U.S. ENVIRONMENTAL PROTECTION AGENCY

PESTICIDE PROGRAM DIALOGUE COMMITTEE MEETING

Thursday, October 28, 2021

11:00 a.m.

DAY TWO

PARTICIPANTS

PESTICIDE PROGRAM DIALOGUE COMMITTEE ROSTER

October 2021

Walter Alarcon
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Steven Bennett
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Douglas Burkett
Douglass Cameron
Iris Figueroa
Joseph Gryzwacz
Gary Halvorson
Gina Hilton
Komal Jain
Mark Johnson
Patrick Johnson
Dominic LaJoie
Charlotte Liang
Amy Liebman
Aaron Lloyd
Lauren Lurkins
Tim Lust
Daniel Markowski
Gary Prescher
Caleb Ragland
Damon Reabe
Karen Reardon
Charlotte Sanson
David Shaw
Christina Stucker-Gassi
Cathy Tortorici
Mily Trevino-Sauceda
Lisa Fleeson Trossbach
Tim Tucker
Edward Wakem
Nina Wilson
John Wise

P R O C E E D I N G S

DAY TWO - OCTOBER 28, 2021

MR. MESSINA: Paul?

FACILITATOR: Yes.

MR. MESSINA: Can you hear me?

MS. BUHL: Ed? Yes, I can.

MR. MESSINA: Great.

FACILITATOR: I think we're good. We're about a minute away. Perfect timing. We're up to about 43, I think, participants. We might want to give it a minute or two to give everybody a chance to log in.

MR. MESSINA: Sounds good. I'll wait for you're your cue.

FACILITATOR: Okay, sounds good. Thanks, Ed.

(Pause.)

FACILITATOR: Good morning, folks. This is Paul Aninos. I just wanted to thank everybody that signed on so far for signing in early. We're going to give this another minute or so, a minute or two, because I notice that our participant list is growing rapidly right now. So let's give folks a chance to log in and then we will kick off day two.

(Pause.)

FACILITATOR: Ed, I'm not sure if you see on

your screen, but we're climbing quickly to about the 90 participant mark. If you'd like, we can give it one more minute or we can get started.

MR. MESSINA: Yeah, I'll say another 30 seconds.

FACILITATOR: Okay.

MR. MESSINA: And do you want to kick it off? Do you want me to start rolling into my welcome.

FACILITATOR: I think you just start the day, Ed.

MR. MESSINA: Sounds good.

FACILITATOR: We definitely have a quorum at 91 people.

MR. MESSINA: Yeah, let's get rolling.

Welcome, everyone, to day two of our PPDC virtual meeting. We had an amazing day yesterday from my perspective, had some great presentations yesterday from the farmworker and clinician training workgroup, their recommendations. We heard from Walter Alarcon from NIOSH on the SENSOR surveillance program, and then, of course, our Kaci Buhl did a really great job on risk communications, and then we had some great comments from the public at the end of the day, which we will also do today.

We have the three -- in terms of the agenda

for today, we have the three remaining workgroups that are going to present their recommendations, the emerging pathogens workgroup, the emerging agricultural technologies workgroup, and then the pesticide resistance management workgroup report-out. Also, as part of the agenda, we're going to hear from the folks in OECA about the Good Laboratory Practices Inspection Program, and we'll have time for some breaks.

And at the end of the day, we'll do some wrap up to things out of that session really in terms of moving forward. We've got a half an hour discussion, so it can be the beginning of the discussion. It doesn't have to -- we don't have to finish everything, but probably want to have some discussion around, you know, which workgroups do we think should go forward, which ones do we think are done, and then any topics that folks feel like should be presented in the future for the spring meeting, and then how -- you know, any feedback on how this session -- two-day session went virtually.

Maybe we'll be able to start thinking about an in-person meeting for the spring. So plenty of fun wrap-up topics. We can open the floor up for the PPDC members to talk about how to best make this meeting

useful for everyone.

So with that, I will kick it over to our next presenters. We're going to talk about their workgroup report-out and we'll kick it Komal Jain, who's going to be the co-chair of the recent session that talk about emerging pathogens and the emerging pathogens workgroup. So we've got Komal Jain and Tajah Blackburn from EPA as co-chairs of that.

So with that, take it away, folks.

Actually, before we go, any questions on logistics or things we need to talk about that folks want to point out for the rest of the day? Anything that folks think we need to cover before we get started? Any questions for me or Paul?

(No response.)

MR. MESSINA: Okay, hearing none, let's get rolling. Thanks, everyone.

MS. JAIN: Paul, did you want to say anything or should we just go ahead and --

FACILITATOR: I think Ed just introduced the two co-chairs. So it's Komal Jain with the American Chemistry Council's Center for Biocide Chemistries, and Tajah Blackburn with EPA's Antimicrobials Division.

Komal, I think you're on the hook to get us

started this morning.

MS. JAIN: I am.

FACILITATOR: Thank you.

MS. JAIN: Okay. Well, good morning, everyone. Great to see that we have such a large number of listeners today.

I hope you're ready to switch gears. We're going to discuss the antimicrobial pesticides as opposed to conventionals. This morning, we are going to discuss the work of the emerging pathogens workgroup and our recommendations on how EPA can be better prepared to respond to a pandemic or other emergency situation. Our charter was to pull together lessons learned from the COVID-19 response. Primarily, we focused on the disinfectant market, what went right and what did not.

My name is Komal Jain. I served as the co-chair of this workgroup alongside Dr. Tajah Blackburn, senior scientist of the Antimicrobials Division of EPA. For those that do not know me, I am a long-serving member of the PPDC. In fact, I am saddened to say that I have come to the end of my tenure. So I look forward to watching from the sidelines next year.

I also am the executive director of the Center for Biocide Chemistries, which is a trade

association of more than 50 manufacturers and formulators of antimicrobials, including disinfectants, and we sit under the umbrella of the American Chemistry Council.

Members of the emerging pathogens workgroup had a tremendous amount of experience to draw from, and I, along with my co-presenters Rhonda Jones of SRC, Alex Cook of the First Group USA, and Seth Goldberg of the Law Firm Steptoe & Johnson are so pleased to discuss our recommendations with you and hope you will support our recommendations to the EPA.

Next slide, please.

So here's an overview of what will transpire over the next 90 minutes or so. I will preview our overarching recommendations to the EPA, provide background on the emerging pathogens workgroup, and discuss our objectives.

Rhonda will then review charge questions 1 and 2, as well as our recommendations, respectively, followed by Alex, who will discuss charge question 3 and our recommendations. And I believe this topic, which is all about education, will really resonate with you. And I hope you'll have questions and feedback for us during the Q&A session. And then Seth will discuss charge question 4, which is all about

enforcement. I will return and close the presentation out. And then, of course, we will open it up to questions.

We do have several workgroup members on the line with us, so they stand ready to help answer any questions you may have.

Slide 3, please.

Okay. So before we dive into the details, let me provide our overarching recommendations. And what do I mean by that, overarching? These are the recommendations that will serve the foundation for executing the more detailed recommendations that we've provided in our report. But before I even go there, I think it's really important to state the obvious. COVID-19 is ongoing. It is singularly the most unique and devastating pandemic that any of us have ever experienced in our lifetimes and there was no previous experience to draw from. So it is without reserve that I say that the members of the EPWG commend the Antimicrobials Division for their tremendous work during COVID-19. And you heard some of the stats from Ed yesterday.

I can say, based on my own personal experience and my interactions with Tajah Blackburn, we spoke and we emailed on Sunday afternoons. She

worked 24/7, as did many of our colleagues, and that's been ongoing since March of 2020. So, AD, you have our sincere thanks and we do hope that these recommendations, if affirmed by the PPDC, are seen as positive and constructive ideas that once in place will put you in a better position should there be a pandemic, another pandemic. And let's be real, it's just a question of when. And there are going to be other critical emergency situations that we hope will, again, provide a strong foundation.

So on this slide here is a brief review of our overarching recommendations. First of all, the workgroup believes that EPA can be better prepared for future pandemics, as well as the occurrence of other emergencies. And the recommendations provided in our report often cite to other emergency situations, and Rhonda will provide detail on our proposed definition.

Second, and one issue that has been debated a lot over the course of the last two days is followup. And that is -- you know, this workgroup put together 20 pages worth of recommendations. So there's a lot there. And I'll be the first to admit that we really didn't have the time or really the appropriate resources, at this point, to try to prioritize those recommendations. So we are asking that another

workgroup be formed, whether that is under the PPDC or whether OPP forms another workgroup, but the idea is that there be an implementation workgroup and that's where there's a collaborative process between stakeholders and EPA to implement several of these recommendations.

Third, as the workgroup assessed EPA's guidance, communications, and other tools, there was just a general sense that for the purpose of responding to the pandemic, or any other emergencies, many of these materials are vague and ambiguous. The audience was not kept in mind with an eye towards how the information would be received, interpreted, or implemented. Thus, the group recommends EPA develop better communication strategies, advance communications on product performance or suitability for an outbreak, consider a new acceptable label graphics and symbols and socialize them now, and establish and maintain a webpage on EPA's website that addresses pandemics and that is kept to up-to-date in real-time fashion.

Fourth, we'd recommend that EPA draw knowledge from direct trade and other user groups and learn from those experiences. And Alex is going to talk about that in greater detail.

And along with talking to trade and user groups, there needs to be an acknowledgment that there was some ineffective messaging across several sectors due to information education gaps, and in response, EPA should develop general, but also specialized education resources.

Next slide, please.

Okay. So here on this slide you're going to see a list of our members and I just want to take a moment to talk about this workgroup and our composition. So we were a large and diverse membership. We had antimicrobial registrants. We had trade associations that consisted of both registrants but also downstream users, such as the airlines, ground transportation, health care associations. We had representatives from EPA and the CDC, and we had consultants and academia that operate in the antimicrobials space. This was a cross-functional group and, therefore, we were able to assess the response to COVID from various points of views.

I want to commend this workgroup for the amount of hours and time that was put in towards this effort. As we mentioned, when we met in mid-year, we met on a biweekly basis for a couple hours of a time. And that didn't take away from all the work that was

done sort of offline. So it was clear that everybody that served on the workgroup was willing to put in the time and commitment, but, most importantly, really open to hearing the perspectives of each other because we all came from a unique space.

Next slide, please.

So what did we set out to accomplish? We had three objectives. One, assess COVID-19 response and the stakeholders experienced with the emerging viral pathogens guidance; two, assess the user experience with antimicrobial disinfection products registered by EPA for infection control; and three, provide recommendations to EPA for policy improvements and identify education gaps.

As you will soon learn, these objectives led to the self-identification of several charge questions that Rhonda, Alex, and Seth will cover.

So with that, let me turn it over to Rhonda.

MS. JONES: Good morning. Thanks so much, Komal. And I thank everyone for the honor to be here to speak with you today.

As Komal said, my name is Rhonda Jones. I'm the CEO and founder of Scientific and Regulatory Consultants. It's a consultancy that's headquartered in Indiana, but we focus on antimicrobial

registrations. Probably the bulk of what we do is disinfectants. And we do that here in the United States at the federal and state level. We also do it in Canada and a smattering of other countries throughout the world.

So we were sort of uniquely in on the ground floor of dealing with the VP guidance, and we work very closely every day with the folks at AD who just, I have to echo everything Komal said and could add many more stories of the just Herculean efforts that the efficacy team, Anita's team, went through to get us through this very unique challenge and to continue to get us through this very unique challenge.

So on a day-to-day basis, I'm a microbiologist. So I sit in the seat of developing protocols and study designs. I'm working with the agency to get those approved for treating surfaces and water and air and worked very closely with the agency through this process and continue to today, as well.

So it was quite an honor to be invited to be on the workgroup and to sit alongside all of these experts and see their experiences and hear their experiences and bring it into this realm of even though so much went so well, in an unscripted situation, we do see room for improvement. And I

think from my point of view, a lot of the improvements that I really want to see are about preserving the precious resources that we have at AD.

I mean, we heard Ed yesterday talk about we're at our, you know, FTE max in the program right now. And I know they pulled a lot of volunteers from other areas, but some of our suggestions will hopefully automate aspects of the process and have it so that there is less burden on those precious resources at AD and on the efficacy team.

So just a little stage setting, a little reminder. Here's a little clip of the cover of the EVP policy. The first one was actually published in 2009. I was very happy to be on the group that pulled that together; again. CDC, EPA, other stakeholders as well that published the first one, and then again, in 2016, when this one was revised.

So what does this policy really do? It allows us to preregister on our master labels for emerging pathogen claims. Now, viruses by their structure fit into three buckets and they're sort of like a stair step. There's the easy bucket and then there's a middle difficulty bucket and then there's the top difficulty bucket. So the science is set up that you have to test a harder-to-kill bucket to get

the easier-to-kill bucket below you and so on. So this document sets that stairway up and creates a system and a set of communication tools by which we can go forward into the marketplace very quickly once EPA triggers this particular policy.

So that was the focus -- if you want to go ahead to the next slide -- of really a lot of the initial efforts of this workgroup, and then it sort of feathered out from there.

So you'll all remember sort of the basics of how this unfolded, January 2020, EPA activates, for the first time, this policy for prior emerging pathogens. Slightly different programs were selected at the time for various reasons, but this was really the first. In March, we see that EPA is really starting List N, so we have a list of products that are effective that have the EVP claim on it. And that for those that don't have that claim, EPA is going to expedite getting that claim onto labels.

And then in May, we see now we have products that have been tested with the virus and EPA offers a special, very, very shortened program of reviewing that data and getting testing onto the product labels and out into the hands of the users.

And as I looked at this slide to really

thinking about it, I feel like this slide doesn't make what was really going on -- what is really still going on today -- and I completely agree with Ed that your 2022 is going to look like just as many submissions as you've had in the last two years -- but this slide doesn't bring alive to me what really kind of happened.

And I want to share with you that on January 22nd, 2020, I was on the phone with the efficacy branch -- who will now become the efficacy branch chief -- and doing normal day-to-day business. At the end of the call, I'm like, hey, you know, there's this SARS thing going on, are you guys going to trigger this policy? I mean, what's really happening there? To my surprise, she said, yeah, we are, and I no sooner hung up the phone and the announcement came over the OPP newsletter, it's triggered.

I don't think any of us on the regulatory side or on the EPA side probably slept for the next, at least, seven or eight days of what began to unfold very quickly. The first thing for the people who had the EVP claim is how do I get it written, how do I get it out there, how do I get my name on it, can I combine it with these 87 other things that were actually very valuable communication tools. Like they

wanted to tell people, yes, this will work and use the language that's in the document, but they wanted to say, oh, and you need to leave the surfaces wet for five minutes and you need to dilute it this way. So, you know, very valid additions to the communication pieces that we probably just didn't really think about in 2016, not having a really good emergency to learn from.

And then really quickly the first -- I would say look at this timeline between January and May and run it out and make it be waves, and there's a crest of each wave of different things that happens. The first thing was the realization that we have 850-ish disinfectants registered at the federal level. Probably only at least 90, probably somewhere in the 150 range have taken the time to proactively, even though it's been a policy for four years, but these claims on the label. So the first deluge of work that happened for us and then for AD is all these people racing to add the EVP claim so that they could get products in the hands of users and then eventually to get on List N.

And then pretty quickly after that, the next wave was, how do we get the virus from CDC through the BEI resource group into the labs that had BSL-3s, how

do we run the studies to get the claims on the labels, is it the normal study, is it more than normal, is it more replication, et cetera? Then how do we get it going, to have a front row seat to the first testing and the first submissions and to work through with AD the process of the first submissions. We precleared labeling claims so it could go faster. We tried to do everything we could think of as industry to make the process go as smoothly and as quickly as we absolutely could.

No sooner did we fall into a groove with that, then somebody started asking the question about, well, that's about hard nonporous services. What about the pizza I just got from UberEats or Door Dash, or the Styrofoam carton, where does that fall all of this? And, okay, we need more methods for soft surfaces and semisoft surfaces and those types of things, and then the question of error. And then pretty quickly came the question of we have very large spaces that we have to reopen and get people back into. What about electrostatic sprayers and developing the methods for those and getting them out there?

And then about that time, the supply chain issues start to hit, we can't get caps, we can't get

actives, we can't get inerts. And the flexibilities that EPA came rushing to our rescue with to allow us to keep putting the product out and keeping the lines functioning and really it's just continued since that moment and I really don't think the very first triggering event has abated yet. And, yet, now we're faced with variants. In the middle of all this, rabbit hemorrhagic fever happened, which nobody talks too much about, but it's also an EVP.

So we're now sitting here today with at least five strains under this EVP active, and then trying to look at how this all congeals and comes together. And I'm sure I left out another dozen threats that came, and so this idea of the other emergencies is kind of where this is born. And not all emergencies might be triggered by a pandemic, but these are all pretty closely associated with that.

And that's all while the agency is learning to work fully remotely for the first time. They've also moved during this period of time. They've taken paper processes and advanced the IT significantly and automated things, and all of those things are wonderful and I'm so excited to hear Ed tell us they're continuing and will continue because they've just been great advancements in all of this.

So we're also at home trying to teach our kids that are there sitting next to us. I'll never forget the introduction of Dr Anna Lowit, who's senior science advisor to Ed and his team. Sitting through, it was a global meeting of some sort, she was being introduced and she's had a fabulous career. So she's got a long bio. Got this funny smile on her face just as she was ready to talk and she sort of stumbled the beginning and she apologized. And she said, my kids are sitting on either side of me doing their online school with their homework and they just listened to all that and leaned over and said, mom, did you really do all of that. And so just so many different variations in trying to keep life going and keep things going.

So keep in mind this little three boxes just doesn't kind of cut what we were all living through and are really continuing to live through.

So go ahead to the next slide if you would, please.

So List N, we got it up and going in March, started out with 90 products. Those were the ones that already had the EVP claims on them. This list got created overnight, literally in 24 hours, because there really wasn't a good IT way to develop this list

quickly. And then we've continued to add onto it ever since and, hopefully, there's IT solutions to being able to quickly allow EPA and industry to sort the products that are out there by surface or active or bug, whatever you're trying to achieve. We definitely need that ability for more dynamic access to that pot of registered products. But it's very, very successful.

I think if you'll hit the forward key one more time, the analytics will come up -- oh, no, maybe not. Take me back one there.

So the analytics, basically, there were -- I think, as of this point, there's been almost 24 million hits to this site. So it's been very important to users to be able to find it. There are now about 550 products on that site. It's been split into different uses. About 30 percent of the products now actually have the SARS claim on it. So it's very pivotal in the emergency to have this list and, you know, to have it become an app on our phones and things like that. It's just amazing work by the whole team at EPA to make this happen. But we really think there are some other ways to look at how to do this, and I'll speak on those in just a minute.

If you can move forward, please, another

side.

So that really gets us into our first charge question and where do we go with this workgroup. So really, truly an amazing group of people that has been pulled together to look at this question. And we first started fairly simply and that was taking the document itself and taking a look at it and figuring out what are the strengths and the weaknesses of the document, where did the words in the document become incomplete for us as we went through this real emergency.

So go ahead to the next question -- sorry, slide.

So yeah, this is a this is sort of an eye chart for real. It looks like a little bit of a bullseye, but you can see in the center there those are the four sections of the document. So we very literally went section by section looking at the content of that section and how we would expand it or improve it. And then you can see, as each triangle builds out, where the focal points were in that section of the document for changes and suggestions.

Now, we did try in our report as we went along to compliment the agency wherever we could in their outstanding work and processes that they created, but

you asked us to focus on constructive changes and advances. So that's what the report mainly details are these type of changes that we want to go forward with.

So again, as Komal said, some of these are short-term changes, some of them are longer-term changes, some of them are a little harder to effect, some of them probably could be done tomorrow. So there's a real mix of things here, but everyone on this group is so committed to their ideas and what we have come up with here that they would like to continue on in some sort of role, if possible, in the implementation workgroup, which I think is a real testament to this dynamic group of people that came together for the purposes of trying to help you work your way through this.

