headaches late in the season by blowing through the canopy or still

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trying to drain or you'll just at this point where they're growing and taking nutrients and everything else away from our crop.

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So, again, overlapping residuals is still very critical for that season long we control and the analyst system.

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The other thing that I wanted to mention is we only use a single herbicide by themselves as our second post.

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And we really don't recommend that with the analyst system either. We really recommend the tank mix of enlist one plus liberty.

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And the reason for that is is shown in these pictures here where we did a nozzle study and these different chemistries in the analyst system.

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Now we use the TTR nozzle here and I would not recommend that nozzle is too big of a droplet size for the analyst system,

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but it helps to illustrate if we have something go wrong and application error,

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other environmental impacts, something where we have a negative aspect on our application.

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What happens when we use this tank mix?

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If we relied on enlist list one or liberty by itself, you can see significant escapes in that plot with pigweed coming up.

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But when we use that type mix, we got much better weed control. It basically mitigated our risk.

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It managed some of that risk even in a poor situation, coming out of a bad nozzle for for these herbicides.

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That techniques helped get us better weed control.

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And so we really recommend, especially on that second post application, to use an enlist one plus Liberty tameness.

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Now, if you have more questions or more details that you want on the enlistee three system,

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please feel free to scan these QR codes to go to a couple of different videos or video playlists that we have.

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The top is to the soybean virtual field, a video last year that I made on enlistee three recommendations.

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And the bottom one goes to Dr. Nords, where these in the Weeds video series,

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where he has several videos out there on Extend Flex and enlistee, three recommendations.

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So please feel free to visit those as well. The next thing I want to quickly talk about was spray water quality.

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Over the past two years, we've sampled about 80 different spray waters for their P.H. and hardness.

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And you can see we have a huge range across the state from less than six to almost nine for a P.H. and from zero,

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which basically very soft water to greater than 400 parts per million or very, extremely off the charts, hard water.

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Now, just some previous research that has been done has shown that these two things can impact our we control group.

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One, herbicides have shown if we have increased P.H., we lose, we control. If our hardness or I can't.

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Iron concentrations get too high, greater than 250 parts per million.

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There's been a loss of glyphosate recorded.

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And also, if we have high P.H. and high hardness greater than two hundred parts per million, we've seen a loss in Liberty and Callisto control.

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And so if we go back to this graph and we look at this bar right here of a seven P.H. and a two hundred part per million hardness,

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02:25:07,000 --> 02:25:11,000

you can see we had a lot of water samples that tested in that range where we might

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02:25:11,000 --> 02:25:17,000

be losing weed control simply because our water is either hard or has a high p h.

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Now, one of the things that we can do to help counteract that is to add in a mass or other certain adjuvants that can help condition the water,

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tie up some of those cations and make our herbicide more available. So this was a study we conducted at Raw last year, again in this middle picture.

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You can see liberty by itself. And in this right picture,

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02:25:36,000 --> 02:25:43,000

you'll see Liberty plus H.M.S. at three pounds per acre and the increased weed control that we observed from adding that a mass into the tank.

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Now, when we tested Raud water, it was very high in sodium.

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So another cation that was tying up our herbicide and making it less available when we added H.M.S. into the tank.

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It allowed that herbicide to be free and work like it should. And gave us better control.

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Now, it's not a silver bullet and it's really not for everybody out there.

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You really need to know what's in your water and have it tested for cations and things like that.

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But if you have it tested and you have high cantine concentrations or considered hard water, a.m. some of these other attachments,

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Navy, really good options to help you get a few more a little bit better weed control in your fields out there.

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Also, real quickly, I just wanted to mention that we need to be using integrated weed management strategies out there, so things like narrow road,

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which seem possibly increasing seeding rates earlier, planting dates, you know, maximizing our early season,

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we control to make sure our soybean plants are growing as efficiently as possible.

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Early season are beneficial using cover crops to help reduce that first flush.

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Using deep tillage to bury seeds and hopefully reduce that soil.

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See bank cleaning our harvest equipment or tillage equipment so we don't spread seeds from field of field.

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And then also trying to maybe implement some harvest.

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02:26:51,000 --> 02:26:59,000

We'd see control to reduce, you know, any seeds from returning the seed bank and continually increasing our problem from year to year.

