

Changes to the Midwest Fruit Pest Management Guide - Part 1

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SPEAKERS

Dr. Lina Rodriguez Salamanca, Christa Hartsook, Joe Hannan, Speaker 3

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- C** Christa Hartsook 00:15
Hello, and welcome to the Small Farms Podcast, a production of the Small Farms Program at Iowa State University Extension and Outreach. Our podcast covers the opportunities and challenges associated with rural life.
 - J** Joe Hannan 00:29
I am Joe Hannon, Commercial Horticulture Field Specialist with Iowa State University Extension and Outreach, and welcome to the Small Farm Sustainability Podcast. This podcast today is part one of a four part series discussing changes to the Midwest Fruit Pest Management Guide. With me today is Dr. Lina Rodriguez Salamanca, Diagnostician and Extension Plant Pathologist with the Plant and Insect Diagnostic Clinic at ISU. Welcome Lina. How's it going today?
 - D** Dr. Lina Rodriguez Salamanca 00:57
Oh, pretty good. Pretty good. How are you?
 - J** Joe Hannan 00:59

I'm doing okay. Enjoying my January. I see that you guys are getting lots and lots of snow back in Iowa today.

D Dr. Lina Rodriguez Salamanca 01:07
Oh, yes. Yes. Love the snow, though.

J Joe Hannan 01:09
Yeah, I see you're working from home today, too. So you didn't travel to the office?

D Dr. Lina Rodriguez Salamanca 01:12
No, no, stay at home as much as possible.

J Joe Hannan 01:15
Perfect. Well, COVID too so.

D Dr. Lina Rodriguez Salamanca 01:17
Yes.

J Joe Hannan 01:19
So Lina, this is your first time on the podcast. And while I know you because I get to work with you almost every day or every couple days, anyway. All of our listeners may not know you, because we have a pretty wide gamut of listeners that tune into the podcast. So would you take a minute or two just to talk a little bit about who you are and what your roles and responsibilities are at Iowa State?

D Dr. Lina Rodriguez Salamanca 01:41
Yeah, I work at a Plant and Insect Diagnostic Clinic. I'm a plant doctor. So people send me samples and I help them investigate their plant problems, especially determine if a pathogen is involved, is it a disease that they're facing, and then guide them through what management decisions are available, so they can decide what makes best sense for them to implement in their farms.

J Joe Hannan 02:06
Cool. And I think for any of our listeners that are commercial fruit or vegetable farmers are out there. If you and I have worked together for submitting a sample to the clinic, it crossed Lina's desk almost guaranteed. Lina is kind of my go to person in the clinic there to to get things done quickly and fast for our commercial folks. So I'm pretty sure you know what you do in there.

D Dr. Lina Rodriguez Salamanca 02:29
I'm just behind the scenes in the laboratory,

J Joe Hannan 02:31
Or just behind the scenes. Well, Lina, are you ready to kind of dive into today's discussion on the new Midwest Fruit Pest Management Guide?

D Dr. Lina Rodriguez Salamanca 02:40
Absolutely.

J Joe Hannan 02:42
Perfect. So you and a whole bunch of folks from, and I don't want to just say the North Central Region because there are some folks outside the North Central Region as well, have been working very hard over the last 12 plus months at redesigning the layout for the Midwest Fruit Pest Management Guide. Really, I think to make it easier for farmers to select pesticides when managing their fruit crops. A good place probably to start out is what the heck is the Midwest Fruit Pest Management Guide? So Lina, what is the Midwest Fruit Pest Management Guide?

D Dr. Lina Rodriguez Salamanca 03:16
Well, this has a lot of history. Right now. It is really a book, it's a print out the you can find on the Purdue Extension. Joe has some copies. Well, you can also find it as a PDF online. The idea is there is entomologist, plant pathologist, and horticulture folks working hard to review different pesticides that can help you as a grower make the right decisions, what is going to be most efficacious, what should be used and a particular stage for a particular pest. So this book has tree fruits and small fruits. It has recommendations from all of these groups — entomologists, plant pathologists and horticulture, to kind of help you develop

your own integrated pest management program for your orchard or your farm in general.



Joe Hannan 04:11

So Lina, the book even goes further than just looking at efficacy and rates and things. It's really designed to help you build out your pest management program for the entire season.



Dr. Lina Rodriguez Salamanca 04:24

That's correct.



Joe Hannan 04:24

And some of those details that'll kind of highlight there. Yeah, I guess I'll see some of the other comments for for later. So Lina, who's all involved in actually developing this book?



Dr. Lina Rodriguez Salamanca 04:35

Well, there is any specialist on the entomology, plant pathology, or horticulture department from several land grant universities across nine to thirteen states depending on the year and depending on personal changes. We have a pretty large group that helps us with the guide.