So you can see basically here, in a quick nutshell, all of our different recommendations on looking at the question itself.

So to boil this down a little bit, on the next slide, I'll just kind of share with you it's a little bit of a repeat from Komal's statement. We just really found that in a lot of areas the EVP document was too ambiguous, which, not surprising, in 2016, we really hadn't been through this. We didn't

know a lot of the details. Now, we can see where there were sort of cracks in what we wrote and where it was really hard to interpret. I wrote some of those sentences myself. So I see now, you know, a missing comma, how it can be interpreted incorrectly.

So we really think there's a need for clarity in the document in a lot of places, and the area of what triggers and how the trigger is announced is one of those areas, and who does that that trigger, and to what extent the registrants have to tag up with EPA before they go forward. A lot of people felt like they needed to do that, even though the intent was the document that once EPA CPA blasts out the trigger, you go. You can go with the communication documentation that's there. But people just weren't clear. They didn't want to make a misstep and they wanted to make it factual, which just made it hard because that meant AD had to field, I don't know, hundreds of calls from people just so they could say, yeah, go ahead. So again, I think we can do a lot to tighten that up in that particular case.

There was -- once you started to write that communication language -- and in this document, there are two prewritten paragraphs. And all you have to do is drop the name of your product in and drop the name

of the viruses in and you should be ready to go, but nobody really thought farther than that. So I know with my clients, they wanted to pair it with a press release and some of them wanted to pair it with use directions. Other people wanted to pair it with some of their other claims that they already had and so just immediately people wanted to do different things with the communications, but part of that was because they're being asked those questions. So they want to get this information out.

Where this paragraph and these paragraphs can go wasn't really getting to the user. So that was another problem is where can we communicate legally with you and what can we communicate and can we combine some of these other seemingly benign -- and I'll admit it, a lot of pushing things out there, too, and really trying to do too much marketing in that. We did our best to hold that back from happening, but I think there's merit in looking at that further and, you know, to the extent that you'll see that we want to push it even farther away from those paragraphs to something even more simpler.

And we have questions on the end about the off ramp. There's a two-year off ramp. Well, we're coming up to the two-year off ramp for SARS right now.

So we're three months away from it. How is that going to work? Are we going to extend it or are there enough products already tested that it really is going to off ramp and people have to pull those recommendations and communications down. So again, in the different phases of communication, we need really to expand the policy and in some places not only clarify it, but I think go a little deeper into these areas.

So you can see from this list, too, that we come down to, again, List N. And there were some challenge -- as fabulous as a tool that it was and how quickly it became like the focus of the United States to go click on List N and find your product, you know, we ran into problems. One of the first ones is that when we register things at EPA, you may not be aware, we're usually using a faux name, a project name, a file name, it's not the commercial brand name. And while we may only have 850 registered disinfection disinfectants approximately, at the state level, by the time those have all of their different brand names on them and they've been subregistered to people, it becomes 14-, 15-, 16,000 products with 16,000, different brand names that your different users are trying to pick off the grocery store shelf.

At one point early on in the -- once List N kind of got going around the sort of May timeline, I remember being the grocery store and I wish I had taken this picture, and there literally was a clog of carts of everybody standing there with their bottle reading it, trying to figure out if it was the right one. So again, that led us to really think about is there a more flexible way to do this and a better way to communicate with people and a way to maybe even make List N obsolete.

I mean, I realize whatever it was 24 million hits at this point, maybe we still want to keep it, but we know we have three buckets of viruses. We know their structure. We already have a policy that tells us what science we need on file to get to those buckets. All of the educational material and all of these lists can be created today and then just updated, so that no one has to do it overnight in 24 hours ever again.

So we do think -- and I was struck by the educational words from the farmworkers and the clinician speakers yesterday and as well about some of their materials and conduits by which we can educate people, too. And I think there's a networking opportunity between those workgroups and ours to steal

some of those conduits for education. So very good. But that's -- you know, sort of in a nutshell, those were sort of the really big issues that we came about with looking at the policy.

So if you'll go to the next slide.

Here's an overarching list of our recommendations and you will see much tinier steps and pieces of accomplishing these five things in the report and different ideas, again short- and long-term, that you could that you could go. But, I mean, obviously, from this conversation, we want to revise the document. We want to add clarity to so many of the sections to bear out some of the experiences we've had, and the gaps that have been identified, and now to layer on what happens if you have five EVPs going on at the same time. Does that change what we're doing and how we're doing it?

So we really kept coming back to the fact that we felt like, you know, CDC had a landing page for what they were doing, some of the other user groups had landing pages. But we really didn't feel like we had a landing page. We kind of ended up with List N as a de facto landing page, but we really think there needs to be a hub that's the EPA angle on communicating in an emerging pathogen crisis.

And a user could go there or a registrant stakeholder could go there to find out information and then it could list all the things that currently have an EVP, when it started, when it expires, when it off ramps, where there's expedited processing in EPA, all of those things that kind of came out one at a time that could be all housed in one place, including information the viruses and an understanding of their structure and where they sit in this hierarchy of difficulty of kill, and it would be very transparent, could be readily updated as things change, as we add different application tools, like ESS, et cetera. It might provide good links to CDC and other organizations as well.

One of the other areas we just kept coming around with is that we think the time is here to really look at having some sort of EVP communication label, and I know from dealing with this since pre-2009, that's been a very hard, hard thing to do, but we think a lot of the challenges to the users would be overcome by some sort of icon the actual label at the point of purchase. We think this would just cut down on so much of the traffic that the EPA staff had to deal with during this time as well.

And there's -- here on the screen there, the

team sort of developed a couple of ideas, you know. These are not the final thing, but it's just something for you to think about it. Is it a three-color thing where it's blue green yellow and the emerging pathogen is a blue virus and EPA says on this hub, okay, we have a new emerging pathogen, its name is XYZ and it's a blue, so look for the blue dot on the products or the blue triangle or whatever it turns out to be.

I mean, we got a little marketing clever with this and called it the outbreak ready stamp, which might be a little too heightened efficacy for everybody here, but whatever the icon or the logo ended up being with this we thought it would be just an easier way to preregister this and to go ahead and have products carrying this logo and that the logo with communicate the three tiers and the data would already have been filed, it would already be there, it would be there if we needed it, and if we didn't, it just would sit there on the labels and add, you know, to them. But it would be there other than that, when we needed it.

We also think -- and you'll see some preventative things that we'd like you to do to expand the policy to consider things that may not actually be in -- on United States' soil yet. We continue to

watch very closely the African swine fever virus and have great concerns for what it might do to our swine production in the United States, as it has done in other countries. So there's a preparedness thing there that farms want to do. I mean, they want to know the disinfectant they already have is going to deal with this virus. Now, it's in a different tier than SARS is. SARS is in the easiest-to-kill tier, but we think that can be done in a way that communicates without causing hysteria or exaggeration to the situation, but allows those -- that effective use group to be able to get in the right product and know that they're ready before it hits home. So we're pushing on that as well.

We think, too, there might be an ability to consolidate. EPA runs a number of lists like List N. They've all been recently updated, but sometimes they languish considerably. So we'd love to see maybe a revisiting of those lists and do we really need a special list for each one of these pathogens that comes up, or at least for the viruses, do we just need, you know, a number one list and number two list, and a number three list, and whatever faces us in the future, the agency communicates out to everyone, okay, this is a green virus, pick out a green product, and

look for your green logo, type of a thing.

So there was a lot of -- you know, we're all kind of enamored with that idea because we felt it solved so many different communication problems to have it out there. And in many ways, we thought really it already is a matter of public record. You can go look up any product on the PPLS database and see the 3 tier buckets of the EVP required label language on the labels already. So we're just really converting that into this icon thing and allowing it to go on to the products. So we think we're really close to that already and really urge you to look at that as a way forward here.

Next slide.

So that brings me to sort of the next question that we really we're looking at and it's pretty broad as you can see it there on screen. And, honestly, I think the workgroup took maybe half of a meeting to debate what the question meant. And at some point we started -- I even remember going well, if they asked for this, is this what they mean, what's the real question here? Luckily, we had two just wonderful workgroup leaders, Tajah and Komal, that could poke us along when we got -- as Komal just did to me -- when we got a little too deep in the trenches

to move us along with this.

So next slide.

Here's what we came up with. So again, this concept of other emergencies, where very rarely in this industry, now, all of a sudden, based with only one emergency at a time, and they come from lots of different ways. And try as we might to define emergency, we looked at a whole bunch of different government emergencies and EPA definitions of emergency and there just really wasn't one that we could pick out to serve to you, but we think it probably needs to be done. It was actually easier for us to give you a list of examples of emergencies than it was to come up with the definition.

So I mentioned many of them earlier, supply chain disruptions, you know, maybe that's because we're all at home working and there's not enough people to make stuff. Maybe it's because our supply is stuck in a container off the coast of the United States; maybe it's because the main plant that creates an ingredient froze in Texas and now we're not going to have -- and all the pipes broke and now we're not going to have that ingredient for some time; maybe it's because of Ransomware, cybersecurity attacks. I mean, just all manners of types of emergencies that

could arise.

But what we really thought is that we could push ourselves to come up with a framework of how we would handle these emergencies no matter really what they are and have templates and things pre-prepared for expedited submission, and so maybe even example templates so that your team's looking at the exact same thing over and over again, not a bunch of things that are sort of pulled together in that way.

So next slide, please.

So this is the list of documents that you will see inside of our recommendations. We think there is, inside of every one of these documents, things that should be modified or edited to make this process go better and faster next time. Some of them are as simple as in the 810, we're very excited about the interim ESS policy and residual policies, and while we might want some changes inside of those documents, we also want them pulled into the 810.

So some of these are very possible. You know, with the 158w, which is a hard thing to ask to change, but we really want to see virucidal claims be disconnected from bacterial claims and be able to be on other kinds of products as well. So again, there's just a series of documents we've outlined for you and

outlined a series of changes related to making this go faster next time.

Next slide.

So the issues over here that we identified under this charge question, again, it's somewhat of an overlap. The EVP needs more flexibilities for layered-on emergency, maybe layered-on other organisms as well that are facing us. Some of the temporary things that were done were just outstanding and worked really, really well, and now some of those temporary things are being off ramped and we really think we can learn from how those temporary things worked and maybe make them permanent. And so we'd really like to see that and like to look at our limited resources, too, and can we move things to more self-certification. Did we just generate two days' worth of data that supports that some of these things that have to wait on an EPA review could be self-certified and go faster and use less resources?

So again, other guidances, probably more educational tools than guidances, and Alex is going to talk about that a little more, that we think need to be prepared. And Kaci's presentation just really resonated with me yesterday about not only preparing those documents because we already know what the three

buckets of viruses are, let's get those documents prepared. Let's get them honed to the point that they do resonate with people.

And then whatever we can do to deal with the resource strain on AD and make this go more smoothly and sort of we'll game this up with our documents.

So the recommendation slide, and then I'll turn it over to Alex.

So a whole series of recommendations coming out of here to try and expand the EVP policy to allow for different methods of application, like ESS, to expand the EVP for these other types of consequences of supply chain difficulty in that type and how that might hamper our ability to respond to these public health situations. We need to update the EVP for variants and how are we going to handle variants. And like I mentioned before, how are we going to handle layers of EVPs going on at the same time with different viruses.

We really would like to push ourselves to look at the hierarchy of the viruses. Is it possible that the bottom envelope virus hierarchy is so tremendously easy to kill that we really don't need to have a separate category for it? We can just say any product with the word "disinfectant" on it achieves

what is needed for an envelope virus, which tend to be -- most often are emerging viruses.

And then we are also challenging you to look at the opportunities to have bacteria, yeast, mold, other type of microbes be included in this hierarchy.

Lack of diversity of products might seem odd after I just said there's 14- or 16,000 products registered, but it was very interesting to work with the transport industry members of our workgroup and find out that while we might be to a point today of 550 registered disinfectants that are on List N, there still are only a couple that actually meet the airlines special certifications for corrosivity and other testing to be used in their airplanes. So while we have, you know, a relative ton of products now, there's only a couple that airplanes can use because it damages the plane. So again, a finding through this where we still have unmet needs in some of these areas that, again, that's really maybe a charge to industry. It reminds me of when EPA and USDA came to us and asked us to have sprout treatments and create them.

So let's see, some of these I've already mentioned. Again, expanding some of the minor things that were needed, CSF changes to add additional

sources so that we could get product from more places, or similar active ingredients and those type of things, to move those into a non-notification or self-certification space so we're not using precious agency resources at a time where we need them elsewhere.

Special dispensation was given to testing so that we could use non-GLP labs during this period of time so that we get more labs doing the testing at one time. We loved that. We believe it's worked very well. We'd like to see that be maybe a part of the document as well.

And then we think there at the end that EPA should establish a crisis management office or team that would roll into and maybe do modeling and simulation games to make sure that they are ready to be the one point of contact when these things are going on and to be able to have the authority to create tiger teams to look at -- you know, hopefully, in the future, we're not in any paper processes anymore -- but to look at those processes that need a tiger team to look at really quick when we're finding that they're bogging us down in the emergency.

So again, many more details on every one of these in the report as to ideas on how to carry them out.

With that, I would be happy to turn it over to Alex to take us through the last charge questions.

MR. COOK: Great. Thank you, Rhonda.

FACILITATOR: Alex, before you get started, I hate to put additional -- this is Paul. I hate to put additional pressure on you and Seth and Komal, but we've got to bring this to a close in the next seven to eight minutes in order to leave time for the Q&A for PPDC and for the voting. So I --

MR. COOK: Understood.

FACILITATOR: -- am just going to encourage your (inaudible).

MR. COOK: Very good. I'll pick up the pace.

So again, thank you to everyone for joining us here. We've got a lot of exciting information.

My name is Alex Cook. I'm the chief engineer for First Group America. First Group America is comprised of a multitude of corporations in the transportation business. We operate almost 50,000 school buses, own and operate. We also operate almost 16,000 transit buses. We do, for example, the City of Houston, Texas. And then we maintain another 100,000 vehicles for different cities, be it ambulances, emergency vehicles, police cars, across the nation.

I was very honored to be asked to be part of

the workgroup. The amount of intellectual capital and expertise and experience is just quite remarkable. And I can't say enough to Komal and to Tajah for help leading us through all of this very intricate information. So welcome and thank you.

Charge question 3, as you've heard that's resonated from Rhonda moving forward, education, understanding and communication, which walk hand in hand, is a huge area for opportunity for us all the way from what I term to be well to wheel to get all of the information disseminated out to everyone that is focusing on the problem. And so what can we do from an educational standpoint during a pandemic or an emergency now that we're talking about, what is termed "an emergency" to the public and the end users and/or regulatory authorities.

Next page, please.

There's a lot of information this slide. We basically took a look, as a group, in our subpart B, specialized challenges inherent to some industries, and there's a lot of examples of this, but I'll give you one just kind of near and dear, close to my experience level.

We've looked at it in three buckets, pre, during and post pandemic. And if you look at, for

example, looking at transportation in general, we've lumped that into ground transportation, into airline and to cruise. If we look at one of the huge things, as we heard Rhonda talk about, you know, with over 500-plus various products on List N right now, only a very few small part of those are actually applicable to the transportation industry, be it on the ground side, even in the cruise, and specifically on the airline side.

Behind the scenes, ourselves have had a lot of communications with our other peers and industry beyond the airlines and cruise and compared notes behind the scenes. But one of the nuances that came out of all those products that are on List N, as we started to do testing, we found that very quickly there was an incompatibility with those products on List N from a standpoint of corrosive and reactiveness.

So if you look at, just as one example in the ground transportation, we're guided and governed by the Department of Transportation for the United States. There, for example, all of those are -- specifications are basically outlined in FMVSS specifications. They're called federal motor vehicle safety standards.

And if we just take a look at two of those, which is FMVSS 210 and 222, that calls out seat anchorage and seatbelt strength. So what that means is is that there's a standard that has to be met by industry that basically for a seat anchorage and/or a seatbelt that that assembly has to take a 20G deceleration and still hold the occupant in the seat and the seat has to stay attached to the floor.

As we started to do various testing on a lot of these List N products -- and we did it in a multitude of ways. We did coupon testing. We did real-life application, all the way from wiping it on to electrostatic spring of which there's a whole multitude of applications in there. And then we looked at those parent materials as to what was the reactiveness and the corrosiveness. Much to our chagrin, we found that a lot of those products were very, very corrosive. And in the case of the example that I'm talking about in seatbelt and seat anchorage is we found a lot of very rapid degradation to those subsystems, which effectively long term will have a very negative impact on those materials and those safety subsystems to be able to deliver for the life of the vehicle.

That's in parallel with the Federal Air

Administration who handles the airlines, obviously. They have a whole other set of standards for aircraft that have to have those same kind of safety standards. And when we're dealing with materials that we're trying to analyze and deploy into the field to curb and slow down COVID, one of the big nuances is the incompatibility with what you're applying it to.

We came to the realization that a lot of these products, which have been used elsewhere, be it in the health care environment or food industry, have been very successful, but where there's a lot of differences in materials, be it a lot of stainless steels, a lot of ceramics, so forth and so on. So that was a huge watch-out for us if you will. And then started to -- how do we start to communicate that, how do we -- these various, because there's a lot of variables in this equation, not only the compatibility of the material at which you're applying the said product to, but as well as the whole inherent of how do you balance the product that you're putting on that's going to be in contact with a lot of people in a short time period.

You know, for the case -- an example of a school bus, we have to disinfect up to potentially five times a day. So what's the long term exposure of

that product to the children that are riding those school buses, looking at it from a standpoint of the application of the product off of List N, all the way from wiping it on with a microfiber towel to using a garden sprayer, to using a fogger, to using an electrostatic sprayer, and what are the inherent nuances of applying a said product with those different types of application and then what's the potential consequences of those from a standpoint of how PPE is utilized, what's the exposure, what's the dwell time, how does the dwell time change from wiping it on versus electrostatic flogging it, what's the particle size, you know, the dynamics of the wetted surface, and how long should you hold said application methodology at the surface.

So there's a lot of variables in that equation to reach success, and success is combating the virus and curbing, obviously, the infection rate. And so if you look at it from a pre, during and post, there's a lot of crossover between those on things that -- in one bucket of the pre versus the during that still plagued us. And the key is here, again, as Rhonda had alluded to education of this detail. The devil is in the detail and how do we disseminate that education and experience to all of those entities that

are using these products for the greatest success as possible.

Next slide, please.

So identified issue, we felt that there was an ineffective messaging across several sectors, not just transportation, health care, the food industry, due to information and educational gaps. So if we look at, again, well to wheel from the manufacturer to the entity that's applying it and that all of the constraints are met definitively for the highest level of success and that there are no unintended consequences to what you're applying it to, that education and education -- or communication is absolutely key and critical.

Next slide, please.

So we come into the recommendations and, you know, this is bucketed into the three different buckets here. If we look at information gathering, because there are so many nuances out there from so many different end users, the group felt that maybe one way to get at this on a large scale would be to conduct some surveys, be it on the airline side, the health care side, the ground transportation side, and conduct those surveys pre, during and post to gather that information to start to build that great

knowledge as to what needs to be disseminated to the balance of everyone.

I do think that there's a collaboration effort with the trade user groups, you know, in our case it's the American Bus Association. There are a whole host of other trade user groups by industry that I think we can tap into to help glean this information. So it's a two-way flow, bidirectional. Not only do we glean the information out of it through potential surveys, we're asking questions or meeting, but we can also use those same groups to collaborate with to disseminate the information back out.

And when we look at communication recommendations, a key thing is provide bilingual messaging. So I think we heard that at our mid-year meeting, that we make sure that we are able to access that entire broad spectrum of users on making sure that we talk on their level at all times, from a standpoint of making sure that we drop all those barriers so that it's crystal clear, again bidirectionally, on what are the lessons learned and how do we disseminate that and communicate that.

Provide specific messaging when required. As we've seen with what we're living through today,

which originally started out as, you know, heavy emphasis on fomite transmission now starting to migrate to airborne and a lot of focus being put on airborne. As things change dynamically we need the ability real-time to understand that, be able to clock that, and then recommunicate that out to as many people as possible.