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So we have to implement those. And the reason integrated weed management is so important is illustrated in this football analogy right here.

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When we use all these multiple effective strategies together, the cultural prevention of prevention, mechanical and our chemical strategies,

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they all smack those weeds at the same time right at that fourth and one and stop them from crossing that line and really causing us issues.

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So using integrated weed management with all these strategies together is really important.

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Now to kind of some everything up and give you my recommendations for 2020, we can 20 21 weed control.

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What I want you to do is remember sports. If you can remember sports, it'll help you with your weed control moving forward.

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And what I mean by that is if we want to start clean, we want to make sure that as we're planting work,

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we're starting into a clean bed with no weeds emerged at that time.

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We want to use our pre emergence and effective multiple effective pre emergence herbicides up front.

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Then we want to overlap residuals with that first post and making sure that we're extending that amount of time with no pick weeds emerging required.

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Are those IWM tactics? We need to use as many of those as we possibly can in our system to help throw as

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many linemen and linebackers and everybody at that running back as we possibly can.

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We need to be timely.

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So just like that, extend flex, we need to hit small, big weeds, even small grasses so that we can make sure to maximum maximize our effectiveness.

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And then finally, we need to select multiple effective mode of action, post herbicides to match our immerge weeds to really be successful.

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So if you can remember sports, you can be successful in our we control for the next year.

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With that, we have lots of other information that you can access for for your weight control needs on factsheets.

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Visit our Web site for updated information, all of that kind of stuff.

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Also, Tom and I put together a video series on herbicide symptomology from drift rates of several herbicides.

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So please feel free to watch those videos at your chance. You can scan the QR code or visit that link.

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And also, if you want weed control information throughout the year directly on your phone, please feel free to opt into our texting service.

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02:28:58,000 --> 02:29:02,000

You just need to text weed's to this phone number right here and it'll automatically subscribe

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to the service and we'll periodically send information directly in a text message to you.

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With that, I have lots of acknowledgments. But the main one I want to hit on is to thank Arkansas Soybean Promotion Board and the checkoff

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dollars that go to support a lot of the research and extension recommendations generated today.

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So I'm very appreciative of that. That helps us run our programs as much as we can do.

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So thank you for that. And thank you to everyone else that's listed here and helped throughout the past year.

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And finally, with that, I just wanted to say thank you for watching. And if you have any questions,

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please feel free to get a hold of me at any of the contact information on your screen or ask the questions in a live Q&A section coming up here.

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Thanks, Tommy. And with that, we've reached the end of our recorded segments before we move to the Q&A session.

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I'd like to thank all of our faculty and staff for their efforts to improve soybean production in Arkansas.

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And just as important, I'd like to thank all those in the agricultural industry partners for their support.

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I also remember that C. Use will be submitted after all of our production meetings are completed.

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And so for those who have provided their license numbers when they registered,

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if you did not submit your license number and want to receive credit, please e-mail your information to Jerry Clemmons at j.

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C. L. E. M. O. N. S at u.a.e.

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Eckstut PDU. And now we'll begin our Q&A session.

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If you haven't already, please submit any questions you have in the Q&A box.

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We've got several. And so we'll do our best to try to get to every question as long as Tom or Tom allows.

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So first off, we're going to ask Dr. Butz.

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So one question is, do we have Doc Cambon, two 4-D resistant Palmer Amaranth in Arkansas yet?

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Thanks, Jeremy. So as of right now, we do not we do not have any 240 or die camba resistant Palmer confirmed in the state.

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Dr. where he has screened a few samples and so but hasn't confirmed anything yet for the state of Arkansas.

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I will say, though, there has been one or two populations out of west Tennessee that's been confirmed resistant to Dicamba.

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So it's not far away, but we have not confirmed it in the state yet.

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Here in Arkansas. All right, thanks, Tommy. This next question is going to Ben.

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Ben, the question is, have you done any work with Helidon early as in herbicide applications?

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For example, pre are three stage. Will it stay in the canopy?

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Well, kind of.

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From all our research, what it indicates is that as long as there's worms out there in the field, that product will stay out there in the canopy.

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As long as there's worms out there, you don't wanna spray it out there when there's no worms out there that the

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virus can degrade pretty rapidly in in sunlight and just out in the environment.