Joe Hannan 04:55

Perfect and we should maybe drop all our names into the show notes as well, at some point make sure everybody gets credit for for that. And Lina, you said the book is found online in PDF format, I'll have the link to the book for the new version in the show notes as well. And then anybody that's a commercial farmer for fruit crops, I'll have hard copies available as well this year, as soon as they get to my office and those I'm giving out free this year, due to all the changes, I'm just putting them in your hands for free. So you can reach out to me and we'll figure out a way to get them in your hands. Alright, Lina. So well, let's talk about all the different changes in the book. And why specifically, are we making changes to the book?



Dr. Lina Rodriguez Salamanca 05:39

Well, we wanted to make sure that we explore different layouts, and also, you know, different variables or characteristics that each stage per crop has. But in a way, we are all

about saving you growers time and money, but also making sure that we discuss thoroughly some new things that you need to keep in mind as you're doing your pesticide rotations. So that's why we've thought about a new design that we hope will help you through, and we're absolutely thrilled that we really want to hear your thoughts on the new the design.

J Joe Hannan 06:18

Yeah, so we made new changes to the apple and grape chapters, specifically. So we picked two crops that are pretty widely grown across the region. And so Lina, you said that we want to hear back responses on your input on what those chapters' new layouts are. Because those things are not set in stone, right? Like those could change and adjust a little bit based on feedback that we get this winter or this summer.

D Dr. Lina Rodriguez Salamanca 06:41

Yes, absolutely. It is very important for us that we hear from you that the information and the guide makes sense to you. And as you work through the season, it really gives you what you're hoping for and what you need to make that decision on that point in time.

J Joe Hannan 07:00

And there'll be a survey inside each copy of the book that people can follow the link in the book and go and actually provide responses and input on the new layouts, right?

D Dr. Lina Rodriguez Salamanca 07:09

Yes, that's right, there will be a QR code and a short URL that you could use to give us input.

J Joe Hannan 07:16

Okay, perfect. So again, we're really going to be interested in getting input on what these two new layouts actually look like. Lina, when we look at some of the new tables, so we've taken out some of the information on the tables, so we've got our products, and we have our past, but we simplified the tables a little bit, and not all the pests are in kind of those mean pest stages, right? We took out and just really focused in on those primary pests that everybody should be seeing on a regular basis, correct?

D

Dr. Lina Rodriguez Salamanca 07:46

Yes, that's correct. The entomologist did a lot of good work, kind of thinking and discussing what were major or key pests that are common in the Midwest. And so for the most part, every stage will have the pest that you need to be on the lookout for and then you need to either scout, monitor, or have some sort of pheromone traps out to help your decisions for treatment with pesticides.

J

Joe Hannan 08:13

Yeah, that really came down to a couple of reasons. One, we really wanted to help you focus on what actually is a problem, because there's a lot of stuff in the old layout that really were pretty rare occurrences. We moved that information elsewhere to the end of each crop chapter in the efficacy tables. But by also doing that we were able to implement or bring in more information at each crop stage, right? So we now have Iraq or frat code efficacy product. Help me out Lina, what else did we include there?

D

Dr. Lina Rodriguez Salamanca 08:42

So we have PHI, the post harvest interval, we have REI, which is the re-entry interval, product name, we also included the active ingredient and we'll get to that but it's very important that we explain a little bit of why we did that. And then I think from there, you'll have columns that will have the pest in there, now we added rates. And right under that rate, you'll have the efficacy. So you can kind of look side by side at different pests that may be present or may be a risk of occurrence on a particular stage. And you can compare products, the efficacy, and also think about "Okay, this is the REI or the PHI, or I need to watch for the maximum application or the maximum amount of a product," so you can kind of keep track through the stages and use your products properly.

J

Joe Hannan 09:40

Yeah, it's really intended to give you a whole buy crop stage, a whole picture view of what's going on. So again, like you said, you can select the most appropriate product at that period of time and also giving you the maximum applications to make sure that you're not going over growing to use something now that you really want to use later in the season. So we're hoping that's how that will all that workout.

D

Dr. Lina Rodriguez Salamanca 10:01

Sometimes navigating pesticides, it's hard. There's a lot of established products that

you're very familiar with. There's a lot of new products that come into the market. And then there are those products that you are familiar maybe with the active ingredient, but the name has changed or it's pre-packed in combination with multiple products. So all these things can be incredibly confusing. But one of the most important things is that there's a lot of chemistry in this space, new ones, that we have to be more mindful of how they're used in the field.

J Joe Hannan 10:37

So you're talking about how they use in the field, you're talking about preventing resistance of that product on on a particular pest, right?