Establish a dissemination process, a lot of conversation around what's the best methodology and mode of getting the message out there, be it through webinar -- now that we're everybody's focused on working from home and the technological advances that we've seen here in the last year, year and a half to be able to bring massive groups together virtually as if we were in person to disseminate this. The utilization of EPA website and specific easy ways to navigate to get to this information that's been gathered just as some examples.

And then continue to educate through every phase of this. Again, because it's such a dynamic situation and things are changing real-time, we all need the ability to keep up with that pace and continue to get that word out there real-time to the best of our ability, because, again, that just means a much higher level of success for us all in the fight.

And then we looked at specialized messaging for certain sectors. Again, engaging those trades and those various groups, as you see there to the right, be it air, cruise and/or ground or rail. And I think they can help immensely bear some of the burden that the agencies had to bear and we start to divest a little bit of that to bring everyone, to the best of our ability, into the fight.

Next slide, please.

So our response is to develop targeted resources and references for general and specialized messaging, back to my earlier comments on utilizing those trade and industry groups, utilizing those existing communication chains for that bidirectional education and communication, utilizing that in a more formalized way, and especially focusing on those key sectors. And we need to do it at different stages of the pandemic, or the emergency, as we're, you know, potentially redefining it. And then, you know, gather that all together in a very easily communicable standpoint, and then use those outreach tools to get those messages out there.

So I know that was a lot in a very short time period. I'm trying to pick the pace up. Again, thank you for all attending and we greatly appreciate this.

It's been a true honor.

And with that, I will turn it over to Seth Goldberg.

MR. GOLDBERG: Thanks, Alex.

Going ahead then to charge question 4, which really addresses enforcement. And, you know, EPA did a great job in OECA in enforcing against disreputable kind of practices and products. A few numbers, 447, you know, civil enforcement actions were brought in Fiscal 2020; 60 criminal cases were brought in Fiscal 2020. A lot of product was stopped from entering the United States at the ports. So impressive job. This workgroup looked at areas for potential improvement.

Going to the next slide, the principal things that we identified had to do with promptness and comprehensiveness of enforcement. There was a sense that, you know, enforcement lagged the practices that were -- could lead to misrepresentations in the marketplace by a significant period of time, and that was really the principal topic or area that we felt improvement might be made.

Going to the final slide in this set, the recommendations really have to do with allowing more prompt action the enforcement front. The suggestions roughly -- and they are set forth on the slide -- are,

first of all, to surge monitoring and enforcement resources early in the process and perhaps have a trigger at the same time an emerging pathogen event is triggered to get the agency to be able to devote more resources to enforcement. That includes resources with EPA, as well as resources from other agencies, perhaps including FTC, perhaps including the state partners in the FIFRA enforcement process so that there can be real-time monitoring of what's going on in the workplace and prompt responses to violations or perceived violations.

In addition, there should be a clear communications plan that will allow both consumers with questions and more responsible players in the marketplace to be able to contact EPA in a way that will directly refer questionable practices to appropriate enforcement officials.

In addition, the communications plan really should include the idea that EPA communicates to players in the marketplace, that it will be taking an aggressive enforcement approach, and if you cut corners, you may be subject to even higher penalties than you would be ordinarily because of the nature of the public health emergency and the fact that misleading people could have very serious

consequences.

So that, very quickly, is the fourth charge question which was focused on enforcement. And I commend you to look at the slides for additional detail. Thanks very much.

FACILITATOR: Maybe I'm missing it, but I think you're still on mute.

MS. JAIN: Oh, sorry.

FACILITATOR: Okay.

MS. JAIN: Yep, all right. Thanks, everybody. Thanks, Rhonda, Seth, and Alex. For those that listened in, obviously, there was a lot of passion and commitment associated with the work of this workgroup. PPDC members, I do ask that you take a look at the report, but I think, Paul, we have a few minutes for questions.

FACILITATOR: Yes, we have to leave a couple of minutes for the vote on passing the recommendations on from PPDC to EPA. But it looks like Liza has made a comment just before the end of the presentation, and I would assume that's a comment as opposed to a question. And then Lori Ann has a question. It's in the chat. You can see it. It has to do with surface transmission, surface-based transmission of COVID-19.

So maybe, Komal, you can read that question

and direct it -- either answer it or direct it to the right person.

MS. JAIN: Okay. So this is from Lori Ann Burd. Back in the Fall of 2020, CDC announced that COVID-19 transmission is primarily airborne and clarified that statement in April to state that COVID-19 transmission is extremely rare transmitted via surfaces, but the vast majority of products for this pandemic seemed to still be focused on surface.

Can the workgroup or EPA share ideas on how to ensure that pathogen eradication efforts are based on the current science to allow for efforts to be appropriately focused on the correct transmission routes? How do you think OPP should now address the rarity of surface transmission and its approval process and cost benefit analysis? We've heard from many municipal water managers that they're seeing concerning amounts of surface cleaning products show up. So this is not a hypothetical problem, but rather a real consequence of the continued focus on surface cleaning.

Complicated, complicated answer. I'm going to turn it over to other workgroup members that are really in the area.

Seth, I see your hand come up. So maybe you

can start us off.

MR. GOLDBERG: I could take a stab. Thanks.

You know, I think that EPA has followed the CDC's approach here and has said that we are not going to expedite approvals of surface products any longer, and has shifted focus to air, to products that can sanitize and kill the virus in the air. Having said that, that's a significant, you know, R&D effort that is being undertaken.

I think the workgroup's view is that we need to be prepared to address whatever the next outbreak is. The idea is to be able to be prepared and to assist or facilitate having products available that are appropriate to the threat. And so I did think that there was some lag in shifting emphasis from surface transmission to airborne, but that has happened and is happening, and that in the future, we can be more agile by adopting the recommendations from this workgroup.

MS. JAIN: Thanks, Seth.

Any other workgroup members that want to chime in?

MR. ARDUINO: Yeah, this is Matt Arduino from CDC.

Fomites do still play a small role. So

there's still some role that cleaning and disinfection does play. You just don't have to go crazy, and not like we've seen early in the outbreak where we've seen people fumigating buildings and houses. You know, so still where I do see cleaning, disinfection play a role is frequently touched surfaces, especially like in the home where you have an ill individual or in health care settings where you're actually treating actively infected patients. But for the general for the general population, your routine cleaning and procedures that you normally do is probably more than sufficient.

But, you know, to -- with all the emphasis that -- I don't think we need the current emphasis on, you know -- that we've seen in the past on disinfection because it's not as big a role as the airborne route.

Does that help?

MS. JAIN: Matthew, thank you.

And, Lori Ann, I will note that both the EPA, the CDC, and several trade associations have put out education material on the difference between disinfecting and cleaning, and when it was appropriate, we followed the science. The key is making sure that message gets out and that's something

that's an ongoing effort.

Paul, are there any other questions or hands raised?

FACILITATOR: I don't see hands raised, but maybe I'll just ask Shannon and Sarah if they see any. But I also see the comment there, I think it was a follow up from Jasmine, Jasmine brown, stating a concern, the exposure concerns associated with airborne or aerial disinfectants.

MS. BROWN: Thank you, Paul. Jasmine Brown. I do agree that the disease, you know, since that survives in the air for six hours, it's highly air-transmissible, so we do need to look at air products. But I just hope that the EPA isn't over-gracious in their reviews because pesticides in the air are already a concern, and if we're going to be giving that a huge push into the environment and into to human health, I just hope that we're prepared for that safety-wise. You know, that's my only comment.

FACILITATOR: Great. Thanks. I'm glad you had a chance to make that point, Jasmine.

I think what I'm going to do now is take over the mic, so to speak. I want to thank this workgroup for the amazing work that was done and such a thorough presentation. We've run out of time and we are -- so

two things, PPDC members that have additional comments, questions, concerns, feedback for this group, the chat is still open. It's open all day. So feel free -- it will be captured here. Feel free to be entering your thoughts even over lunch, right, that we're getting ready to break for.

In the meantime, much in the spirit of yesterday, we are going to take a quick poll of the PPDC members on what the -- in terms of hearing a motion to accept the spirit of these recommendations and pass those on to EPA, to OPP and EPA. So if we hear a motion and a second that would be -- that would get us started on the voting.

LIZA FLEESON TROSSBACH: This is Liza Trossbach. I make a motion to accept the recommendations.

FACILITATOR: Thank you, Liza. Is there a second to that motion?

DR. GRYZWACZ: This is Joe. I'll second that.

FACILITATOR: Thank you, Joe. I'll open it to discussion the administrative process of voting only. And we covered this pretty thoroughly yesterday. I'm hoping we don't have to rehash that again today. But if there's a burning issue

associated with this vote, we did ask -- I'm sorry, we did add a third option call abstain and the only people who are voting that we'll actually count the votes will be PPDC members. Even though you'll notice that there'll be many, many abstentions probably or non-votes, those will be the non-votes from everybody other than the PPDC members.

So any questions about what we're getting ready to vote on?

(No response.)

FACILITATOR: Hearing none, the vote is open.

DR. BASU: Hey --

FACILITATOR: Oh, go ahead. Who is that?

DR. BASU: Hey, Paul, Mano here. Sorry, I was just trying to unmute myself.

So again, we discussed this yesterday a bit. You know, it's okay in spirit, but all these working groups have worked extensively hard over the period of last year to come up with these recommendation. But, you know, what happens with these recommendations, I mean, all the work that we all have put together in making these recommendation? I think it would really help from a clarity perspective how the agency plans to approach these recommendations, what happens to these recommendations.

What about the resources? I mean, we heard about, you know, the strategic priorities 2022 to 2026, certainly, climate change, environmental justice, and a lot of other priorities for the agency overall. But then, you know, some of it will certainly flow down to OPP. We also heard about staffing and the number of registration requests, PRIA, and everything where it is going up; the challenges we heard with the AD staff working 24/7 for the past several months over a year now. I mean, so the question is, what will happen with these recommendations?

I mean, is voting just an exercise? You know, what does this voting get us? If it's just recommendations given to EPA, then do we really need to vote whether we agree or not? So I was just hoping to get some clarification of what the plan is with these recommendations.

FACILITATOR: That's a very reasonable question, Mano. And I -- can I make a recommendation? My guess is Ed may be chomping at the bit to jump in, but I might even cut Ed off by just suggesting that maybe in the 30-minute segment that Ed is chairing at the end of the day, he can address that question to the extent possible or -- for all the workgroups. So

we don't take time away from this workgroup, or if we have slack time at the -- at some other point in the in the meeting. I'm sure EPA is actually thinking about the same thing you're asking about, how are we going to prioritize and allocate resources to implementation of some or all of these recommendations over what period of time, right? That would be what would be going through the agency's -- any agency receiving advice from a FACA would be thinking about those things.

So I'm going to suggest that -- you've raised the question and I'm going to kind of push it down the field to a little later in the day, if that's okay.

DR. BASU: Okay.

FACILITATOR: Okay. So with that, thank you, Mano.

And the vote is open and -- is that correct, Sarah, the vote is open? You can select one of those three options and you have to hit the button called submit in the lower right-hand corner of that dialogue box. So yes or no or abstain and then hit submit and your vote will be recorded. And we'll give it a minute or two.

I don't know how to count -- to see our vote counts. I think Sarah probably does.

FACILITATOR 2: Yes, we have about 32 people who have voted so far.

FACILITATOR: Okay. And we have a 40-member PPDC, so we're going to give it another 30 seconds in case -- and if anybody feels like they're having trouble voting, they can throw that in the chat, we can resolve that later.

(Pause.)

FACILITATOR: Okay, so the poll has ended it looks like, at least according to my screen. And what did we end up with in terms of numbers of votes for those three choices?

FACILITATOR 2: We ended up with 38 votes and I can display those results in just a second.

FACILITATOR: Okay. Okay, very good. So total of 39. We'll audit these later to make sure that we didn't have non-PPDC members voting, but that's the overall. So the recommendations are advanced on the EPA as the result of this vote. And then, at some point, EPA will describe to the PPDC the process for addressing these recommendations.

Okay. With that, we're going to break for lunch. Just like yesterday, we're going to suggest that you do not leave the meeting, that you just go ahead and go on mute. You click the mute button, you

click the stop video button, you go about your business for the next 30 minutes or so. We're going to reconvene -- the meeting will start promptly at -- I hope I have this right -- 1:00 p.m. Eastern.

And if you want to log in a minute or two early, that allows us to get started right on time with the next workgroup presentation, which is emerging agricultural technology. Okay?

Have a good break. See you in about a half-hour. Thank you.

(Lunch break.)

FACILITATOR: Good afternoon, everyone. It's 1:00 sharp here on the East Coast of the U.S. And let's give it another minute. Actually, I'm looking at the participant list and we have a lot of people obviously still logged in. So we're going to start here in just about one minute.

MR. MESSINA: I'm here, Paul.

FACILITATOR: Oh, perfect. Okay.

And, Mano, I see -- your panel is there, Mano.

DR. BASU: I'm here, Paul.

FACILITATOR: Perfect, okay. Just make sure that that's the case. And also let me just check real quick, just a quick roll call on your team. I see

also that Nick Tindall is presenting. Nick, are you --

MR. TINDALL: I'm here.

FACILITATOR: Excellent. And how about Dan Martin?

MR. MARTIN: I'm here.

FACILITATOR: Great. And how about Greg Watson?

MR. WATSON: Present and accounted for.

FACILITATOR: Wow, this team is ready to roll.

And with that, I think -- you know, given that, I think we're going to go ahead and jump right into the kick-off of the afternoon session. And as your slide in front of everybody sees, this is the emerging agricultural technologies workgroup report-out. The co-chairs of this workgroup are Mano Basu, the Managing Director of Regulatory Policy at CropLife America and, of course, Ed Messina, the Director of the Office of Pesticide Programs at EPA.

So, Mano, I think I am showing you as kicking off the presentation.

DR. BASU: That is correct. Thank you, Paul. And I'll say next for the next slide, and I don't know if you or Sarah is running the slide, if either of you

can move, that would be great. I think all the speakers that have agreed to present today will do the same.

So again, good afternoon, everyone, and thank you very much for the opportunity to present here on the emerging technology. I just would like to thank the agency, first, for putting this workgroup together and all of the members of the workgroup who contributed extensively over the past one year on the charge questions and the deliberations that went on about the emerging technologies, the opportunities that we have, challenges, and what the path forward is. It's just a full team effort that we present here today in the extensive report. I hope you had a chance to go through it, providing documents of what's going on and what the future looks like with emerging technology.

Again, thanks to Ed as a co-chair and helping us guide through some of the charge questions. And, you know, all the work that we have done.

We had represented --

MR. MESSINA: Hey, Mano?

DR. BASU: Sure, Ed.

MR. MESSINA: Yeah. And thanks -- also, you know, honorable mention is Brian Satorius. I just

wanted to say I'd like to spend a minute on that. He was an Illinois farmer that's served on the workgroup. Unfortunately, as are the hazards of agriculture, he was killed in a grain bin accident on his farm, and he left behind his lovely wife and two young kids. So I just wanted to just state our sadness for this tragedy and our hearts go out to the entire Illinois Farm Bureau and that shared community, and we really thank Brian for his service as well. So I just wanted to acknowledge that we lost someone along the way and take a moment to recognize Brian Satorius. Thanks, Mano.

DR. BASU: No, thank you very much, Ed, for reminding that he was an active member of the workgroup, and it's just sad to get that news. Thanks, Ed, for the reminder again.

So as I was saying, our workgroup representation from various sections, we have academics, we have members of companies that represent some of these emerging technologies and are constantly working on it. We had registrant members. We had USDA participation. Again, Dan will talk about some of the work on, you know, these emerging technologies, and a lot of representation from trade associations as well as we started looking into technology, what the

role of these technologies should be, how can we look into these technologies being accessible, affordable to all communities and helping farming in general as we deal with some of the challenges associated, whether it's climate change or other future challenges that we are looking at, and what these opportunities are.

So it is my pleasure here to come in and work with this group and present what this working group has worked on for the past year.

Next slide, please.

So as we started working on the emerging technology workgroup, we were given two charge questions. First one for EPA to obtain a greater understanding of these technologies and how does it impact risk. One of the things as we started looking into from a risk perspective, yes, there will be certain technologies, which will certainly help in reducing the risk of exposure or reducing the risk from an overall load perspective. But could there be newer risk, unknown risk, or an increased risk? So we were taking a look from the charge question perspective, how does these emerging technology impact risk, things that we know, things that we don't know.

And then the second question around labels,

this has come up in several working groups and, you know, here we are in the emerging technology talking about label, what the opportunities are on improving the labels, on, you know, making sure that these technologies are able to talk with the labels, understand the labels, what needs to be accommodated.

So those are few areas that we looked into to address the charge questions and it's been covered in our report.

Next slide, please.

We met on a monthly basis, the working group. We had agendas set and, again, my thanks to Shannon Jewell for organizing all the meetings, getting the agenda, getting the minutes out, making sure we had all our external presenters available, and giving them the opportunity to present on all the work that has been done.

Just a week back, we finalized our report and met for the last time to go over the presentation and our plan of action presenting to the full PPDC.

Next slide, please.

We had some extremely interesting presentations giving us an overview of what's going on in the emerging technology work. You may recall Nick Tindall did present earlier to the PPDC on what was

happening from a technology and manufacturing perspective. He shared the same presentation, provided some more update to the emerging technology workgroup. Then we had a presentation the CERSA work. This is the Center for Excellence and Regulatory Science for Agriculture based out of University of North Carolina. We had registrants present on technologies that were being developed on subsurface, pest, soil, and microbiome detection, emerging technologies, and then we also had presentation from some of the emerging technology companies providing an overview of what's going on.

Next slide, please.

So as we look into the charge question and thinking about the deliverables, how can we best address these charge questions, we said, okay, let's take a look at overall emerging technologies that are out there that we don't know today and maybe we can come up with a list of such emerging technologies for the agency. I mean, some of them may be in a pilot phase, some of them may already been in use, and some of them may be completely a concept.

So we thought of, as a deliverable for this workgroup, coming up with that list of emerging technologies, and as we developed the list, then

thinking about the charge question what happens to risk, increased risk, reduced risk, what kind of label adjustments would be needed for some of these technologies that we have captured. Again, as you would all know, you know, this is certainly not the exhaustive list of emerging technologies. You know, more and more of these technologies are being developed as we speak even today and more will come later.

Then our second goal was to take a deep dive on autonomous application platforms. These are technologies that are coming in using data information to say when to spray a pesticide, where to spray a pesticide, how much to spray. And these technologies could be applied whether it's a tractor-based sprayer or a manned aircraft or a drone. Irrespective of the platform, there's a lot of these autonomous application platforms that are coming -- autonomous application technologies that are coming up. And, you know, there's a lot of data and number crunching that is going on. So we wanted to take a deep dive on those and look at some of those technologies and specifically look at remotely operated application platforms, like the drone.

Again, the same set of questions, what

happens to the risk and what are the label changes that are required.

So with that, I'll pass it on to my workgroup colleague, Nick Tindall, to take us through our deliverables on the list of technologies. Nick, over to you.

MR. TINDALL: Great. Thank you, Mano.

If we could advance to the slide that starts with hardware and data and analytics.

Again, I am with the Association of Equipment Manufacturers, representing the off-road equipment industry. So most of the things you see on a farm is probably manufactured by one of our 1,000-plus member companies. And when you think of emerging technologies, of where we're going, you know, you could broadly divide them up in between two categories. We have, first, being hardware, and those are the items that are easiest for people to wrap their heads around because, you know, they're physical, you could see them, and in many cases, you know, such as nozzles, they've been around for a long time and the technology continually gets better.

The other one, data and analytics, if you want to sum it up even more into just one word, you could say digital agriculture, and it mostly deals

with the use of manipulation and utilization of data. And this is a really exciting time in agriculture when it comes to data. We estimate that in the next 100 years, we will see greater productivity gains from the use of smart data than we saw in the last 100 years because of mechanization. You know, just imagine, you know, kind of wrap your head around that, the sort of tremendous improvements we've seen with tractors and combines and self-propelled sprayers, you know, doing better than that just because of ones and zeroes. And it really comes down to, you know, prescription agriculture enabled through artificial intelligence.