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But as long as there's a low population of worms out there, it'll it'll stay out there in the system.

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We've applied it to V4 soybeans, but there is worms out there in the field and it's lasted throughout the rest of the season.

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So as long as you got some worms out there, you're good to go.

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Thanks, Ben. All right, so this next question is we'll start with Terri Terry.

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The question is, is there a case for automatic fungicide applications other than a history of Web site in a field?

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Good question. I think with cost relief, flight s severe costs or cost relief fly in fields, the history of that history on the farm.

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Keep in mind that disease seems to be more severe, severe the farther we move south in the state.

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And so, you know, understanding that we have to apply fungicide ahead, ar3 and ahead of symptoms.

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That's that's a case for somewhat of an automatic fungicide application.

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I still wouldn't call that automatic.

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I would say that's based on on field and farm history and maybe even understanding that we might have a variety planted late.

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First, the cost relief flight could be more severe outside of that.

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I can't think of a dataset that tells me that an automatic fungicide application makes a lot of sense, especially when there's no disease present.

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Thanks, Terry. This next one is to Trent.

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Trent, the question is, what are some ways producers can do on farm research regarding their local Clora toxicity levels?

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Any suggestions? So the one thing that I would say regarding chloride toxicity in soybean is the the

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most reliable way to assess whether or not you have an issue is to do tissue testing.

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So a lot of people have asked about soil testing for chloride in the past.

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And the problem with testing the soil is chloride is a negatively charged and iron.

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And so it's very mobile in the soil. And that means that it's really hard to predict when and where that chloride is going to show up.

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And so if you think you might have a chloride problem, we really want to start with tissue analysis.

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I feel like we can take those upper, most fully expanded tri foliages, you know, anywhere between our two to our four.

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We do all of our field based testing around the are for Growe stage.

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Just to give the plants plenty of time to take up and accumulate the chloride.

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But I think really tissue testing is where you want to start to identify or confirm a potential problem.

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And then the one thing that I would reach out to, you know, agents, producers and consultancies,

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if you feel like you've got an area, you know, with potential chloride problem, let's do some tissue testing.

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But I think there's the potential to actually do some on farm variety trials to see where these

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particular different responses to chloride takes toxicity would fit best into production systems.

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Thanks, Trent. This next ones are going to go to Tommy.

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Tommy, your question is, I know we've talked about we control and we tend to go with herbicides.

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Have you looked at Berry and Palmer Amaranth with the tillage trip, such as mobile MO Board Plow?

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Yes. So tillage is one of those things that we throw into those integrated weed management tactics.

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So those required IWM things that I mentioned on the tillage front, especially deep tillage like mobile or plow with polymer.

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What we've noticed is if we can do that every four or five years, bury that seed down at least six inches deep.

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If we let it if we do that every four or five years, basically we can reduce the viability that pigweed seed by like ninety five percent.

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So it can't survive that deep in the soil for that long.

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So it is a good way to reduce our seed bank, but it takes time.

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It's a long term approach.

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So when we do that, we just need to realize that and look at it as a long term approach versus something that might help us,

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you know, kind of right off the bat kind of thing. But it definitely is a great option, reducing that seed bank.

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And then we just need to manage that. We don't let seeds return to the seed bank filing that.

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Otherwise, it's basically just an endless cycle as we tell the ground, because we bring more seeds up and put seeds back down and just keep cycling.

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So that's kind of the premise behind the D tillage part. All right.

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Next question is to Travis Nemoto, question our soybean cyst, nematode robbing or reducing yields going unnoticed?

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Yeah, I would say there's there's probably always some loss there, but it's certainly not as dramatic as root, not so.

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And sometimes those are a little bit hard to measure,

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and that's based off of the folks that have a lot more longer dataset that we have where they're looking at the Resistance API eight eight,

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seven, eight eight, which is almost a ninety six percent of our varieties.

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There seems to be a trend where the yield response from those is slowly starting to degrade.

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But in our area we can kind of rotate out of sweeping, systematized issue.

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So that's a little different than the Midwest. So, yeah, it's it's they're they're they're probably having an impact, although it may be low.

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All right, thanks, Travis. Next one is for Ben and Ben, we.

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I think we deal with this one on pretty much a yearly basis.

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What can you do for slugs in soybeans that are in cover crops or no tail fields?