D Dr. Lina Rodriguez Salamanca 10:45

Yes, that's right. So if you think about, we used to have a lot of products in the past that we known they were broad spectrum. So they could be controlling and managing a lot of diseases at once, or many insect pests at once. And those are still included in in the guide. So for diseases, think of your edecs your captains, your Bravos, also for cow nails, for example, or coppers, those are broad spectrums. But then there's new chemistries that were fungicides and insecticides that only are what we call a single site product. So they're called single site, because they will go to a particular site, on the pathogen or the pest. Think of if a product may be trying to go in the respiratory path of a pathogen and kind of like if you will, you're trying to choke that pathogen.

J Joe Hannan 11:48

So one mode of kill basically.

D Dr. Lina Rodriguez Salamanca 11:50

That's right, yes. And so you know, when they're products that are targeting that single site, a pest population can become unresponsive to that chemistry or to that product type. And because of the vast amount of names in the market, sometimes it's very hard to understand what products belong together, and may be at risk of creating that unresponsiveness in your orchard or your field.

J Joe Hannan 12:24

So we group products together and to do that we use what's called IRAC for insecticides and FRAC for fungicides. And so FRAC is Fungicide Resistance Action Committee, is that

correct? Yeah, that's right.

D

Dr. Lina Rodriguez Salamanca 12:39

So there were a lot of scientists concern about, we want to keep those great products and great tools that work very well managing a pathogen or a pest. But since there are now single site, this group of interdisciplinary scientists start thinking about how can we help growers to understand this concept and pretty much know anyone like Joe and I benefit from it greatly, too. So they created this resistant Action Committee they met, and they came up with this code, something that we all can use to differentiate products, not by names, but by that code, either the FRAC for Fungicide Resistance Action Committee, or IRAC for Insecticide Resistant Action Committee, or code.

J

Joe Hannan 13:27

Okay, and the key there to prevent resistance is to always make sure we're not using products from the same code, multiple times in a row. Like with insecticide, I don't want to consistently use code three a, three a, three a, even though, you know, I might be thinking I'm using Danistal, and then turn around to using Mustang Max and going back to Danistal, Mustang Max, well those are different products, different active ingredients, but they're the same family. They're three A. So I want to make sure that I'm choosing something from a entirely different family. So you know, rather than using Danistal, three a for like Japanese beetle, I might use that once and then flip over to something like asale, which is entirely different, which is maybe four a I think, I'm flipping to a different family in order to prevent a pest resistance to those products and keep those products working, not just for this year, but years down the road, right?

D

Dr. Lina Rodriguez Salamanca 14:21

Yeah, that's right. And through the guide, not all products have the same risk of persistence developing on the population. And in the guide, we have made a purposeful effort to highlight products that either have documented resistance somewhere in the United States, or in neveress things in the Midwest, and we want you to be very aware of that there is a risk of resistance when you use that particular product

J

Joe Hannan 14:49

Right, and with the fungicides that'd be things like our strobulerins and other examples there.

D Dr. Lina Rodriguez Salamanca 14:55
Yeah, strobulerins will be the code 11 and there will be also some on the group on seven and on three.

J Joe Hannan 15:03
Yeah, but it was three a's, sevens, and elevens are are good, but you have to watch them.

D Dr. Lina Rodriguez Salamanca 15:10
Yes. And be aware too, that it's also a combination of the pathogen or to be seized the you're trying to control. And then the particular group FRAC code, some pathogens, because of the way that they reproduce, they reproduce faster. So then you want to be, you know, watching out for that, what are the pathogens that do have resistance up document.

J Joe Hannan 15:36
Actually, that leads a really good point I wanted to kind of follow up with you said, some, some pathogens, some insects will develop resistance quickly and that kind of goes back to when we're using a product with a one site kill point for lack of a better description, you may not necessarily kill 100% of the population with that product that you put on. And thus, the remaining population there could have some resistance to the product that you put on, right? And so if you keep using the same product over and over again, eventually you're going to have a population that is resistant to the product that you're using, and thus we want to rotate, right?

D Dr. Lina Rodriguez Salamanca 16:12
Yeah, that's right. And sometimes you may miss that you're using the same type of chemistry. Because if you go only by the name of the product, you may not be able to know what group they belong to. That's where those resistant codes the FRAC and the IRAC come to help you. And those are the ones that we have included on the tables, so that you get familiar with them and really get to take full advantage of that numeric coding system.

J Joe Hannan 16:42
Perfect Lina. I got an example here for kind of a different scenario. But do you think we

kind of covered the mode of action and the FRAC and IRAC well enough, or do I need to come dive into more examples there?

D Dr. Lina Rodriguez Salamanca 16:53
I like the raccoon though.