Today, the technology exists and it increasingly gets closer to full scale commercial implementation of treating every single plant in every single field differently. You know, the average Midwestern cornfield probably has somewhere around 33-, 34,000 seeds planted per acre, and, you know, with this technology, we can tailor all those inputs, fertilizer, you know, water, when it's an irrigated system, and pesticides to ensure that individual plant is treated uniquely to maximize its productivity. It's truly incredible.

You know, as I've been saying for a while,

the tractors are getting a lot smarter faster than they're getting bigger. And, actually, outside of the defense industry, there isn't a sector more technologically intensive than American production agriculture.

If we go to the next slide, you know, focusing a minute here on the hardware side of things, I first want to emphasize that most of the technologies, you know, where we discussed in emerging working group and that you're going to see out there and that we hope EPA regulations are written in such a way that fosters innovation, you're going to see them retrofitted onto existing platforms. That's how, you know, this technology will first be used in production agriculture. And then the next stage will be, you know, farmers purchasing a whole unit that encompasses these technologies from the design floor all the way to the end.

You know, autonomous systems, you know, essentially if you've been inside a modern tractor today, they're essentially already autonomous. They just have the human in the cab as a fail safe and to turn it around on the row ends, and then he just puts the wheel back up into its sort of a way position and can lean back and look at the monitors to make sure,

you know, all the technology is working properly.

Spot farming, precision agriculture, you know, that's an encompassing word for all sorts of things that can be retrofitted onto existing systems or software updates onto existing technology platforms. Same thing with that's how you get to your boom height control improvements, rate control and, you know, mounting weather stations on your equipment and having that feed into your digital platforms.

Ground-based robots, there's a lot of really cool paradigm shifts that are going to happen when you start seeing autonomous equipment from the ground up being deployed. You know, the reason why tractors and combines and sprayers have gotten so big is because the most important piece of farm equipment, today and tomorrow, is the farmer. And so if they're going to spend 16 hours a day doing something, sitting in a cab, you have to make that machine the most productive piece of equipment as possible. And that has largely meant getting bigger.

But when you go to robots and autonomous vehicles, that paradigm shift is totally different. You take away the cab. You start redesigning it where, you know, human comfort for those 16 hours is no longer a factor. And then also when a piece of

equipment doesn't need an individual operator, it doesn't need to be huge. And so instead of dealing with a 50,000 pound tractor and soil compaction being a big issue and limiting the amount of time, you know, when can you get into a field after it rains because the soil's got to be fairly dry, that's no longer a factor. You could have a dozen 3,000-pound robots doing that work continuously, and it just opens up a whole new universe of the art of what is possible.

And, of course, you know, such really neat technologies, such as manually weeding. You know, why use a pesticide if a robot can just handpick it for you. Same thing with bug vacuum robots. And, also, you know, there are people out there working on putting lasers on drone's heads to just zap -- I mean, very -- you know, zap the insects instead of even bothering to vacuum them up.

You know, these last two lines here of autonomous tractors and autonomous ground sprayers kind of encompasses sort of the unknown. You know, what will be the economic model of autonomy? It is undetermined. Will it be a bunch of autonomous tractors that pull up to different various modular systems, you know, pull-behind sprayers, planters, et cetera, and und utilize those tools, you know,

separately, at separate times, or will you have a separate autonomous ground sprayer, you know, a separate autonomous, you know, planter, all those kinds of things. I mean, the future is unknown.

Some of my member manufacturers, they envision autonomous tractors being larger and then others envision the more swarm model where it's just a whole bunch of little ones. You know, still to be determined. So we need to make sure that the regulatory framework allows the market and technology determine where that goes.

You know, nozzles and spray nozzles of course, have been around forever and they continually get better and better. You know, same thing with injection systems, stack systems, and targeted spray technology. And what I want to emphasize here is when, you know, developing label language, what's most helpful is to -- you know, what are the performance criteria you want the applicating system, the applicator, to meet and the industry will design a suite of tools to meet that and probably even do better.

You know, the opposite direction, which we try to avoid is when the label specifies a specific spray nozzle. You know, it says the brand name and

the model number. And the problem with that is then it discourages innovation in that industry because even if your nozzle meets or beats that standard that that, you know, specific product from that specific manufacturer achieves, you're frozen out of it. because you're not that brand name and you're not that part number.

Go on to the next slide, you know, where we talk about what I consider to be the enabling technologies. You know, precision agriculture, the actual hardware you see means nothing without all of these tools. If you don't have hyper-accurate GPS systems that track exactly where you are in the field to within the inch, and the sub-inch in many cases, all those inputs and precision and artificial intelligence and prescriptions don't mean anything.

Boundary mapping, you know, make sure that we've cleared all buffer zones and producers that are doing organic next field over aren't impacted by conventional systems.

Smart guidance continually gets smarter. Maintain constant speeds. When turning in a head row, adjust the spray amount, because the outside sprayer is moving a lot faster than the inside of the sprayer, things of that nature.

And, you know, one of my favorite things that I'm really excited to see that it would be one of the first things that's retrofitted on existing spring platforms is targeted spraying or, you know, see-and-treat applications, where artificially driven cameras are going through the field and when they see a weed, they spray the weed. When they don't see a weed, they don't spray. Essentially the end of, you know, broad cast application for many systems and in many instances. I'm sure broad cast spraying will be required in a lot of situations, but this will mean when it's not, then it's not.

And so we expect see-and-treat applicating technology to reduce pesticide use 80 to 90 percent, and that's huge. And it also eliminates a lot of concerns around weed resistance, because now when we see a weed, we can make sure we kill it and hopefully the label language will allow us to ensure we kill that weed and we can avoid the need to develop new chemistries for additional crop years because of weed resistance, because when we saw a weed, we killed a weed, and we're able to spray more on that week because when we go to another 20 feet down where there are no weeds, we're not spraying anything. The application is zero.

And, lastly, on board weather stations, it's going to just be even better when you're dealing with micro-climates. We all know that temperature, wind play dramatic into drift when spraying and, you know, it's hard to take a constant count of what is the temperature between an hour as the sun continues to rise, between when you started and where you are at the moment, did the wind speed change, and the wind can be different one end of the field than the other based on trees and hills and all kinds of varieties when you're dealing with a 40-acre plot.

Now with on board weather stations, the equipment can make those real-time adjustments on a foot-by-foot basis practically. You know, so that -- we can go to the next slide.

I'll hand it back to you, Mano, to tee up the next speaker.

DR. BASU: Dan, go ahead.

MR. MARTIN: All right, thank you. My name is Dan Martin. I'm a research engineer with USDA. And I'm going to be talking about some of these technologies, primarily some of the autonomous drone technologies. And so one of the first platforms we have here is these unmanned aerial vehicles or unpiloted aerial vehicles. I don't really like the

term “unpiloted” because they have a pilot, the pilot is just typically on the ground. But what they allow -- then there’s really two uses for these types of platforms. One is to collect remote sensing data for a certain field. So typically, those types of drones will have a camera mounted on board or special sensors and then they’re collecting data -- specific data about a particular field or site.

And then in addition to that, some of the pictures that you see here on this slide are spray drones. And in the one upper left-hand corner, that actually has a spreader on it and that is applying actually a granular insecticide with that one, but it could just as well apply fertilizer or seed for cover crops. So these systems apply some type of material, either dry or liquid, and they have nozzles, they have booms, they have pumps, they have a hopper, GPS, as Nick was talking about. Almost all the units that are used for now in agriculture have GPS because it’s so essential. So these are used for applying different types of materials.

Next slide, please.

So some of the emerging technology that we have with drones, we’re looking at increased digital solutions and some of these are satellite-driven

technology, big data analytics, autonomous vehicles, AI, artificial intelligence, and these are all helping farmers to make better, more informed and more efficient crop-growing decisions.

Drones are a really important component of this precision agriculture and have the potential to assist with achieving these sustainable agricultural goals. So these drones have been used in Asia for many, many years, but just recently in the U.S. have they been allowed to be a part of our system here, especially for agriculture.

The precision ag sector has responded to this increased demand now there's a lot of manufacturers that are producing drones that are available to users here in the U.S.

The need to produce significantly more food and feed while using fewer pesticides, coupled with harvest losses and shrinking agricultural land, has accelerated this agricultural innovation in the drone realm. So it's both -- for both uses, both for remote sensing and then for pesticide application or granular application.

And drones are garnering worldwide interest as an application technique for pesticides. We just held what we call an RPAAS workshop, remotely piloted

aerial application system workshop, a couple of weeks ago, and we had over 175 from all over the world that were in attendance at the workshop. So there's a huge amount of interest in this technology, and it will just grow from here forward.

Next slide, please.

So some of the methodology for the remote sensing use of drones, there's a lot of technical detail in here, but basically there's a sensor on board for a lot of this remote sensing and it's -- typically high resolution is what you want, but it's not always required depending on what the application is. So you have it in the red, the green, the blue, or you'll hear RGB, or VIS, which is the visible spectrum.

Then you have in the upper regions, the near-infrared regions also give you additional data that can help with vegetative indices. You might have heard of NDVI. Well, that's one very popular vegetation index, but there's many more. And so the visible spectrum is in that 400 to 700 nanometer range and then the infrared is up in the 750 to 1,400 range.

So a lot of these sensors have multispectral or hyperspectral sensors. A lot of NDVI just requires three or four band. So that's more of your

multispectral. Hyperspectral is 1,000 or more bands that can be used with some of these sensors. And sometimes you need those extra bands, but a lot of what's done can actually be done with just the three or four bands that are very common with the multispectral sensors.

In addition, there's thermal sensors, which detect infrared radiation in the long wavelength region from 7,700 to 13,000 nanometers, way up there. May be used to measure temperature and plant canopies and other objects. What this really is used for is detecting stress. Okay. So plant temperature -- as the temperature of a plant increases, it just means it's stressed. And there's many reasons for that. Drought may be one of those, but it could be insect pressure or weed pressure, other things that are causing stress on that plant, even nematodes probably. But those are what thermal sensors are used for.

And then LIDAR sensors, those emit their own light in the form of a laser beam and they can measure the time that the light is reflected at the surface and the return to the center. It's just a -- it's another way of getting measurements for canopy. And so if you're looking at plant height over a field, you can map that out with LIDAR. Typographical data is

what it measures. And so if you're looking at specifically -- like, for instance, if you have cotton and you're looking at putting on a plant growth regulator and the cotton is of different heights, the really short cotton would not need any plant growth regulator, right? But the very lush cotton that's very tall, that would probably need your higher rate plant regulator. But see, that's how we can vary the application rate during the -- in the field and limit the amount of environmental loading that we have for some of these agricultural production products. So using technologies like this to map out what the needs are of the field and then using that for site specific variable rate applications is very important.

Next slide, please.

So some of the other use cases for using drones and some of the sensors that are attached to them, one is estimating soil and field conditions. So detecting soil erosion, drainage, salinity, acidity, nutrient deficiencies, wide nutrient loss after floods, monitoring drainage and fertility. These are all things that we can use these platforms for.

Seedling emergency, so if you have really high resolution mapping, you can identify where the planting has occurred and where some of the seedlings

have not emerged, and then you can use that data to determine whether or not you need to replant in certain areas of the field, whether that would be economically viable or not.

Crop monitoring, so you can use it for real-time assessment of vegetative stage, biomass and then, ultimately, how much yield could be predicted from that crop in the field. You can optimize fertilization. You can use it for assessment of damage resulting from storms, farm equipment, or malicious intrusion. And also you can use it for evaluation of different hybrids -- this would be on the research side -- and cultivars for experimental plantings.

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Some additional use cases, for crop health assessment. So you can monitor insect infestations, whether they be bacterial, viral, or fungal diseases. You can use them for designing precise pesticide applications. This would be site-specific applications, which can reduce -- well, the application rate is whatever is on the label, but you can cover just the area that’s needed based on some of these maps that are created. And you can help minimize the amount of pesticides used. So one of

these cases would be for spot spraying. And this is where it could be complementary to some of the existing conventional manned aerial applications. So an aerial application could be made with the a manned aircraft for broadcast application. A couple of weeks later, you go in and you map that area for where these existing weeds, maybe they're herbicide-resistant weeds, or maybe they were just skipped, and then that map can be used to load into a spray drone and then go spray just those areas that need it.

And a lot of times, as Nick was talking about, this could be just 5 or 10 percent of the field. Instead of spreading the whole 100 acres, maybe you're only treating 5 to 10 acres of that, along with the associated chemicals that are needed for that and the costs associated with those chemicals as well.

It can be used for water management. Efficiently monitoring water stress in crops on a timely basis and then over large areas. The data generated from this can be used to fine-tune irrigation systems to optimize water delivery. Remember we were talking about stress. So if you're dealing in thermal area, you can tell where the plants are still drought-stressed. You can increase the

supply to areas that are under stress while avoiding unnecessary oversupply in other areas. And it can also tell you where nozzles may be leaking on your irrigation system, and then you can go in and fix those areas so that it doesn't use any more water than it has to.

And then for weed detection, as we talked a little bit earlier, its multispectral and hyperspectral sensors can be used for detecting where weeds are not only just in a fallow field, but, now, with artificial intelligence and machine vision, we can identify where weeds are within an existing crop, whether it may be rice, cotton, even turf, say, for golf courses and such. So this is very important to be able to detect and look at the unique signatures of specific weeds within existing crops.

And then for livestock monitoring, you can use these trends for real-time surveillance for location, the number, the behavior of the livestock, and confirming the adequacy of the pasture and fencing, gates, water supply, feed troughs, et cetera.

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And then specifically for pesticide applications, there may be areas that for manned applications it's either dangerous or just really hard

to get to, and then for ground application as well, if a field is muddy after a rain, it would be either impossible or just not wise to send ground vehicles in to treat those areas. So if you have these types of areas that have physical impediments, such as power lines, uneven typography, drones offer a very complementary approach to existing conventional technologies for plant protection, such as your manned aerial and your ground applications.

As we talked about a little earlier, this technology has been used in Asia for many, many years, and just recently approved in Europe for specific applications in vineyards and orchards.

But there is a data gap between the drone technology, specifically on the spray drone technology, and then the existing conventional application technology. Although they're very similar in many aspects -- matter of fact, we use in drones -- with drones, we use ground nozzles because of the speed. We're always under 20 miles an hour right now and so we can just use ground novels for that. So those are well established. And there's many similarities, so that droplet spectrum is going to be the same, too.

Now, the interaction between the rotor wash

from the props and the spray is something that still needs to be investigated there. There's a lot that we don't know. So there's many variables that need further understanding for these drone-based pesticide applications.

And then many of the above technologies are not limited to unmanned systems. They're used for the ground and the manned aerial application as well. So there's a lot of increased interest in the spray drone -- not only spray drone technology, but drone technology for remote sensing as well. And these need to be explored further, looking at the differences between these and some of the existing application technologies that have been working very well for many, many years.

So there's several different groups that are working on better understanding these technologies. And that's the OECD, the Drone Sub-workgroup, RPAAS, as we mentioned a little earlier that workshop held every year, and then the UAV Task Force, CropLife American has a drones working group, and then we continue working and presenting this at CERSA.

So there's many different groups that are working to better understand these technologies and how they fit into the current plant protection

structure within American agriculture.

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And then, finally, we're looking at some of the benefits and challenges with these technologies. Clearly, you know, especially if -- for replacing backpack sprayers, people that are actually in the field next to where the application is taking place, drones can come in and reduce work exposure to these pesticides and save a lot of time and labor in these areas where hand application is normally used. There's an opportunity to use this technology in tough, difficult, and even dangerous situations where traditional application methods may not be feasible or present additional hazards.

I know there are certain areas in Hawaii where they have guys repelling off of cliffs to spray invasive species, and this would be perfect for going in there and making that a lot safer.

And then there's potential to reduce environmental loading of pesticides, specifically as we're talking about doing spot spraying or site-specific spray applications, and then depending on the equipment type, there may be a resulting reduced fuel use or emissions. Most all the drones right now are battery-powered and the cost to entry is also lower

with drones. Typically, it's in the $20- to $40- to $50,000 range. And so it may be a little bit more affordable for somebody to come in with that type of system compared to some of the conventional systems.

So then some of the challenges, it needs to be noted that, you know, we don't know a lot about these systems. It's at a very early stage in the United States. And so, you know, we need to be careful not to overstate the benefits in the development and rollout, but that also means we need to be able to quantify those benefits as these technologies evolve. And they're evolving very quickly. Every year, there's new technology incorporated that are making these systems better.

And then, of course, the safety, implementation and regulatory compliance aspects of this, there's a lot of data gaps that are out there because it's such a new technology for us. You know, what is the offsite movement that may impact the applicators, bystanders, wildlife? That may be different than the conditional application techniques that are used. And are these differences in the applications that may impact pesticide efficacy or tolerances or perhaps even result in crop injury? And what application training will be required and who

will who certify? And then, additionally, at the very end is, you know, what label language needs to be changed or does the label need to be changed at all?

It is a different technology and it's a different platform with its own unique benefits and challenges, and so we need to better understand those in order to make these important decisions.

And with that, I'll turn it over Greg Watson, who will do the wrap-up. Greg?

MR. WATSON: Thanks, Dan. And I guess since the World Series has started, I get the closer role. But I appreciate the opportunity to try to bring this home. While I won't repeat a lot of what has been said today, I certainly would ask PPDC to, again, reference the report that was written. I actually think that's a very good job of capturing the detail of what we talked about. I do want to highlight some overarching things, particularly in the conclusions, the next steps, and some of the recommendations.

So the first overarching conclusion I think we would come to is that, as you've heard in the presentation today, emerging tech is moving into the agricultural space and its adoption will continue to grow. It's not different than our own lives. We all carry around these large computers. We have devices

in our homes that allow us to do things that, you know, five years were not possible. So the internet of things and the digitalization of our economy is going to be a driver in agriculture. So I think that that's a clear take-home.

I think we also can't ignore the impact on the non-ag sector, particularly in vector and mosquito control, and not only enabling access to dangerous terrain or difficult application conditions, you can also see the advantages of being able to have precise applications because -- near population centers.

I think the challenge of, again, going back to, as Dan just talked about, the potential benefits, is the challenge for industry growers and users is to ensure that these emerging technologies are actually making improvements in the sustainability of our culture and helping to really drive what, you know, ag and non-ag uses of pesticides are really about, again feeding the population and providing abundant and safe food supply, and then protecting human health.

I think another broad theme to emphasize -- and EPA is actually to be commended here, I believe, not just for the formation of our emerging tech workgroup, but they -- OPP has been involved with stakeholders already, particularly outside of their

normal space, and I think that's going to be, you know, incredibly important because that's the only way that you're able to get some sense of what is actually coming into the regulatory framework within the agency.

And as you've heard Dan talk about and others, there is an absolute need for the agency to continually review and update its approach on how it looks at pesticide risk and the risk assessment process. And I think that, again, is a space where we would believe that continued work needs to be done.

Next slide, please.

So again, going with a broad themed aspect of this, one of the things we've tried to say in the report is that there's incredible opportunity here. And the agency instead of trying to look at the mindset, oh, this is just another thing I have to do, another problem I have to solve, coming at it with an attitude that this is an opportunity for change that could be reinvigorating to the program. And the adoption of a digital mindset, given all the digitalization that's happening not just in the practice of agriculture, but in the systems we use to talk, manage date, and inform ourselves as we try to make right decisions.

So I think there's a clear opportunity here. We encourage the agency to embrace that and, again, look at look at it through the eyes that it is an opportunity.

Again, as Mano said earlier, labels are always a question, but I think one of the things that we see a benefit for is looking at can standard language, and not just for the current application methods, but their emerging technology ones, get better. And is there a process by which you could more efficiently update those as you learn more and to try to not think about this being a paper world anymore. I'm firmly convinced that we're not far away from the label not being a piece of paper on a container. It's going to be a QR code, and you're going to pick it and read it by using your phone. I don't know about you, but any time I go to restaurant now, that's how I get a menu. So I think we have to think about what those changes bring.