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Is there a sea treatment or is working the ground the only option?

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Well, besides, you know, work in the ground and burning down your cover crop and hopefully letting it

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dry down because those slugs don't don't do very good in a dry environment.

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There's a there is a there's no sea treatments. There is a product called deadline.

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Yes. I think that gave Ingredient's Metalhead. But it it works really good on slug's.

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The only problem with it is it's really expensive. I think it's gonna cost you something like thirty dollars an acre to put it out.

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So it's definitely not something you want to put out on a broad scale.

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Maybe if you've got like maybe if you can narrow down a section of your field where they seem to be really bad,

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maybe you can treat that area or something like that. But there there is that.

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It's just really expensive. There's not much else you can do besides teal and dry out that dry out that ground.

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So those slugs can desiccate. All right.

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Thanks, man. I'll take this next one.

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So the question is, have we looked at products with macro nutrients that also contain Internode shortening agents such as seed set?

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So we haven't looked at that particular product. Well, we've looked at other herbicide programs, try and shorten infernos and soybeans.

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And as of yet, we haven't found anything to really shorten up soybeans.

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Picks and cotton, you know, we actually looked at picks and some other products.

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And, yeah, we can probably shorten on just a fraction of an inch, but we just don't see the response that we see in.

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And in cotton with what? The use of pig. So we still don't have anything that that can shorten up really tall soybeans.

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I know I get that question every year because we know some of our varieties do get kind of leggy late in the season.

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So the next question. This is going to go to Travis, Travis, again, soybean fields with no rain or foreign problems.

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Is there a yield dragging soybeans also? Would they contribute to some other disease problems?

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Yes. Interesting question. So that the research that has been done on reperforming soybean is kind of inconclusive in small plots.

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They've shown some pod losses, some differences between plots have been treated and untreated.

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But that's really been the only ones.

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When you go to a field situation, some of the trials that have been done in Arkansas, there's been no difference in the yield response.

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So although they're a really good pest, they can reproduce quite a bit.

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They really need some help to be a pathogen to really cause some yield losses in soybeans, even in Louisiana.

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Charles Overstreet did tell him and no tell on. And the yield response wouldn't justify the expense.

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So that tells me that although they may have some drag, it's minor.

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Certainly not like what we see in root. Now, as far as the interaction with other diseases, that, too, is inconclusive.

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There's no really synergistic effect like what we see with root,

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not in few cerium when it comes to like Sehring wilting cotton or soybean, Sistema Tode and SD s in soybeans.

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We just haven't seen that with RNA for most of the studies or just with the nematode itself.

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So opportunity for graduate students in the future to take a look at that.

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But nothing that we can say conclusive at this time. Thank you, Travis.

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Next question is going to go to Trent Trent, is there any concern when applying poultry litter?

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Just ahead of planning soybeans? So I think the only concern that we would have is based on rate, and as long as we stay at that,

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you know, one to two ton application rate, we shouldn't have any issues.

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Soybean are going to be a little bit more tolerant to early season salt concentration.

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So that's not necessarily the concern, I think, where we're going to be concerned as potentially the nitrogen and the poultry litter inhibiting,

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you know, nodule formation and symbiotic nitrogen fixation.

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But as long as we kind of stay below that two ton per acre application rate, we shouldn't have any issues.

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All right. Thanks for that answer. Next one is going to Tommy. Tommy on enlist soybeans.

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Have you seen any weed reduction or kind of control when tank tank mincing roundup.

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Plus liberty. Thoughts, possibly liberty burning and not allowed around to kill the weeds.

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So that's a good question. I would say in some past research I've seen where there is a little bit maybe of an antagonism there.

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But it's not like in my research, it's never been a lot. I mean, we're talking five percent maybe at the most.

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And I know, you know, when I've talked to Tom and Dr. Noseworthy about it and stuff, you know, it's never been enough to.

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Kind of scare us away from doing that tank mix, if that makes sense.

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And generally and a lot of our Swabian situations, those two things, we're almost going after different weeds at this point anymore.

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You know, roundups were typically have in there for grasses and liberties. Not great on grasses to begin with.

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And we've got the liberty in there to take after. To go after the Palmer.

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And the roundup is not doing anything on our polymer anymore because we have so much resistance.

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So I would say generally I'm not too concerned with it.