J Joe Hannan 16:55
Okay. All right. Lina says yes, we're going to follow up and dive into a little bit different example talking about raccoons on the farm, plug your ears if you don't like goriness, and come back in about a minute. So okay, let's take this out all the way from insects and diseases and look at you know, a different example. So let's say I have a raccoon problem in my field, and I decide to use a shotgun to manage my raccoon issue, the mode of action there or in the you know, the IRAC, FRAC code of action there would be a bullet. A bullet is doing active killing on my pest. So next day out there, I've got another raccoon out my field, and rather than get my shotgun out, this time, I go grab my Ruger 1022 to go out and manage the pest. So I've got a different gun, so I've got different product, but the mode of action is still a bullet. So there, I haven't changed out a mode of action there. So on the insecticide or fungicide side of things, I could start to get some resistance build up, if I keep using that same, same bullet, that same mode of action. Now to get to a different mode of action with this raccoon, you know, day three, I come out there and like throw my hands up, I'm done. I'm sick of it. Raccoons are just just came out there every day. So this time I go out and I put up a fence. And that electric fence around the perimeter of the field represents a different mode of action, a different strategy, a different target point for managing that pest. And that's how I rotate and get different mode of actions, different IRACs, different FRACs, for dealing with that pest. All of you that had your ears plugged for a minute during the goriness, you can now unplug. So hopefully that kind of helps put a visual picture of what we're talking about with FRAC and IRAC, that's not something that we've really, I don't, at least here in Iowa I don't know that we've really stressed and pressed on how important that is and taking use of that information, maybe to the best that we could have last few years.

D Dr. Lina Rodriguez Salamanca 18:50
Yeah, if I may add, I like especially the electric fence scenario, because let's pretend that the raccoon had three babies and the raccoon baby saw the raccoon mom get shocked in the electric fence, then let's pretend that those babies found a different way to get around the electric fence. That's exactly what the pathogen or the insect is doing, getting around that bullet that that particular method.

J Joe Hannan 19:18
Or mode of action.

D Dr. Lina Rodriguez Salamanca 19:20
Yes.

J Joe Hannan 19:20
All right. If you have still stay here with us through all these different examples, Lina, let's talk about some of the ton of work went into all the new information within apples and grape tables, and I think you've also went through and updated a lot of the efficacy information in the other crops, correct?

D Dr. Lina Rodriguez Salamanca 19:39
Yes, yes. So, one of the major tasks of reviewing the guide is we go and review products and efficacy trials from other states, review efficacy nationally discussed by discipline, come to agreements, do all this stuff. And so we wanted to put that in a very easy way that you can see it. So there's new tables by stage, you have right there everything that you need the product, the codes, the IRAC and FRAC, and then you have rate and efficacy right there on the same table. Like Joe said for major pests, mainly. And for all pests at the end of the chapter for you will have efficacy for key and minor are pests. But for those only the efficacy not necessarily the rate right there.

J Joe Hannan 20:23
Yeah, there's a lot of information, a lot of changes that I think people are going to be kind of surprised on the new look and feel on those those chapters. You guys also went back in because at one point, the tree fruit and the small fruit were two different books and they had different patterns for efficacy rating between tree fruit and fruit crops. You guys went in and resolved that, right? And now we're using one standard efficacy format for across the board for all crops.

D Dr. Lina Rodriguez Salamanca 20:47
Yes, that is correct. We worked a lot on consistency, trying to make sure that we were going with products that were excellent, good and have fair control. We also had that little r where the resistance was possible. And we wanted to be on the you know, be aware

of that there are some products that can only suppress. And so we make sure that we're noting that if you know over the years a product has proven to be ineffective. We don't want you to waste your money, we want you to have that information. And there's also sometimes that the product may be too new, and we just don't know right now, if it's effective or not for that particular pest or or disease.

J

Joe Hannan 21:28

Which is really nice, because now there's going to be just going to be so much more uniformity across all the crops, especially since most people aren't growing just one crop. Most people are growing multiple crops out there. So well, Lina, I think that's a good place to stop for part one today talking about the Midwest Fruit Pest Management Guide. Thanks for joining me on the conversation today. Really appreciate it.

D

Dr. Lina Rodriguez Salamanca 21:30

My pleasure. And I hope all growers take advantage of the new charts and please let us know after the season. What do you think about them?

J

Joe Hannan 22:00

Yeah, so again, I'll put the link for the digital copy on the in the show notes. You can contact me directly if you're in Iowa to get a hardcopy. Otherwise talk to your local Extension agent in your state to get a copy, and then stay tuned for parts two, three and four, where we're going to dive into more details about these changes within the apple and grape chapters. So huge thank you to Christa Hartsook and Olivia Hanlon at the ISU Small Farms Sustainability Program for editing and hosting these podcasts. And Lina, thank you very much and I will see you soon to talk about part two.

D

Dr. Lina Rodriguez Salamanca 22:33

Talk to you soon!

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Speaker 3 22:34

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