And, similarly, the risk assessment approach, particularly operator and applicator exposure, dietary exposure, how environmental assessments and -- how the models and the standard practices that EPA utilizes in risk assessment, including offsite movement, need to be adopted and changed to account for these

technologies as we've talked about. And there is also really a need for the agency to help prioritize how they signal that additional information and data is needed and, again, particularly in the risk assessment areas.

Again, the winners in the emerging tech space really haven't been declared, so that's -- we, in industry, we try to have a foresight to be able to get there in terms of these -- you know, what, again, information data might be there, but EPA certainly, I think, has a role in there as a regulator and it's not just frankly in the U. S., but their voice in the international forums, like OECD, is important and it will be increasingly important.

And finally, again, we just can't emphasize enough the continuing engagement with the external stakeholder community. And, again, we feel that the agency has done a very good job here and would need to continue in that stead.

Next and final slide, please.

So hopefully, we presented you a picture that we've worked hard as a workgroup to put together the picture and answer some of the first charge questions we were given. We think there's more work that this emerging tech workgroup could and should do. So we're

recommending to the PPDC that the workgroup stay together for one additional year. But we'd like to provide some suggested changes to the charge questions that would be in front of us.

We think our current membership is satisfactory. We've got players from, again, across the stakeholder spectrum. And certainly we're open and have been open, as we began work, to expand membership to address specific questions or gain expertise where it actually was not resonant within our membership. So I think we certainly would -- we'd continue that.

And in terms of potential revised charge questions, one of the first ones that we still have to answer, we believe, is in the environmental justice area and certainly that is this current administration, and as Ed spoke in his overview of the OPP, a clear priority for the agency, and that is, is there information availability and affordability of emerging technologies for all communities. And Dan talked about that a little bit, but I believe that there's information there that we could leverage and highlight to sort of indicate where emerging tech is going in that regard.

There's clearly still a need to think about

process. While we, as a workgroup, recognized that adapting the risk assessment practice and the standard operating procedures underlying that, they, in some ways, have -- or sometimes have not kept up with even existing technology and certainly manned aerial aircraft offsite movement has been one of the places that has been mentioned and not just in our workshop, but in other forums.

So I think the -- again, how do we get for prioritization and feedback from EPA? What's that process for additional information and data when that is needed? And again, establishing a process that is efficient for updating the label language to, again, allow, again, spot application or how would you link that to a recommendation that would be based on machine learning, for example. So I think there's some opportunity for thinking about what the process like that should look like.

And finally, to return back something that, again, I think is very important and it's about the digital mindset towards the program and its staff. Again, and embracing this as an opportunity. And I think to be able to start thinking about that, as it fits in some of the other programs that the agency's starting in this space, is there something in the

label process that we could use to kick off that hopefully would be an option or that kind of mindset.

So with that, again, I thank you for the opportunity to be a closer. I will never say that I Mariano Rivera, but hopefully I served the workgroup's goal on that.

Ed, since you were such an important member of the group, I'd ask if you have anything to add.

MR. MESSINA: No, I'm just really, really impressed with the having seen firsthand the level of effort that this group undertook under Mano's leadership. If you've had a chance to look at the report itself., it is pretty in-depth and expands on even the slides that are here. So I'm hopeful and I'm glad the group wants to continue.

And I'm pausing because I feel like I want the agency to be able to answer some of these questions, right? I'm sort of in that mode now where I'm like, okay, let's get rolling, let's encourage this, let's get the science in, let's start making some decisions on labels, you know, and that -- I'm still maintaining my patience from EPA's standpoint, and so all of the outside advice is really, really helpful and I think it's really starting to become obvious that, you know, EPA needs to take a laboring

oar on encouraging these technologies, and I'm also really, really pleased with the continued collaboration that's been happening, as you mentioned and as the other folks mentioned.

There are many conversations happening across the entire world around this, in this really exciting space that could have just incredible impacts for farmers and growers and everyone. So it's just an exciting topic to be part of. So thanks for your efforts.

DR. BASU: Thank you very much for your support, Ed. You know, hopefully, if the workgroup is there next year, we look forward to answering some of the other questions going forward.

I'm happy to answer any questions from the full PPDC.

FACILITATOR: Thank you, Mano. Thanks, team. And the floor is open. I did notice -- I'm trying to keep track of the chat here, and I think that Cathy Tortorici from NOAA has put a question in the chat. Maybe you all can see that. It says, what are the technologies that reduce pesticide loadings that are close to coming online?

MS. JEWELL: Paul, let me interject really quick. This is Shannon. And maybe others can nod if

this is true. Your audio is a little bit low for me. It's not terrible, but I really have to listen hard to hear you right now. Are others experiencing that as well?

MR. MESSINA: That last comment was a little low for me, Shannon, as well, from Paul.

MS. JEWELL: Okay, thanks.

FACILITATOR: Okay. I am sorry about that. I'm not sure what happened. Has that been consistent all the way through the last day or so?

MR. MESSINA: No, it was just that last comment, Paul.

FACILITATOR: Okay.

MR. MESSINA: For me.

FACILITATOR: I would direct your attention to Cathy's comment and maybe someone on the team wants to take that on.

DR. BASU: Damon, go ahead.

MR. WATSON: I can't see the comment. Was it which one the technologies is closest to the market?

MR. MESSINA: Yeah, that one --

MR. REABE: I actually wanted to take a crack at this. I think it really falls into the scope of what the workgroup is working on and it's the difficult question that is -- you know, as Ed

mentioned is testing his patience, and I can understand that. And I think it has a lot to do with just the framework of -- specifically of risk assessment. And so Cathy's question talking about technologies that reduce loadings that are coming online, these technologies that reduce environmental loading, affect drinking water, these adverse effects from these pesticide applications, those technologies, many of them are 30, 40-plus years old that are still not quite being accounted for in the risk assessment process. Simple nozzle selections for making different droplet sizes.

And these are -- EPA's not doing this in a vacuum of information. The EPA, as I understand it, is doing this based on the premise of worst case scenario. And I think what's happened, in my opinion, in agriculture, in particular, the industry has matured to a place where these technologies have been brought forth due to the industry's interest in being stewards.

And so I think it's really critical while -- and it's happening -- but while this work is being done, to overhaul risk assessment processes to enable technologies that have improved effects on our environment and society as a whole that we quickly,

meaning industry and EPA, work together to make sure that risk assessments are done accurately, accounting for all of the existing technologies and kind of get past this risk assessing based on the worst players and simply enforce the label language so that those players aren't allowed to operate.

And my hat's off to the EPA, they're working closely with the NAAA, but much of what we're working on is literally decades old conversations. Wind directional buffers, you know, specific droplet size, effective boom length, all of these things -- and, again, it's not to disparage the EPA. There's processes in place that have to be transparent and science-based and it's not just take our word for it, but it has -- I think the EPA has to become far more nimble in accounting for those existing factors.

UNIDENTIFIED MALE: And to kind of play off that and to looking forward, you know, we can see tremendous additional gain from the increased adoption of existing technologies, such as variable rate, section control of sprayer nozzles. You know, current adoption rates of those technologies have resulted in 30 million fewer pounds of pesticides used, but still the adoption rate of a lot of those technologies for a lot of crops is 20 percent-ish. But then looking

forward to technologies that aren't widely available on the market today, I would say the see-and-treat where the machine is only spraying where it sees the weed is something you'll see in a couple of model years.

UNIDENTIFIED MALE: Yeah, and I would just come over the top as to Damon's -- you know, to (inaudible) Damon's comment and what (inaudible) said see and treat has certainly been in a research phase, but it's right at the edge of implementation in a full way. And again, in many cases, it's agnostic of the equipment, whether it be ground, manned aerial or unpersoned or unmanned aerial. So I think that certainly is in play.

And there are multiple offers in the agricultural space to couple those with digital ag offers. So for example, advice that would provide prescriptions or treatments that might be (inaudible) or broadcast, depending on the situation. Again, linking all that information together from scouting platforms and being able to allow the grower to follow that all the way down to a yield monitor. Those kinds of systems and support are out there.

And again, in the non-ag space, that's also important because being able to know where you

sprayed and documenting that digitally from connection to GPS coordinates, that is there. So I think, you know, we are -- again, why winners in lot of space haven't been declared, we are at the space where there is adoption rates starting.

DR. BASU: Yeah, Greg, just to add do a Damon said and what you said, you know, certainly, yes, there are quite a few technologies which have been in the marketplace, reducing environmental load and whatnot. Going forward see-and-treat is a great example, but from a risk assessment point of view, if the approach is taking the worst case scenario, then presume, I mean, under these circumstances, a scenario where you are having see-and-treat a 40-acre farm, your worst case scenario is the entire 40-acre field is full of weed. So are you now doing risk assessment for the entire 40-acre, a full load, or is it see-and-treat.

So how does these technology gap -- bridge the gap between the advancement in technology, the reduction in environment load to the risk assessment? I think that's where the agency has to be nimble and figure out mechanisms to incorporate the benefits of these see-and-treat kind of technology and other technology which reduce pesticide load overall into

the risk assessment process.

So again, I don't know what it looks like, what the new worst case scenario would be for these technologies and how we can incorporate technologies that are coming out or technologies that are already in the marketplace.

MS. TORTORICI: This is Cathy. I hope you all can hear me. I just want to make a quick comment on what you all are saying. The reason I asked this question is because as we're working with EPA on consultations under Section 7 of the ESA, we're looking for a couple of things, you know, two big things.

How can what you all are describing, to the extent that it's appropriate and practicable, be incorporated into the biological evaluations that EPA is working on to bring these kind of technologies to the forefront in talking about effects that they're that they're analyzing to listed species? So that's one piece of it.

The second piece is how industry is bringing these technologies and the use of them to EPA at the beginning of the FIFRA process, as well as to us when we're talking about mitigation options. You see where I'm at? So the more information that we have on the

benefits of these technologies, and I -- you know, I understand what Damon is saying. For a number of these, you know, these have been around for a while. So we've known about some of them for sure. Others are newer. To the extent that we can understand their application, the applicability of them and the effectiveness of them, then it's easier for us to incorporate that into the process that we're using with EPA from a consultation standpoint.

I'm very excited about this presentation. There's a lot going on. I mean, it's -- I want to give complete credit to the people that worked so hard on this because it's a massive list of stuff that has potential. It's just I want to be able to figure out or work with you all to figure out how we bring it to the forefront a bit more in terms of the processes that we're using from the consultation standpoint.

And I know that wasn't one of your charge questions. I'm just thinking about your information through that lens. Thanks.

DR. BASU: Thank you, Cathy.

MR. MESSINA: Yeah, this is Ed. I'll respond to that. I mean, so both things are true and one is what Damon mentioned, which is we have existing methodologies and risk assessments that we can use and

drift modeling that we need to update to address some of those -- that risk analysis. The other thing that's true is these are somewhat entirely new technologies with different weights and different fan rotors and so they are this sort of entirely new thing. And so the key for me is -- and that's -- I think a lot of what the workgroup is focused on is, how do you bridge this new technology and fit it into our existing frameworks, right?

And that's one of the many questions, but I think it's kind of a salient question that the group was sort of struggling with, and which is why I'm acknowledging my impatience, but I get it, right? I mean, it's not like we can flip a switch and tomorrow all of our risk assessments and all of our protocols and all the test methodologies are sort of updated by Friday and we're good to go on Monday. It's a longer term process.

FACILITATOR: Thank you, Ed.

Damon, did you want to jump in with a followup?

MR. REABE: Yeah, and this would be just to respond to your comment, Cathy, and your question. I'll just provide an example. We're working on -- the National Ag Aviation Association is working with EPA

on inputs used during risk assessment, on approximately six of those inputs. We've come to the EPA with that worst case scenario mindset as part of the process, and simply by updating these inputs to modern best management practices and equipment, we are reducing drift by 43 percent versus the existing tier one modeling that's using -- now, not to get off in the weeds on aerial application, we can get far more prescriptive on pesticide labels beyond the 43 percent, where we can start to see numbers that exceed 80 percent reductions in drift by more prescriptive labeling with existing technologies.

I'm bring this as an example not to be self-serving for the current manned aerial application equipment. I think there are stories like this on ground sprayers as well. I think shielded ground sprayers have that technology. It is not necessarily accounted for on current agricultural pesticide labels. But with all these new technologies being presented to us, many of which can get mounted on the aircraft that is piloted by an individual, it's an overarching requirement for extreme amounts of nimble work on the EPA's behalf to very quickly adopt the benefits of these technologies accurately in the risk assessment process. That encourages the adoption.

The reason why the adoption rate for a lot of this technology is so low is because you're left with the limitations on the label, that is the law, which is all based on the worst case scenario.

So it's kind of a chicken and an egg story in my mind. The sooner the EPA goes to industry with draft label language or works together with them, the sooner we can see adoption of that type of technology whether it be unmanned aircraft systems, autonomous spray systems on existing platforms. Whatever those things are that are being worked on, we can really move the needle here, I think, in a pretty dramatic way.

MR. MESSINA: Yeah, thanks, Damon. My reaction to that is -- and I'll put this request out there again -- OPP is very good at dealing with the issues it has in front of it in kind of real case examples. We're very good at the PRIA analysis, we're very good at registration review and incorporating ESA. We're very good when we have something in front of us to kind of chew on and run through the paces.

So similarly, if there's a registrant or, you know, a grower or academics that are interested in a submission to EPA that has a label, that we want to put through the paces, it'll put it in our pipeline

and it will force us to kind of address those scientific issues and label language at the end of the day. So we haven't had those submissions yet, but I think that is one way to kind of move this ball forward where we do get requests to add drone technologies.

And as mentioned there are really some really great applications, you know, vineyards. The Hawaii one is the new one for me. I always mention the high hazard areas, mosquito abatement, those are some areas where, you know, it makes sense. We're not at the stage where we're going to be flying, you know, giant fixed-wing autonomous vehicles over cornfields. There's just other cheaper technologies that exist. But currently is a niche technology that can satisfy a hazard area in particular applications I think we're good. We'd be willing to chew on those things and kind of then think about a pre-submission meeting on what protocols and what data development we would like as part of that submission.

So just a point to your -- interested in seeing any registrants you want to come forward for application of this technology so we could work through those label questions.

And thank you, Liza, for (inaudible) also

willing to assist.

FACILITATOR: Thank you. Thank you, Ed.

Listen, I think Greg Watson would like to add a comment about the UAV task force. Greg?

MR. WATSON: Really it's kind of in response to Ed's comment about proposals. So there has been a task force of industry members, including the registrant UAV manufacturers and UAV application companies. We've come together to start putting together proposals for data development to inform the risk assessment and, therefore, the labeling process. And because of the divergence in spray systems and the types of machines, that proposal will include a proposal for a benchmark or a reference, a drone or UAV machine, as well as the space system would be on it.

So I think that's, again, the kind of effort we're trying to get to so that we can align on what the study protocol, for example, of an offsite movement study might look like. And there's certainly efforts also within the CropLife America community in terms of looking at the existing data. There's a project there to do we already have some information that can inform an offsite movement curve using aggression-based analysis.

So I think there's some things that are again on the cusp of doing exactly what it is suggested. So thank you.

FACILITATOR: Thank you. Thanks, Greg.

Charlotte, I think you had a question.

MS. SANSON: Yeah, thanks, Paul. Thank you. I'm good. It just took a second.

Yeah. I know it's been said that the work that the group has done, like all the workgroups, has been very impressive, and so I applaud the workgroup for all the time and energy they've put into this. This is an area that's only going to keep on growing and becoming more relevant in our industry.

And so I guess my question is more to Ed in terms of the resources in OPP. I mean, I know -- I heard your -- I heard what you said about working directly with, you know, doing pre-submission meetings, working directly with the RD contacts, but I guess I could see this becoming a bigger opportunity within OPP, you know, having some dedicated resources to this area. I think it's just only going to become more and more important and relevant in the industry for the reasons that have been already mentioned.

So maybe it is more of a comment than a question, but you're -- so far you've been the main

contact and last I checked you're a pretty busy guy.

MR. MESSINA: Yeah. Well, we had Amy added to the workgroup as well. But that's exactly my comment. In terms of having bandwidth to deal with a theoretical, it's sort of been me, and if folks recall, you know, three years ago as the deputy, I was the one who kind of put this on the agenda as something we should all think about it. And I'm just so amazed at how much progress we've made since then. But in terms of, you know, an OPP response, we're going to need to pilot some things. Sorry for the pun. But, you know, really work small to kind of see what we can get through the door and what will work, and then I think expand from there.

We don't have the resources to work through this theoretical and that's exactly why having it be a PPDC workgroup was my way of applying additional leadership and smart minds and industry to think about, you know, how we try to solve this problem collectively. So we don't -- we did have more resources, and it's the faces that are presenting today and they did an amazing job.

So thanks for that, Charlotte.

FACILITATOR: Thank you. Thank you, Ed.

We're going to wind up. We have time for one

more comment or question. And, Iris, you're up.

MS. FIGUEROA: Thanks, and I'll try to be brief. I just wanted to make a couple of comments, sort of on the worker perspective of some of these emerging technologies and some of this we've raised before. There's some opportunities here, I think, and some exciting ideas, especially when it comes to things like reducing drift, which we know is a huge issue. But as we've mentioned before, just making sure that there's a process and clear guidelines for, for example, if there's an unmanned application instrument, you know, that there's a way to see if there's bystanders and communicate with those bystanders, et cetera, and some of those other elements that are needed beyond the details of the application itself.

And also when it comes to assumptions for risk assessment, and this is again a broader issue we've brought up, we also caution against assuming best case scenarios. For example, many times there will be the assumption that PPE is worn and that it's worn correctly or that folks are reading the label to begin with, which, as we've talked about, is not always the case. And so just a reminder that technology is not -- is a great tool, but it's not

perfect and there's still a human error to account for in that.

MR. TINDALL: Nick here. I'd just like, you know, to make a couple of comments based on that. You know, one, as far as worker safety, there actually is an autonomous spray unit being used in a vineyard setting. And when that is being deployed, the area of operation is completely roped off and segregated from, you know, any worker to be in that area and, you know, proper notice was made and whatnot. So it really limit the ability for human-machine interaction.

And when you see moving forward and you're going to see that autonomous 5,000, 3,000-pound tractor, it's going to have a much higher safety threshold than a human operator because the LIDAR system that will be to detecting obstacles will be working on a 360-degree angle viewpoint and also never blinks and never gets tired. So you're definitely going to see an increase in safety over a human operator.

DR. BASU: And just to add to Nick's comment, all these technologies coming up -- I mean, you know, Bill Jordan raised -- made his comment yesterday around PPEs and global temperatures, going up. These technologies help in reducing human exposure and

worker exposure. So again, lots of opportunities.

Thank you very much for everyone for your time to listen to our workgroup's presentation today.

FACILITATOR: Mano, you got the last word. Thank you. Great way to wind it up. And I think we are going to move to the poll. This is becoming pretty routine already for us.

So Sarah is going to post the poll, which is basically where we're asking for a motion to pass these recommendations on to OPP from the PPDC. So we're asking PPDC members only to vote. But, first, we need a motion from a PPDC member.

MR. REABE: I'll make the motion. This is Damon.

MR. SHAW: I'll second that. David Shaw.

FACILITATOR: I didn't hear. Who was the person that made the motion?

MR. REABE: Damon Reabe.

FACILITATOR: Okay, Damon, thank you. And who seconded?

MR. SHAW: David Shaw.

FACILITATOR: David Shaw, fantastic. So we have a motion and a second. Any discussion what you're voting on right now?

(No response.)

FACILITATOR: Okay. You have the three choices, yes, no, or abstain. Once you select one of those, you click the submit button and you'll have voted. So let's open the polls.

I think they are open. Go ahead. PPDC members only.