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I think it's it's OK to do that. The Roundup Liberty Mix.

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I definitely would just avoid ever doing like on the A list system, doing the three way mix when you start factoring in enlist into that too.

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And maybe, I mean, you know, the overlap and residual and stuff that I've seen a bigger loss of control when you do that big tank mix

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and then there's definitely a potential for more injury when you have that much loaded into a tank.

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So the two I'm fine with if you start talking about adding all three and that's when I would have an issue.

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All right, Tommy, stand with you. A question about control and Tweeter or Sarda.

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Sure, so prickly side and Tweed's really popped up more in our extend.

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So it being the last couple of years because that Kamba post on it just isn't great.

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And we didn't have another option.

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There's definitely quite a few good pre residuals that can be put down to kind of help if you know you're in a bad T weed,

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prickly side, prickly side area. So most of time it's those aliases.

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So anything with, like Clarence Lamb or first rate in its or classic in it or flu limits lands,

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a python is really good on to any of those as a residual or really good post liberty.

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If we're in those systems where we can use liberty, that tends to be pretty good over top of it.

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And so that's, those are the directions that I would headed to try and manage to weed prickly Syeda.

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02:45:29,000 --> 02:45:33,000

Thanks, Tommy. So the next one's for me.

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The question is what the gallons per acre were the Foley products applied?

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And do you think this primer could influence the data when applied on a deficient crop?

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So we actually use 10 gallons per acre and decide with any other, you know, product.

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If you don't get good coverage, you're not going to get, you know, good. You know, you're not gonna get the product into the to the to the plant.

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So that could be a bit of a potential issue on the coverage.

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But, you know, but that's the way you'd look at 10 gallons per acre is what we looked at.

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So the next one is for Terry.

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Terry, the question is, do we have. Do we have to take a preventative approach to prevent Scottsboro?

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Or if we see the symptoms of the disease? We waited too long or will not get a benefit from a front fungicide application.

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That is exactly right.

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If you wait until you see those leaves curling up, that is really late in the season, you're well in the pod feel and probably almost done with it.

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And so you absolutely not get any benefit from a fungicide application at that point.

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The data's pretty clear on on the lack of value for a late application.

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Where we have questions, I think is is how early is too early?

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And when does when is that early cut off? So it looks like it's around.

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Ar3 for the latest. But I'm not sure it's too early.

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And would that make a difference? Which is why we're doing a lot of these on farm trials like we are.

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Thanks, Terry. Next one's back to Trent.

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So the question trend is we're being pushed to use Mezze 10 in place of triple superphosphate as a much greater at a much greater cost.

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If not on Sandy Sors, is there any advantage in the MEZ 10?

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And then a follow up question is, somebody wants to know where you bought your top.

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So we'll start with the tie question. My wife actually made this bow tie for some family pictures one year.

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So if you want a bow tie, let me know. And I got you a source.

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They ensure fertilizer question. MERS 10 or Micro Essential Sulfur 10 is a multi nutrient fertilizer product.

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And I think first we have to remember that it has 12 percent nitrogen, 17 and a half percent phosphorus and 10 percent sulfur.

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In my personal or professional opinion, I think MERS tan is best suited as a starter sauce.

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If you need nitrogen, phosphorus and sulfur for a crop like soybean, we typically do not want to apply nitrogen, especially preplanned.

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So MERS 10 Dombey is not really a viable option as a phosphorus source for soybean pre plant, as a sulfur source for cereal crops.

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I think it has a better fit, but really, you know,

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it's one of those kind of things where in a soybean production system, that's not a really good option.

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I am a fan of potassium sulfate. To get your cake needs as well as your sulfur needs.

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But the MERS tan, it has a fit, just not necessarily in soybean production.

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It caught me taking a drink. Should I answer a little bit longer? So we've got one more question.

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Again, this is back to Trent. So, Trent, what about applying the low rates of nitrogen for these high yielding one hundred plus both bushel fields?

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So this is a question that comes up a lot, especially when we're really pushing trying to get those hundred plus bushel soybean yields.

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I think there are a couple of things that you have to take into consideration. The first thing is it's symbiotic nitrogen fixation.

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We know can typically provide at least 75 to 80 or 80 bushels of nitrogen.

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And then if we're trying to get above kind of that 80 bushel per acre threshold, that nitrogen has to come from somewhere else,

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whether that soil nitrogen or whether that's additions or fertilizer that's added to the soil.

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That's kind of the, you know, the range that we're working in.

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So symbiotic nitrogen fixation will get us to 80 bushels.

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No soil nitrogen will add some more on top of that.

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So typically, if your production system, your environment, your soil can produce 100 bushel soybeans, it can do that without fertilization.

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You oftentimes, I think what's limiting or restricting hundred bushel soybean production is a couple of hot nights.

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Bad weather system here, a little bit of disease pressure.

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All those things add up and you go from 100 bushel beans to 80 bushel beans.

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I think we can time nitrogen fertilizer applications in soybeans where they can be beneficial.

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I don't necessarily think that they are economical, especially on large scale production systems.

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And so, you know, in selected situations, they might be useful.

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But as a general rule of thumb, I think if you're applying nitrogen to soybeans, you're probably spending more money.

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And that's a bad return on your investment. All right.

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Thanks for the answer. So we've had a couple more questions come in, so we'll try to get through those.

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This is going to Terry, can't Taproot decline impact other crops other than soybeans?

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Good question. We don't know the. We know that it can colonize a few other crops like like cotton.

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It can colonize Sierra Rhi and colonize corn.

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But the impacts are not clear.

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And if anything, what we've seen is, is there negligible on on corn and cotton?

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But that's been in rather controlled studies like done in a greenhouse or a growth chamber.

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Sometimes we can get fungi to make a lesion, which is cause disease in a growth chamber.

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But that's that's really not significant because the the conditions that we subject everything to are sort of perfect for disease development,

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or at least as far as we know, for that particular fungus. So it's there's really not a lot known about that.

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But we do know it can colonize other crops. What where where I think it really hangs around and does such a good job in

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keeping its inoculation load up is because it's it's a very good Saffer fight.

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So that's all these zae, Larry, is in this genus or good Saffer fights and they break down dead plant material.

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Thanks, Terry. This question's for Ben.

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And Ben, this is pertaining to the corn earworm research I did on your example of retreating, you showed six.

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If if it had been five, would you have retreated or live with them?

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I'm assuming that when you had to go and in your retreat retreat treatment, or does it depend on the size of the worms?

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So what? What I was talking about in that is that if I got back up to Threshold again,

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if I got back up to that twenty eight or whatever worms I had in that, in that example.

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That's how many you would leave again now. But I mean if I left five or six worms in the field I would not retreat based on that.

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Now of course if a chemical company or somebody was going to pay you to retreat because they did and because their product didn't work very good,

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I would probably take them up on that. But I would have I would have to wait on my second application for me to get back up the threshold again.

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So once I reach threshold again after the initial application, that's when I would I would retreat.

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Thanks for that answer. Back to Trent. This is kind of a follow up question on the MERS teen.

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How long will it take for phosphorus and tripple to become available vs. MERS tan?

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So when we're looking at those particular fertilizer sources, you know,

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the phosphorus is is both phosphate in the two different sources when we look at triple superphosphate.

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That tends to be a water soluble calcium phosphate form.

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Typically, most of our triple super phosphate is greater than 85 to 90 percent immediately water soluble.

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So the availability of triple superphosphate is not necessarily an issue as much as the formulation is different.

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I don't particularly know with MERS 10, but I feel like it's a combination of Monzo ammonium phosphate or map ammonium sulfate and elemental sulfur.

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And so you're still getting phosphate in both forms. It's just the phosphate in MERS.

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Tan is coming from Monzo ammonium phosphate, I believe, and triple superphosphate is going to be more of a calcium phosphate type of compound.

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They're both going to be water soluble. I think the difference really becomes, you know, the Amini uncle,

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a form of nitrogen it when in the MERS product that nitrogen might help with phosphorous uptake.

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But once again, in soybeans, it's not necessarily that beneficial.

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Thanks, Trent. Well, I'm afraid we've run out of time and run out of questions, so I just wanted to thank you all for joining us today.

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And if you asked a question and you got questions after this, please visit U.A.E Extra.

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E.D., you learn more and don't hesitate to contact any one of us.

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So, again, thank you all for joining us for this virtual soybean production meeting.

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And have a great evening.