And, Sarah, I'm guessing that you're watching the tally as it mounts up. So when we get close to that, you know, I don't know 35 to 40 mark, let us know.

FACILITATOR 2: Will do.

(Pause.)

FACILITATOR 2: Just a reminder to folks to make sure you hit submit once you make your selection so that we register your answer.

FACILITATOR: So you pick one of the three and then hit submit. The vote doesn't go in until you hit that button.

(Pause.)

FACILITATOR: It looks like we have 38 people who voted, so I will display those results in just a moment.

FACILITATOR: Okay. I think that is consistent with the last vote. So it seems like we might have 38 members present. There you go.

All right. Thank you very much, Sarah.

And we'll move forward. We're at the next item in our agenda. We have a team of folks from OECA that have joined us. Francisca Liem, Dan Myers, and Elizabeth Vizard are here today. And I'm going to, I believe, pass this to Elizabeth to get it kicked off. And so thank you all for joining us and we're looking forward to the presentation.

And, Elizabeth, if you were there, you might be on mute.

MS. VIZARD: Can you hear me now?

FACILITATOR: You bet.

MS. VIZARD: Oh, good. I was just trying to put on my camera. Sorry, I'm clicking on the video button, but I'm not sure that it is working.

Well, I don't want to waste any time. Sorry, my camera doesn't seem to be coming on Webex.

Thank you for the introduction. This is Elizabeth Vizard. I'm the Acting Deputy Director of the Monitoring, Assistance & Media Programs Division in Office of Compliance in OECA. We're happy to be here.

In our division, we have the Good Laboratory Practice Program for anyone who is not familiar. And we wanted to introduce ourselves, or reintroduce

ourselves, to those who might know us and we would like to more formally engage with this group. We think that it would be very valuable for us to be able to bring up topics of interest to provide updates on our program and to -- from time to time, there are opportunities for us to ask questions or provide updates so that we can hear your feedback directly.

So for today, we wanted to provide a brief overview of the program because if you're not familiar, we do work hand in hand with Office of Pesticides and the Office of Toxics. There are GLP regulations under FIFRA and TSCA. And our team of inspectors are responsible for the compliance monitoring program, whether they're going out in the field, or during these times of COVID, we have been doing a lot to implement offsite compliance monitoring approaches so that we can keep the work moving forward and progressing, completing the study audits and providing confirmation of GLP compliance, which we know is so important to registrants and others in the community.

So with that, I'm going to turn over the presentation to Francis, who is the section chief of the GLP group, and Dan Myers, one of our seasoned senior inspectors, who also is our new representative

on the OECD GLP working party group. So we wanted to also touch on that as well. So I'll turn it over to Francis and Dan.

MS. LIEM: Good afternoon. My name is Francisca Liem. I'm the Director of the EPA GLP Program. As Liz just mentioned, you know, we'd like to introduce the GLP Program to the PPDC.

First of all, for you who are not familiar with good laboratory practices, or GLP, a very brief overview of what is actually GLP or good laboratory practice. GLP is an international quality management system. It is used by many countries in the world, and most of them are OECD member countries. So GLP is in international management system that focuses on the process and conditions. So these are how to conduct the nonchemical or the environmental studies. There are recommendations for planning, how to conduct the studies, the performance of the study, monitoring and reporting, and archiving the data and the records of the studies.

So the purpose of the GLP Compliance Monitoring Program of EPA is to assure the quality, validity, and integrity of facilities and their scientific studies that support a regulatory decision by government agencies, for instance, at EPA is under

FIFRA and TSCA.

So the question is now why should PPDC know about GLP.

Next slide, please. No, I think it's the slide before.

Okay. So PPDC membership include stakeholders that are important to the Office of Compliance. GLP compliance monitoring activities are inspections and data audits. We assure the quality and integrity, as I mentioned before, to assist OPP's management and scientists in their regulatory decision-making for pesticides.

During the COVID pandemic, EPA moved or transferred temporarily from the onsite inspections to offsite compliance evaluations. One example of the offsite compliance monitoring is the desktop audit. This is a data audit of the studies that have been submitted to OPP. We didn't have to do -- we normally do the data audit onsite, but during the pandemic, we did the data audit offsite, so at the inspectors' desks.

I'd like to explain the benefits of these desktop audits. First, the OPP approvals of pesticides registrations, reregistrations and so on, so the regulatory decision-making indirectly benefits

to registrants and sponsors because EPA assures the validity and integrity of the data submitted to OPP.

The second benefit is when testing facilities are having a desktop audit and also a remote virtual compliance evaluation, this is done by video, it shows that there is a process of the EPA GLP Compliance Program. So (inaudible) authorities feel that they are assured of the EPA GLP compliance status of the testing facility.

Benefit number three, EPA has done a number of requested desktop audits from OPP and several foreign countries. They were requested during this pandemic. The request was to support at OPP and a foreign country decision-making. So let me (inaudible) about the registration of pesticides.

The fourth benefit is these offsite compliance monitoring activities support also PRIA-4. As part of the continuous -- I'm sorry -- part of a continuous comprehensive compliance monitoring program.

So these are the four benefits that we can think of I'm sure there are more, but these are the four most important benefits of these offsite compliance monitoring activities.

Occasionally, EPA will have topics or

documents shared with stakeholders, including matters that may arise from OECD's GLP working party and we would like to use the PPDC as a way to exchange information and obtain feedback as necessary.

Next slide, please.

This is a brief summary of the most important GLP recommendations. I call them the ten pillars of GLP. They comprise of a statement of compliance, inspection, know when a lab refuse inspections, for instance, and the effects of noncompliance. So (inaudible) there are several (inaudible) on those.

The second pillar is about organization and personnel. That includes the personnel for the management, quality director, or assurance and other personnel involved in the conduct of a study.

The third pillar we call it facilities. These other recommendations on, you know, what type of facility is appropriate for a certain type of study. There are a lot of (inaudible) on that (inaudible).

Number four is archives. Archives is a place, you know, where we keep all the records that are supporting studies and complete the studies. So these archives are for completed studies. Again, they are recommendations. They are also a rule or recommendation regarding how long they have to keep

the archives and how to keep their archives to be compliant.

The fifth pillar is regarding equipment. This is the current calibration, you know, what type of equipment is appropriate for studies and so on.

Number six is about testing facility operations. This includes standard operating procedures. I think it's the most important part that facilities should know.

The seventh pillar is the current test system care. The test system care is normally sought of biological species, but it can also be a chemical that would be also a test system. They are recommendations on that, how to keep them, how to handle them and so on.

Number eight is the current test, control, and reference substances. The test substance is the chemical or the (inaudible) of the product that the sponsors or registrants, you know, has to provide data on.

Number nine is the protocol and conduct of a study. Protocol is, as you know, is the study design. So this recommendation, you know, recommends how to conduct a study and the study design itself and how to conduct the study. Like, for instance, you

have to sign with indelible ink, for instance, but nowadays it's all computerized. So those are all the recommendations regarding the conduct of a study.

Finally, number ten, the tenth pillar is the records and reports. On the records, I've just mentioned about archives, of how to maintain the studies or how to maintain the raw data, how long to retain and so on. And reporting, what are required to be in the final report before you submit it to OPP.

Next slide, please.

MS. VIZARD: Francis, I just want to do a time check. We're about halfway through our time and I know I just want you to be able to get through all the material that we wanted to share.

MS. LIEM: Okay. The basics about the GLP Program. This is a headquarters of programs. The (inaudible) are not involved with the GLP. The studies that we select for data audit comes from the OPP database, or OPPIN.

Next slide, please.

There are two types of GLP inspections that we conduct. First, is called the neutral scheme. These are random selected facilities that are being inspected. We get these facilities, again, from the OPP database, OPPIN. We have, as I said, you know, a

neutral scheme and randomly select the facilities. These facilities are based on the criteria and applied weights. The criteria are, of course, the compliance history, the last inspection date, the number and type of studies that have been submitted to OPP, and also the geographical location.

The second part of GLP inspection is called the requested or for course. These inspections would normally be requested by OPP, you know, because there is a pending registration evaluation and PRIA action. The question or request could also come from a foreign government and, of course, tips and complaints.

Next, please.

We talked about the responsibility of GLP is to assure the quality, validity, and integrity of the data submitted to OPP. We also conduct inspections and assure that the facility's current studies are in compliance with the GLP. We provide compliance assistance to the regulated community, and we participate in the OECD Mutual Acceptance of Data program.

Next slide, please.

What happens when an inspector find an issues or deviations at the facility during the inspections? There can be three actions that OPP -- I'm sorry, that

EPA can take. First, is the regulatory -- we call it regulatory action. This is OPP regulatory action or kind of enforcement action. OPP could reject the study when there are GLP violations, OPP could also suspend or cancel a registered pesticide or deny an application for pesticide approval. So that's the regulatory action done by OPP.

We also have civil action and it is enforced by the Office of Civil Enforcement of OECA. They can issue a notice of noncompliance, a notice of warning, or they can also issue penalties to the registrants.

And finally, there's the criminal actions. If we suspect of a criminal activity at the laboratory, the GLP inspector, the GLP program, would refer that to the Office of Civil -- sorry, of Criminal Enforcement. The criminal enforcement actions could be imprisonment and/or penalties.

I think this is my last slide, and the next slice would be done by Dan Myers. Thank you very much for your attention.

MR. MYERS: Hello, everybody. I'm Dan Myers, and I will be talking about how our GLP program fits within the international community. So as Francis was talking about our domestic inspection program and the reason we have that is so that we have a level of

quality that we can rely on when reviewing safety data here in the United States. Well, as you can imagine, globally, there are other countries and the citizens of those countries and governments have those same questions and concerns.

So there's an entity set up to harmonize GLP issues globally, and that's done through a large global entity called the Organization for Economic Cooperation and Development, which harmonizes a lot of issues from social issues to economic issues to environmental issues, which is where our working party resides within that section of OECD.

So what we do with the OECD is meet routinely and talk with other countries and coordinate efforts so that we are all on the same page when it comes to good laboratory practice or regulations is what we call them in the United States or the GLP principles for the rest of the world. And what we want to do is we want to kind of mid of minimize our necessity to continue to do evaluations of laboratories from other countries. So it's kind of -- what I'm trying to say is it's kind of the next tier.

Rather than of evaluating laboratories in other countries, what we're doing now is we're working with the governments of other countries to establish a

valid evaluated and accepted GLP programs and monitoring authorities. And we do that through this mutual acceptance of data program within the GLP working party.

So let's go ahead and change slides, please.

So as you can imagine, the EPA is heavily involved in OECD's MAD program, and how we're involved is by conducting training, evaluating, attending meetings. In fact, I was up at 5:00 am this morning attending a meeting on IT issues and how they pertain to GLP studies. And so we're constantly talking with other countries about GLP issues.

So if a country, including ours, has any issues that might arise or concerns, this can be brought up through this avenue and talked about with other countries, see what other countries are doing, if they run into the same issues, and how can we be consistent globally on GLP issues. And that's a two-way street. If there's another OECD MAD country, such as New Zealand when they have an issue, they may come up with questions for us as well.

So you can see from my slide here there are currently 38 countries that have evaluated and accepted mutual acceptance of data monitoring authorities, 38 countries. Thirty-one of those

countries are actual OECD member countries. And then there are other developed nations that aren't actually members of OECD, but wanted to become a part of this MAD program and their governments have been evaluated and deemed acceptable to meet the standards of what's required for OECD for this type of inspection process.

So again, one of the main areas that we are involved in is harmonizing efforts, protocols, procedures globally. We do that through giving presentations, providing training. We can provide training to -- just general training to already MAD countries, or if there's up and coming countries that want to get into the MAD system, one of the things that all of us MAD countries do is provide training to help that country meet the standards set by OECD.

And in addition to that, we also participate in audit teams. And what I mean by that is is I'm not auditing scientific data from a study that's generated in Italy, let's say. What happens is all of these MAD countries are up for reevaluation a 10-year rotating basis. So every ten years a country or many countries will be chosen and a group from other OECD MAD member countries will fly in and evaluate that country's monitoring authority for compliance with OECD's set of standards for monitoring authorities for GLP.

Some advantages of being part of a MAD country is that we reduce the duplication of efforts, meaning we're not inspecting -- many inspectors from all around the world aren't inspecting the same laboratory over and over. We rely -- once a monitoring authority's government is set up, we rely on that government to do their own inspections. It also minimizes efforts within their regulated community to redo studies. If a study is done once in one of these MAD countries, such as Japan, for instance, then it can be accepted by all of these other countries.

And I think the last point I'll bring up is that once you are a member of MAD and have gone through these evaluations -- oh, I also wanted to say that the United States, even though we invented the GLPs and came up with this whole idea, we are not exempt from this 10-year evaluation process. So we get monitored just as all of these other countries do. But once countries are in the MAD system, one of the stipulations is that these countries are required to accept studies for review purposes from other MAD countries, if they're compliant with the GLP regulations.

So there's two points there. One, we're

sharing information; two, we are accepting these studies for review purposes. It doesn't mean we have to accept their chemicals or accept the conclusions in the studies, but our receiving authorities accept studies from other MAD countries.

Okay, I think we can go to the next slide. I believe that's the last one.

Does anybody have any questions for either Francis or I or Liz?

MS. VIZARD: Do you want to read the questions or I was going to go ahead and help facilitate?

FACILITATOR: Go right ahead. Go right ahead, Elizabeth.

MS. VIZARD: Okay. So maybe I'll help kind of tee it up to Francis and Dan.

So a few questions. PRIA-4 provided set-aside funding for the GLP program. How is it being used?

So I can also respond to that. So with the PRIA set-aside funding, we were able to hire three more inspectors to the program, which we were very happy to do. We've been training those new inspectors and building their capacity. Obviously with COVID, it's had a bit of an impact on us. But as we

mentioned, we have pivoted to offsite compliance monitoring. So that hasn't stopped us. We've been training and working with those inspectors and have integrated them into our team, and they have been learning the process and learning the study audits.

Number two, how are GLP inspections being conducted during the pandemic and how is EPA handling the backlog of inspection given the pandemic?

So I might tee that over to Dan or Francis, if you want to talk a little bit more in details about offsite compliance monitoring, how we're doing the desktop audits.

MS. LIEM: Yeah, sure. All the (inaudible) they have discussed about the offsite compliance monitoring. The offsite compliance monitoring activity consists of two parts. One is the facility -- (inaudible) the facility inspection. Now we do it by (inaudible) by video, do a partial compliance. We don't call it an inspection; we don't call it a compliance monitoring activity. So we go to the facility and with a facility person holding the camera and we tell the person, you know, what we want to see and then they go slowly through each side or each part of the laboratory that we would like to see. So that's the facility or the compliance monitoring

activity of the facility by video.

The second part is a desktop audit. So we always write to let you know, you know, we pre-notify the facility that we are going to do this. We tell the laboratory what studies we want to see and what to audit and their laboratory then has to provide the data electronically to the inspector. So the inspector would do a data audit like it does at the facility, but now he does it at his desk. He has questions, of course. You know, he would then send it to the laboratory by email. And we then also receive the answer or the response, you know, of the questions, you know, by email.

We do an opening conference as usual as in like the onsite inspection. At the end, we do the closing conference. And the facility would be provided the same type of form that we use for an onsite inspections. (Inaudible) observations that is required by the PRIA-4. So we are still following, you know, and try to meet all the PRIA requirements.

So that’s the current offsite compliance monitoring.

FACILITATOR: Did That tackle the three questions that Charlotte had?

MS. LIEM: I don’t see the questions.

FACILITATOR: Okay. Well, I'm asking Elizabeth actually.

MS. VIZARD: Yes, I think so. Let me scroll back up. I was trying to catch up on some of the easy ones.

FACILITATOR: That's okay.

MS. VIZARD: They're asking us about the number of labs. There's approximately 1,200 or so potential labs domestically in the United States. And there was a question about inspecting -- how many inspections, and I did want to make sure that people understand the way our regulations are and how we plan for our inspections annually, it's based on the studies that are submitted to EPA for review. So we must have studies submitted in order for us to consider inspecting that facility. We do not have a certification program. So we aren't just going out and have, you know, for instance, like a list of the labs and just go out and inspect them and, you know, kind of renew a certification, like some programs might act. That's not how ours operates. And the FDA's GLP program operates in the same way.

Charlotte had mentioned about a backlog of inspections. I don't know that I would refer to it so much as a backlog because really one of the things

that I explained is how it's so important to have the studies. I would say that, you know, really one of the most critical components is our ability to review the studies and so we have continued doing that remotely.

Yeah, Francis reminds me we had 67 or 60-some data audits that we were able to complete those past year.

FACILITATOR: Yeah, Elizabeth, I'm going to have to cut it here. Shannon can capture these questions that are emerging in the chat box.

MS. VIZARD: Okay.

FACILITATOR: She can get those off to you and your team and perhaps you could provide some quick responses to the things that you haven't responded to yet because there are quite a few. And a lot of this is, you know, how many of these and how many of those. So Id rather divert those questions to you offline and maybe you can provide some responses to the team, to the PPDC, or to Shannon and --

MS. VIZARD: Sure.

FACILITATOR: -- she'll transfer it to the PPDC. So we want to thank all --

MS. JEWELL: I'll send those over now. Thank you.

FACILITATOR: Yeah, okay. Thank you very much to the OECA team for coming today and we really appreciate the information you've shared with us.

MS. VIZARD: Thank you for having us. And we're happy to answer the questions. We're really happy to see so much engagement in the chat. So we look forward to talking with you more in the future.

FACILITATOR: Fantastic. Thank you very much.

MS. LIEM: Thank you.

FACILITATOR: So I think we're going to transition now to the final workgroup report-out. This is the pesticide resistance management workgroup report-out. So the co-chairs on this team are David Shaw from Mississippi State, Bill Chism, and Alan Reynolds, both from EPA. And so I'm going to pass the baton to David who will speak first and introduce the team and get the presentation started. David?

MR. SHAW: Thank you very much, Paul. And the format that we're going to use on this is I'm going to give a few introductory remarks as as the co-chair of this, and then we have five recommendations that I hope all of you has seen, and we'll have one of the workgroup members speak -- a different one speak to each of the five. And then we'll wrap things up

and obviously answered or respond to any questions or comments that we have.

And I'd like to say right off the bat a huge thank you to the EPA team that worked with us on this. Bill Chism and Alan Reynolds were mentioned here, but also especially Shannon Jewell, who was invaluable in helping us stay organized and on task. And so thanks to to everyone that assisted on that.

Next slide, please.

So the overarching goal that we were charged with in the working group was to develop recommendations to EPA on how the agency can assist stakeholders in addressing all of the challenges of conventional pesticide resistance. After we began our work, we immediately moved into identifying several charge questions, and I'll talk about that in just a moment.

Next slide, please.

I guess by way of introduction, I think all of us recognize that resistance to classical pesticides or conventional pesticides has been a growing problem that has really taken on a huge magnitude in recent years. In our work within the weed science community, we've been doing a great deal of work with sociologists and they term this a

"wicked" problem, a problem that has just a whole host of causes with no easy solutions and oftentimes solutions from one perspective actually can create additional problems from another perspective.

So as our working group began to deliberate on this, we really wanted to focus in on, number one, the great work the EPA, as an agency, has already been doing in this arena and we certainly do want to applaud the agency for that, but we also wanted to call out the fact that there were a number of opportunities to have a much larger impact than the agency is currently having, and we see several opportunities for that and are really excited about the opportunities that we do see before us.

Next slide.

I mentioned the charge questions. When we initially began the deliberations as our working group, we really circled around four subgroups that we wanted to be able to create. The first charge question or the first subgroup that we created focused on the idea that there are a number of EPA policies out there now that have both positive, and in some cases, negative effects on pest resistance management. And so the question that we posed to this group was, what policies are there and then what policies could

be reworked to be able to more positively address resistance management.

The second one is taking a look at current industry programs that are having an impact, and so everything from incentive programs all the way to programs that might lock a grower into a certain pesticide regime and what what role could EPA then have in being able to assess those programs and be able to work with industry to have a positive impact on resistance management.

The third charge question that we developed was looking at incentives, incentives to both the registrants and to the pesticide users that could be considered when we think about resistance management and pesticide regulation in a much more positive way. And then, also, are there some ways that the agency could be working with stakeholders, and I define stakeholders in a very broad sense to be able to, in a much more cooperative way, address resistance management.

And then finally, the last charge question that we developed was, are there elements of EPA's really successful Bt PIP resistance management program that could be used for conventional pesticide resistance management.

Next slide, please.

So to be able to populate the breakout groups, we recruited a number of additional individuals. And you can see -- I'm not going to name off names, but as much as anything, I would call out the opportunity that we had to really reflect a very diverse audience in the breakout groups that we did assemble, everything from NGOs and commodity organizations to regulatory folks at the state level, independent growers, academics, as well as industry.

Next Slide.

From that -- and I can tell you that we had a number of meetings, biweekly meetings since the workgroup was established, and we initially developed over 20 different recommendations. After a great deal of additional deliberations, we really honed in on the five that will be presented to you today. And I'm not going to read these off verbatim, but basically we're looking at the first one that really is focusing in on labels from a uniformity and a simplicity standpoint, from a resistance management standpoint.

The second one is looking at reviewing EPA's policies holistically to be able to determine where there are contradictions and where there are opportunities to be able to much more effectively

manage resistance.

The third one is looking at how EPA can better collaborate with other federal agencies, as well as other stakeholders, to be able to address this in a much more holistic way.

Next slide.

Fourth, we really wanted to see how EPA could work cooperatively with industry and with academia to be able to address this problem through cooperative agreements, training materials, and potential grant programs that might could be developed.

And then, finally, the fifth one is really looking at incentive programs, incentives especially to be able to look at how we can have more accurate early detection and timely adoption of regionally specific resistance management actions. And this is so closely tied to the need to be able to really identify potential or prospective resistance as early as possible in order to get out in front of it.

And with that, I'm going to begin going through the individual recommendations. We'll have 5 five people that will be presenting.

Amy Asmus will be presenting on Recommendation 1. Amy is the principal for Asmus Farm Supply. Our second one will be from George Frisvold,

who is an economist from the University of Arizona. Our third one will be presented by Cameron Douglass with USDA's Office of Pest Management Policy. And then fourth will be Kenny Seebold from Valent USA Corporation. And finally, the fifth one will be from Patti Prasifka from Corteva Ag Sciences.

And so with that, Amy, I'll turn the microphone over to you.

MS. ASMUS: Well, thank you, David, and thank you to everybody who allowed this great group of people I got the opportunity to work with to present these recommendations to you today.

So Recommendation Number 1, uniform, clear and concise label formats. Okay, we're going to recognize up-front that this is a huge list for EPA and registrants. I doubt it can be done without rulemaking and consulting with many, many stakeholder groups. Each workgroup, as well as Kaci during your risk communication presentation, mentioned label concerns. Yes, sometimes it takes a lot of work and resources up-front to make it easier for end users to understand products and use them correctly, effectively, and safely.

Not everyone listening today may have experience with pesticide labels, so I want to compare

them to general directions that come with many of the products that we use.

Let's fast forward a month or two in the future when boxes with smiles on the outside show up on your doorsteps. Many of those boxes will come with contents unassembled. At my house during the holidays, people gather round and start the adventure, following directions to assemble gifts. We all take out directions. I get my trusty highlighter to highlight each step after I complete it. My son grabs his electronics because he wants to find a YouTube video that shows him how to complete the assembly. My husband, bless his soul, looks at the directions, determines there is too much to read or understand, sets them aside and thinks he can do it without them. We may or may not all get to an effective end

Yes, personality studies would say that you will always have different people take different approaches to directions. Also, different individuals read directions from different levels of understanding. There will always be those differences and those differences must be considered when drafting a clear and concise set of directions. Federal labels are a set of directions. You will always find the must be included information that deals with safety

and environmental concerns and you will find use directions.

Sometimes it's an exercise in frustration not quickly finding what you are looking for or understanding it once you find it. But a few times, it's a wonderful process, but it's not consistent. The information may be different depending on what you're using, but wouldn't it be nice if the formats were the same, the information you need in an easy-to-find and understandable layout? All users would then know at least where to look in the directions document and understand what they need to effectively use that product.

Kaci alluded to it yesterday, and I'll bring it up again today, in 2016, the FDA went to a similar process to this ask when they standardized nutrition facts labels. How many calories are in a serving of figs? How much sodium is in a serving of this soup? Given the nutrition facts labels, you could all answer those questions relatively quickly. Granted, nutrient facts do not contain near as much information as needed in a pesticide label, but we are all educated in the format of those nutrition facts and where to look to quickly find the information that's needs.

Next slide, please.

As this applies to resistance management, we do have a couple of PR notices suggesting, not requiring, that resistance best management practices, be included on labels. This is great, but those best management practices users need to know what the correct rate is for a target pest in a specific cropping system. Well, that's found somewhere on the label.

They need to know what pests are suppressed or controlled by a specific treatment. Again, that information is found somewhere on the label, not necessarily always in the same place on different labels.

They need to know the mode or mechanism of action the pesticide employs to suppress or control that pest. Somewhere on the label. But wait, maybe that information is on the label because it's required information, just suggested, but it is needed information that may not be found on all labels, depending on the registrant.

Along with uniform, clear and concise labels, they need to be in the way, as Kaci's words yesterday, for everyone and how they seek information. OPP's electronic label project is addressing some of that by making them searchable, and we are very excited about

that initiative. But what about those users who do not have access to or don't use electronic means to seek information? They need consistent format, so they can find it quickly within any label.

For resistance management, and I daresay for a lot of other issues and applications as we have heard from workgroups over the last two days, uniform, clear, and concise labels available electronically and traditionally is wanted and needed by users.

Yes, it's a very heavy lift on the part of those who create, regulate, and review labels. It will take time and resources by many stakeholders to do it effectively, but please, please help end users find important information, interpret and understand that information, and implement pesticides when needed in a safe and effective manner. This is needed to manage pest resistance development and growth, which is our specific ask. But it's also a recommendation. This recommendation has far reaching benefits across all label users.

Thank you.

On to George.

MR. SHAW: Thanks so much, Amy.

George, and let's go to the next slide.

MR. FRISVOLD: Okay, can you hear me okay?

MR. SHAW: Yes.

MR. FRISVOLD: Great. So our second recommendation is that EPA should conduct a thorough review of their policies and regulations affecting resistance management, and to the greatest extent possible remove those contradictions that can hinder resistance management.

We recognize that EPA is charged with implementing many different kinds of regulatory recommendations and requirements and these often are drafted with other regulatory objectives in mind, such as protecting health or environmental safety, not necessarily considering resistance management.

So we recommend that EPA should preserve the efficacy of current pesticides and develop or revise their policies that delay development so that we can delay the development of resistance and to preserve or extend the durability of the pesticide efficacies we have in the market.

Next slide, please.

MR. FRISVOLD: We also recommend that EPA proactively review and adjust rules to account for various opportunities that new technologies provide and present and to also not have a one size fits all approach, but to account for the diversity of U.S.

cropping systems and pesticide uses.

Another recommendation is that EPA elevates resistance management to a major benefit when they're balancing benefits and risks. Programs and policies don't necessarily consider resistance management as a major benefit, but we think they should.

MR. FRISVOLD: George, I'm sorry to interrupt. This is Paul. I think we're having trouble hearing you. I'm not sure if you can move closer to your laptop mic or whatever mic you're using.

MR. FRISVOLD: Is this working? Can you hear me better now?

FACILITATOR: That's not a complete change. That is perfect.

MS. FRISVOLD: Okay. My laptop is now a shoulder top anyway.

FACILITATOR: Okay, very good.

MR. FRISVOLD: Okay, so let me go to the next.

Okay. So we think resistance management should be elevated to a major benefit and EPA should develop and revised policies that achieve a balance in various pesticide application requirements without compromising best resistance management practices. So

this will support the long-term availability of the most possible pest control options.

And finally, to improve the efficiency in the approval of pesticides to consider what is needed to fight the selection of resistant pest populations, and during the whole approval process, to consider how that affects what kinds of modes of action are available.

And on to Recommendation 3.

MR. SHAW: All right. Thank you, George.

Cameron?

MR. DOUGLASS: So our third recommendation -- next slide, please -- EPA should expand collaboration and outreach efforts with other federal agencies and convene panels of relevant stakeholders to address specific priority issues and questions associated with resistance and resistance management.

As my colleagues and I were thinking about how we'd like to see EPA implement this broad-reaching recommendation, we grounded our deliberations in the understanding or thinking that pesticide resistance is really a community problem, and as such, we need to work towards discussing solutions as a community. Pesticide resistance, though, is an especially tricky problem. As David said, it is outside even -- said it

was a wicked problem because different members of our collective community have varying priorities, values, and experiences with pesticide resistance.

So my colleagues and I started thinking about how we wanted to bring everyone together, how we could bring everyone together, and what the appropriate role was for EPA in this process. We got to thinking about the ultimate goal of sustainable pesticide resistance as being analogous to a two-legged chair, which is available on the market currently. Sitting in a two-legged chair, in our estimation, is conceptually a bit like sustainably managing pesticide resistance. It relies fundamentally on two legs, one being the best available science, and also experiential knowledge from those in the field, livestock production facilities, homes and in clinics.

In order to have any hope of even just comprehensively tracking cases of pesticide resistance, we need innovation. We need better technologies for monitoring for resistance, both real-time tools for users in the field and extremely precise tools for scientists in the lab. When we talk about actual solutions for managing pesticide resistance, we not only need these out-of-the-box technologies, but we need to listen to and integrate

the experience and knowledge of practitioners as we talk about how to disseminate these new technologies.

Ultimately though, sitting in a two-legged chair depends on using your legs and your core muscles to keep yourself upright, just like sustainable managing pesticide resistance will ultimately depend on transparent, regular, inclusive communication, coordination and collaboration.

So our recommendation to PPDC necessarily focuses specifically on what EPA can do to help further and facilitate the sustainable management of pesticide resistance. But before moving forward, I wanted to emphasize that this really involves all of us, others in government at all levels, state, county, federal who are involved with pest and pathogen management, pesticide users, applicators, consultants, academics, those in the registrant community, nongovernmental organizations, and members of the public.

So let me move into our specific recommendations, the first of which you see here. Our workgroup struggled a bit to reach consensus on where and how to address the technological problems that we face in trying to think about how we can sustainably manage pesticide resistance. Because of this lack of

consensus or disagreement, we propose, first, that EPA establish one or more scientific advisory panels that could focus on specific scientific and regulatory questions that we believe are necessary to answer as EPA and the rest of us seek to better manage pesticide resistance.

These SAPs can focus on both natural and social science questions importantly related to barriers to detecting and monitoring for resistance in different systems and disciplines, but also cross-cutting issues, such as how to develop a system or systems or databases to allow for the reporting of resistance cases to EPA, but also other relevant federal authorities, such as CDC, FDA, and USDA.

Next slide, please.

Our last two recommendations are really centered on facilitating communication, collaboration, and coordination. The first of these is that we recommend the formation of a federal workgroup on resistance management to be comprised of -- not only of U.S. government employees representing agencies with an interest in pesticide resistance, these agencies could, of course, include EPA, USDA, CDC, but also others, DoD, FDA, anyone in the Federal Government who has interest in pesticide -- pest

pathogen management and pesticide resistance. But we would also recommend that there's explicit involvement from representatives from state lead agencies, including AAPCO, NASDA, and other state authorities.

We would also propose that PPDC maintain this resistance management workgroup in some fashion, perhaps with a skeleton group of members, to help coordinate communications between the proposed federal workgroup on resistance management and other public stakeholders. As we understand FACA, the federal workgroup, which would be comprised solely of federal and state employees, would not be able to directly hear advice from members of the public, which is critical, as we said, to moving forward on pesticide resistance.

So we propose maintaining this workgroup under PPDC's FACA charter to serve in the role of coordination between the federal efforts that we propose ramping up on pesticide resistance management and the parallel efforts by other stakeholder groups working on resistance management and IPM, integrated pest management, the coordination of which is really vital.

And with that, I'll pass it on to Ken for the next recommendation.

MR. SEEBOLD: All right. Can you hear me okay?

MR. SHAW: Yes.

FACILITATOR: We can hear you great.

MR. SEEBOLD: Excellent, excellent. Yeah, I was thinking back when when David was introducing the subject and talked about the wicked problem, well, today is the Valent USA day for a wicked problem. Our network is down. So I'm going to attempt to do this on my iPhone broadcast to my TV here in the living room. So let's see how this goes.

So where we're going to go next in this Recommendation 4 really has to do with stopping a problem before it gets started. It makes me think back to -- before I came to Valent, I was an extension specialist at the University of Kentucky. I'm a plant pathologist and I deal with disease management. And sort of a central theme that we always taught growers and county agents and things like that was that when it came to a disease problem preventing it was much better than dealing with it once it got started.

And I think you can probably link this over into the same way of thinking when it comes to resistance management, you know, being proactive, right? You know, being able to essentially come in

and manage the appearance -- even prevent as much as possible the appearance of resistance versus dealing with the problem after the fact.

So what we're looking at here, you know, the group, in terms of discussion, talked about essentially thinking about ways that the EPA could encourage proactive resistance management through prevention programs that would cooperate with industries. You know, we're the ones that develop these chemicals, you know, through the RACs, the resistance action committees. You know, we set down the guidelines on how to best manage these chemistries. And then, of course, you know, the partner to that are the universities through crop -- you know, cooperative extension are the team that's basically going out and providing education to the end users or the growers.

But is there a way to to essentially, you know, encourage proactive resistance management through cooperation of industry and universities and set -- by setting up agreements, by working through and refreshing and revising training materials and exploring the idea of incentivizing things with grant programs?

So, you know, like we say here, you can see

that, you know, collectively planning for resistance before it becomes a problem really helps keep the tools in place. You know, it preserves them, protects yield, helps consumers, and really at the end of the day, you know, gives you the best financial end result, better impact on the environment and ultimately better societal outcomes.

So the recommendation coming forth is that we think that we should basically take stock of what we've got in place now. So by doing that, what we're saying is the EPA should conduct an analysis of the programs that are in place now, as well as the training information that you see that's provided by by companies and universities. But take a look at those things. Also, take a look at the target audience. You know, who are we aiming at when we when we send these programs out and how are they receiving them, what are they learning, you know, what impact as does it have. But take an analysis of that so that you can understand how successful we are, how the outcomes were, or where we need work. So that's kind of what we want to recommend there.

And it sort of dovetails into the second part of this, which is on the next slide. And that is essentially once you've gone through and you've taken

stock of the tools that we have available, how those tools are being used by the end users, think about what we could do to make those better, you know, keep what's working, you know, make changes and adopt a path forward to improve what we've got. But through that, we think that the EPA should explore this idea of creating a grants program that would aid with community-based resistance.

Having an integrated framework, as you can see here on the slide, allows for better coordination across our stakeholder communities for programs that would just basically help us improve awareness amongst our end user group, and then the implementation of the programs that would help get ahead of resistance problems before they start. And we recognize that this is an awful lot of work and would require, you know, would require a tremendous amount of effort, not only on the part of the agency but also the cooperators themselves, you know, the universities and the industry. But we think that would be a very positive step in trying to get a handle on things before they blow up.

MR. SHAW: Thank you, Kenny.

MR. SEEBOLD: Yes, sir.

MR. SHAW: We'll shift it over to Patti

Prasifka now for Recommendation 5.

Let's go to the next line.

MS. PRASIFKA: Thanks. Okay. So other recommendations, the one we just heard, Recommendation 4, called for the EPA to review educational materials, possibly build new materials and make sure that the field has the technical tools they need to implement IRM. Recommendation 1 called for more clear, concise labels to help with implementation of IRM and understanding. And all this being said, the fact remains that the adoption of resistance management practices remains uniformly low among growers.

In many cases, decision-makers know what to do. They have the tools, so why don't they implement? Perhaps growers and other decision-makers are waiting for confirmation of resistance. It's hard to want to change if you don't know for sure you have a problem. The time it takes to confirm resistance can be long. We talked about this extensively in our group and, you know, best case scenario, maybe 18 months, maybe even years to get that confirmation of resistance, and it varies highly across portfolios and different types of pests.

During this time, resistance can spread rapidly, and if we could get confirmation faster of

resistance, this might help spur action sooner.

Let's go to the second slide, some specific recommendations we had. If we can shorten the time between suspected and confirmed resistance, we can reduce confusion and simplify decision-making. We recommend that the EPA establish a nationwide research grant program focused on encouraging support or supporting the efforts to accelerate that rate between suspected resistance and confirmed resistance.

And, secondly, we ask that the EPA take a deeper look into why decision-makers, growers, crop consultants, other folks that are making those decisions are not taking action when they become aware of a potential resistance in their field or in a neighbor's field.

Can EPA better enable proactive management? Is there a lack of information? Some of Recommendation 4 may get to that. Or are the right messengers not delivering the information? Is it not from a trusted individual? And some of the community-based, again, information may get to that as well. Or is there a need for additional motivation or reward to get that early action potential resistance. And, again, previous recommendations mentioned the community-based approaches and how those are perhaps

more successful in getting immediate action.

It's important to identify those barriers so solutions can be developed. And that's -- I didn't read through the specifics there, but that's the gist of recommendation 5 and really ties into some of those other recommendations, bringing them together and wanting to get action to be taken, just good resistance management, good IPM across the board.

And that's all.

MR. SHAW: Thank you, Patti. I'll take a couple of moments just to wrap up and then certainly we want to open it up questions and comments.

As I began the presentation, we talked about this idea of a of a wicked problem. And this is one of those problems that many people see this as a biology problem, an evolutionary biology problem. Many others see it as a technology problem. I think I view it much more as a human decision problem, because it is the decisions that we are collectively making that are driving the development, the evolution, and the expansion of resistance. And if we do not take the opportunities that we've discussed in these five recommendations, certainly, the problem is going to grow in magnitude.

Just as a recap, we've talked a lot about

labeling and the need to address that in a much more effective and efficient manner. We've talked about convening, the agency convening scientific advisory panels, as well as convening a federal working group on this top. We've talked about incentives to be able to not only increase reporting, but also incentives in terms of ways that we can have coordination and collaboration amongst all of the stakeholders necessary.

We've talked about cooperation. I think the idea of the development of a scientific advisory panel or multiple panels is really important as a next step to be thinking about from an agency perspective. And, certainly, from our standpoint, there's a great deal of enthusiasm about the idea of continuing to see this working group live on past the report that we have turned in.

We would also, I guess in wrapping this up, like to request that a report be provided back to the PPDC at our spring meeting, so that we can have a response from EPA on the steps that are being taken and the steps that are being considered in response to the recommendations that we provided.

Again, as I wrap up, I want to thank all of the participants of the working groups. This is a

great group to work with. We had a lot of wonderful conversations, a lot of difficult conversations, but always in the spirit of trying to be sure that we were providing the very best focused recommendations that we possibly could. And so thanks to the working group and thank you to EPA and to the PPDC for allowing us to present this.

FACILITATOR: David, team, thank you very much. And I think we've got ample time right now for Q&A. So thanks for your kind of rapidly moving through the slides and it gives plenty of time for discussion and Q&A.

So the floor is open. You can blurt something out and either you will be heard, or you can identify your interest in speaking in the actual chat, and I can call on you that way, however you want to do it. You all know the drill.

Liza?

MS. FLEESON TROSSBACH: Hi, thank you. This is Liza Trossbach. I'm representing AAPCO, which is the Association of American Pesticide Control Officials, and I just want to make a brief comment.

First of all, thank you for the presentation. Yet another great workgroup presentation from the last two days. I certainly agree with the points that are

brought forward. I just wanted to mention from a pesticide regulatory official's perspective, one of our concerns, in addition just to the issues with resistance management, is that when you have pesticide resistance, you also set up a situation that increases the potential for misuse of pesticides, whether existing pesticides that were used, for example, using more than the label rates or for a use of a pesticide that's not approved for that. So I certainly support the efforts of this group and the continuing work with this group. So thank you.

FACILITATOR: Thank you, Liza.

Mano is up next followed by Charlotte.

DR. BASU: Thanks, Paul. And, David, thank you very much for the overview and all the presenters of the working group. I did notice that there were several subgroups, if I may say so, within the working group. And as these recommendation came out, are these recommendations coming out from each of the subgroups within the working group or are these recommendations the overall working group recommendations? That's my first question and then I have one other followup question.

MR. SHAW: So thank you for the question, Mano. Each individual group developed a draft of

their recommendations based on the deliberations that we had coming out of the charge question groups, but the final recommendations were actually very thoroughly vetted by the entire working group. And we had a great deal of input and a great deal of conversation about those questions. And so, no, they are representative of the entire working group and not just each individual charge question or working subgroup.

DR. BASU: Yep, thank you very much, David. And the followup question again for the full PPDC and even for the agency, we hear label on almost all working groups now, whether it's in resistance management, emerging technologies, emerging pathogen. So if label is coming up in all these working groups, what's the best way to approach the around label? Can we take a broad look and what the improvement opportunities are on the label language, content, you know, process, timeline of the label, review update, rather than just specifically looking into one recommendation from each working group?

So again, that would be a missed opportunity here, given that each and every workgroup has a label recommendation. Thank you.

MR. SHAW: And, Mano, if I can take license

to chime in with you, I could not agree more. Even though that is something that came through strongly as the first recommendation that we provided, I completely agree that it needs to be in the context of a much broader discussion. And certainly, that would be my recommendation as well, is to take a holistic look at labeling.

DR. BASU: Thanks, David.

FACILITATOR: Thank you, David. Thank you, Mano.

Charlotte, you're up.

MS. SANSON: Yeah, I don't need to be redundant. I was actually-- it was going to be similar to Mano, but first say thanks to the working group. I read the full report and obviously a lot of thought and a lot of smart people in this group, too. So I really appreciate all the work they've done.

With regard to labels, I agree with Mano. I see more of an overarching need to look at labels in terms of, you know, the points that were brought up. It's not just relevant for resistance management, it applies to the other working groups and other things that are relevant to us. So when I was looking at the recommendations or I was thinking that I didn't really even see that as, you know, part of -- you know,

Recommendation 1, to me, would be totally into a separate label workgroup. And I'm not saying it's -- I'm not dismissing it at all. It's important.

But the fact is that many of the -- much of the label language that's on labels is prescribed as -- you know, comes out of the reviewers, the scientific reviewers. And so, you know, maybe we could -- I mean, there could be a way to look at all that in terms of how those labels are being reviewed and asked of registrants to put statements on. And so anyway, that's just my thoughts and I think it's great to have a separate discussion labels and how labels can be more readable for the user and still contain the critical information that's needed from the scientific assessments.

Thank you.

FACILITATOR: Thank you, Charlotte.

Other PPDC members or -- yeah, other PPDC members that want to ask a question or provide some feedback, or if there are workgroup members on this workgroup that wanted to embellish or add a point to any of the presentations that were just -- any of the specific recommendations that were just described?

UNIDENTIFIED FEMALE: I put it in the chat, but just a plug to say to check out the appendix

material if you didn't already because there's a lot of good information there about kind of the process that went through our heads in some of this, some good background information. It is extra at the end, but it's some good material to understand more of our conversations.

MS. ASMUS: Yeah, I just wanted to point out --

FACILITATOR: (Inaudible).

MS. ASMUS: I wanted to point out, too, there's a lot of stakeholders when it comes to creating labels and the label is the law and there's many considerations as to what language is enforceable on the label, what language is supplemental on the label and not enforceable, what language needs to be provided outside of the label maybe in a link or an educational format that users can use on the label.

It's an easy thing to say do the labels, and I am a champion and I will carry that flag for the growers. And for everybody who calls our retail thing in the back of a spray rig, wanting to know information from a label and we have to help them. But it's a huge risk and there are many stakeholders involved and many aspects to this. The label is a regulation, and although it's easy to shoot out there,

just make them easy, make them understandable, make them uniform.

Our group went round and around because this will be a huge lift, but it's a needed lift and, hopefully, we have input from all concerned stakeholders because to do it right, it has to be done right the first time, and I don't think we piecemeal it together and try to make it work bit by bit, just my two cents as a user and as somebody who calls frequently to interpret or to find information those labels.

FACILITATOR: Thank you, Amy.

And Jasmine, Jasmine Brown, do you have a question?

MS. BROWN: Yes. My question is if the group could look at simplifying the acid equivalent on the labels. As an inspector, one of the questions I get asked a lot when people are mixing formulations is -- sometimes that has to do with a percentage or an amount of the acid equivalent, and there are -- you know, we go over the math with them, but I don't know if there's somewhere in the label where that could be really simplified for them to get their mixtures correct. I would just ask this group to include that in their future label discussions.

Thank you. If they haven't already.

FACILITATOR: If anybody on the workgroup wants to react or respond to Jasmine, feel free.

MS. SANSON: So, Paul, this is Charlotte. I know this discussion is on resistance management and we've sort of drifted into a label discussion, I mean, which is still good. And maybe it's something we can talk at the end that perhaps there could be another workgroup formed that, you know, addresses -- that looks at labels. And like Amy had said, there's a lot of stakeholders involved. And so anyway, just a recommendation to throw out there for discussion later.

MR. SHAW: I very much appreciate the comments from both of you and I guess I would -- Jasmine, as you were saying that, I was thinking about what Amy did visually with her presentation with the food labels, and I think that's actually a fairly visual reminder of the way that simplicity needs to be a theme for any considerations about changes and labels and so your point is very well taken.

FACILITATOR: Thank you. Thank you, David.

Other questions, comments, and feedback for this team?

(No response.)

FACILITATOR: Well, if not, that's fine and you also have the option of tossing a comment into chat at any point during the public meeting, at any point during this meeting today.

And what we want to do now, we're finishing this segment a little bit earlier than scheduled, which is fine, and but what we'll do just to close out this session is to go through the polling process for the last time today.

And so what I'll ask is for a motion to accept and to forward these recommendations from the pesticide management workgroup on to EPA. We would like a motion and maybe a second to that.

MS. ASMUS: Amy Asmus, I so move.

FACILITATOR: Okay. Thank you, Amy. The motion was by Amy Asmus. And do I hear a second?

MR. FREDERICKS: Jim Fredericks seconds.

FACILITATOR: Thank you, Jim. Seconded by Jim Fredericks.

And any discussion what we're voting on?

(No response.)

FACILITATOR: Okay, thank you. Sarah has published the poll on your navigation panel. You have three choices, yes, no, and abstain. And remember once you highlight one of your choices, you also have

to click on the submit button in the lower right-hand part of that dialogue box. So select your response and hit submit, and we'll give it a minute or two to make sure we gather all the votes. These are PPDC members only that are voting. Thank you.

(Pause.)

FACILITATOR: And, Sarah, my guess is, you're monitoring the tallies, so we've been targeting around 35 to 38 votes in today's voting. So let us know when you start approaching that number.

FACILITATOR 2: Will do.

FACILITATOR: Thank you.

(Pause.)

FACILITATOR 2: It looks like the votes are slowing down, so I'll give it just another few seconds before I close the poll.

FACILITATOR: Last call to PPDC members to cast your vote, yes, no, or abstain, and hit the submit button.

(Pause.)

FACILITATOR 2: All right. I don't see any more votes coming in, so I will close the poll and share the results.

FACILITATOR: Okay. Very good. Thank you very much, Sarah.

And I can't -- now I'm blanking out. Did we do a poll earlier where we didn't have time to show the results, we went right into the next segment? I just can't recall if that poll is still --

MR. MESSINA: We showed the results, although we haven't --

FACILITATOR: Oh, we did?

MR. MESSINA: Yeah, but we haven't really sort of confirmed whether, you know, the audit has taken place for any of the votes.

FACILITATOR: Okay, Ed, that's right. Okay, thank you very much.

All right. So that poll is closed.

It looks like, Mano, you have a question.

DR. BASU: Yeah, thanks, Paul. And again, looking at some of the previous poll numbers, it says total 32, but if you look at the count it's 24, plus 630. I saw similar numbers even for the emerging technology. So I don't know what's happening with the (inaudible) which doesn't fit in the yes, no, abstain? Where are they going? Or people just didn't vote? So why is it saying 32 and the count is only 30 out of 32?

FACILITATOR: Yeah. I noticed that, too. Mano, I don't have an immediate answer. I'm not sure

if Sarah does. Is it possible that someone isn't voting at all? Maybe someone has left in the room when our vote takes place.

FACILITATOR 2: Yeah, if someone doesn't vote at all, then it doesn't show up in that total number. So if it's not equaling that exact number of PPDC members, it's because they haven't voted at all.

DR. BASU: So is 32 the total number of PPDC member on the call today or is 32 the total number of PPDC members irrespective if they are on the call or not on the call.

FACILITATOR 2: That's the number that participated in the poll. So there could be a few members on that didn't participate at all.

DR. BASU: So the members are who are on the call.

FACILITATOR: That's correct, and that is a changing number throughout the day.

DR. BASU: Yeah, yeah. That's what I noticed.

FACILITATOR: The PPDC members join and unjoin the meeting throughout the day either by leaving the meeting and coming back or by just leaving the room and not being present for a vote. We're not exactly the U.S. Congress that has like a lit board.

MR. MESSINA: Yeah. But the good news is either -- the majority of the PPDC members out of 40, we've exceeded that number, and of the voting members, we've exceeded that number of the quorum that's here I think for all four sessions, assuming that every single member of the 32 was a PPDC member, which I'm hoping that's the case, then all four sort of workgroups' materials moved on is my read, Mano. I don't know if you have a different read.

FACILITATOR: That's my read as well, Ed. It was kind of a -- it wasn't close. It I wasn't like a close vote or close call, but we will -- we can -- we're going to go through -- we have the record of the votes. We're going to go through just to make sure that we didn't accept non-PPDC member votes, and we'll do an audit and confirm with the PPDC the outcomes -- the actual outcomes of the votes if that's okay, Mano.

And Jasmine Brown has a question as well.

MS. BROWN: Thank you, Paul. I was curious, or maybe I missed it yesterday afternoon, after you verified the PPDC members voting, this question was for Ed, did he report back on the actual numbers after they were confirmed?

MR. MESSINA: We haven't -- that was my question to Paul. S we've seen the numbers which

every -- all four workgroups had a majority to move materials forward. The next thing that needs to happen -- and I don't know if we're going to be able to do that today or follow up -- is to determine that the members that did vote for where there was a majority to move all the materials forward were PPDC members that were only voting.

MS. BROWN: Okay, thank you. I just wasn't sure if I missed it or not. So I was just checking.

MR. MESSINA: No.

FACILITATOR: No, no, we have to do that offline, Jasmine. We're going to -- you know, after the meeting closes out today and we've kind of wrapped up all of the documentation associated with this meeting, that will be part of the close-out on the meeting is to do an audit on the actual voting.

MS. BROWN: All right, thank you.

MR. MESSINA: Thanks for the question, Jasmine.

FACILITATOR: Okay. And then, Mano, you have a followup question.

DR. BASU: Yeah, yeah. Thank you, Paul. An, again, I have only attended the PPDC meeting in the virtual world. How did it work in the in-person world?

MR. MESSINA: People raise their hands and kind of -- again, it's consensus. It's pretty informal. You know, there was ayes and nays, which is kind of how we are trying to capture it through the virtual environment.

DR. BASU: Okay, thank you.

MR. MESSINA: Mm-hmm.

FACILITATOR: So the combination of, you know, hand vote, voice votes, it was to get really a reading. It's like just to try to get a reading from the PPDC where the weighting was, you know, where the -- where's weight of the consensus? And that would be weight as in W-E-I-G-H-T.

MR. MESSINA: The other thing, Mano, is a lot of the PPDC in the past had been EPA presentations all day long. So this new workgroup format, report-out, recommendations to PPDC, trying to get real work product, you know, and more work product from PPDC is also a shift that's occurred recently, intentionally. So that's another reason why there's a lot of voting more than there had been ever in the past.

DR. BASU: That's helpful. Thank you.

MR. MESSINA: Mm-hmm. So what do you -- what would you like to do, Paul? Do you want to give people a five-minute break and then we could start and

then we can kind of do the wrap up?

FACILITATOR: Yeah, that would be fine. I was going to ask you the same thing. Maybe we -- we've got 45 minutes left before the public meeting happens.

MR. MESSINA: Yeah.

FACILITATOR: As of this moment. Do you feel -- I want to make sure you have the time you need, Ed, to tackle what you want to tackle in your segment. We got a little 15-minute gift from this workgroup and I don't know if that's a gift or not, but --

MR. MESSINA: Yeah, and I'd like to take advantage of that because there's sort of three things I want to address. Sort of the one question is what are we going to do with all this stuff that we've received. So I'd like to address that. I would like to have a discussion about whether to continue and which workgroups would like to continue, who might be the chair of those groups. Maybe we could do voting on that as well to determine, you know, which of the four workgroups go ahead. And then the third piece would be what do we want to build for an agenda for going forward for the spring meeting, what are our expectations about that, and are there any other additional topics or workgroups that we want to form

now to move forward.

That's pretty aggressive. I don't think we have to get through all of that, but those are sort of the loose ends as I see them. And if others have any other loose ends that we'd like to talk about as well during that wrap-up, I'm happy to entertain that as well. So I think we could maybe give folks just a chance to take a mental break and come back at 3:55, something like that.

FACILITATOR: Perfect, 3:55. That's eight minutes from now.

MR. MESSINA: Yeah.

FACILITATOR: We've got an eight-minute break. We will start -- Ed will be back in front of you in exactly eight minutes.

MR. MESSINA: Thanks, everyone.

FACILITATOR: Don't leave the meeting or you can just go on mute and hit stop video and you're good. Thanks.

(Break.)

FACILITATOR: Okay, everyone, that was a very fast eight minutes. I'm showing 3:55. And I'm going to suggest that we remove -- since this was the last slide of the pesticide management workgroup or resistance management group, we probably can get rid

of that. And it might be that Shannon is going to be sharing her screen, maybe with a Word file or taking some notes.

MS. JEWELL: Yeah, you want to go ahead and do a white board for this session I'm presuming, right, Ed?

MR. MESSINA: Yeah, let me talk for a little bit and then let definitely let's throw that up there.

MS. JEWELL: All righty, great.

MR. MESSINA: Thank you. Yeah, so thanks, everyone. This is the beginning of the last session before our public comments. And, first, I just want to say I'm incredibly impressed with the presentations we had, all of the work that went into it, all of the workgroup meetings that occurred to make this just, for me, one of the most informative PPDC meetings I've ever attended.

I was just looking over the charter and, you know, part of what the charter says is the PPDC is a policy-oriented committee that will provide policy advice, information, and recommendations to EPA, will provide a cooperative public forum to collaboratively discuss a wide variety of pesticide regulatory development and reform initiatives, evolving public policy, and program implementation issues and policy

issues associated with evaluating and reducing risks from the use of pesticides, I think that all evidence that this group has taken their role seriously with regard to that and has devoted a number of cycles to really helping the agency.

When I think back on the discussions we had, even starting yesterday, and today, what I was struck with was just how invaluable it is to hear from the people who are outside the walls of EPA about the impact of their policy decisions on those individuals, and you guys see that firsthand. The COVID session was really interesting because the view from industry looking in to the agency and really kind of working collaboratively on sort of how we were doing during that pandemic -- because we don't really know. We're just doing our work, we were trying to coordinate. But it was really nice to hear how that was viewed from outside the walls of the agency.

On the farmworker clinician working groups, I think there was a lot of thought. I think the complexity of those issues and the differences of opinions were really great to surface. And as folks know, we have a quarterly meeting with members of those groups as well and I think we'll borrow from some of the really great ideas that occurred on that

session.

Resistance management, always an impressive issue and pretty provocative and a lot of needs to happen there. And then certainly on the emerging technologies piece, an area that I'm fond of, I just was blown away by the input and the advice that we got for that workgroup.

So one of the recurring questions was, you know, what are we going to do about this? You know, what happens to these reports? You guys put a lot of work into it. How's the agency going to respond?

So I think, as a first step, it is building our agenda for the [connection issue] that we put on the agenda, Shannon -- and maybe we can start sharing the whiteboard -- you know, a session what the agency has done with the recommendations and kind of a report-out and make that kind of a recurring topic. I will say if people are wondering sort of what happens, I mentioned this yesterday, but the emerging pathogens workgroup, which is a somewhat of a continuation -- it had sort of stopped for a while -- but the PPDC workgroup in the past, as you heard, had developed that emerging viral pathogen policy, which enabled the agency to better respond to the COVID pandemic.

So if you're looking for an example of how

the recommendations are used and -- like that's, to me, one of the -- the shining example of how it can really work, where there was a recommendation that there be an EVP, there was recommendations about what that EVP should entail. We developed it; we launched it; we issued it; and then we actually used it. So I would use that as an example of how the best of these recommendations can show themselves later on as part of EPA policies.

And I think the emerging technologies workgroup, just the momentum that that has created, not just within EPA, but with industry and academia and other stakeholders, is an indication that if we just even have these workgroups and we're talking about the issues, we're pulling in those experts that we need to talk to from around the country and around the world so that the policies and the thinking around them are actually advanced.

So that's another area where, you know, we haven't finished that, but we continue to move that ball forward and continue to evaluate where we want to be there.

On the farmworker groups, we've been taking those -- you know, what's going to happen in PPDC, and we'll definitely talk about it on Friday and maybe

prioritize and think about what we want to do. Certainly, the certification and training, worker protection rules, how we deliver the grants when we do a new grant. I think you'll see some of those recommendations pop up there, where specifically, you know, trying to measure the success of the grant and making sure that we are seeking counsel from the farmworkers themselves about what's the best format that they can arrive receiving that communication.

So I also -- you know, you heard me do the presentation kind of how the workload picture looked like for OPP. So I do want to manage folks' expectations that, you know, I don't think by the spring session for all 18 of the farmworker recommendations and the [connection issue] or so from the, you know, emerging technologies group that we're going to have checked every single one of those boxes. But I can commit that we'll continue to look at these reports, evaluate them based on our policies, and try to take the good stuff from this, which there was a lot of good, and try to move and turn our policy ship in the direction that's going to, you know, be best for the American public.

So that's kind of what I wanted to say about how we're going to use those reports, and I'm happy to

entertain additional questions.

It might be good to to shift quickly. We've got about 30 minutes left to talk about how folks thought the presentations were, what additional topics we want to talk about for a future agenda, and then how we want to continue, if at all, the efforts of these workgroups, or are we ready to sort of sunset them and then have something different occur. I'm totally open and really would value the opinions from the PPDC members on that topic.

So with that, Shannon, we can throw up the white paper -- whiteboard and kind of start listening.

MS. ASMUS: So, Ed, I would like to ask a clarifying question. You said, do you want the workgroups to continue. What would the workgroups do as they continue? The recommendations are made and so my thought would be that those that requested or recommended that there be advisory groups or the ability to work within the EPA to work on the recommendations, I think that's different than allowing a PPDC workgroup to continue in the format and the charge that we were given. So I guess I would just like some clarification your ideas of what moving forward with this workgroup means.

MR. MESSINA: It's really open-ended. So

when I think about each of the workgroups, and I don't know because I wasn't in each of them -- I know for the emerging technology one -- and Mano mentioned it today -- there was a sense that there was a recommendation that that workgroup continue.

I know that on that workgroup, you know, the question is the term of service for the chair. You know, it's a lot of work and Mano put in a lot of work and all the chairs did. So if that workgroup were going to continue, who really wants to take [connection issue] responsibility for kind of, you know, convening meetings and I don't think it has to be anything big, like new recommendations, or it doesn't have to be as formal. It's just, you know, meeting, having a place to convene where that topic, which is such an important topic, can continue to be discussed. There could be -- you know, EPA is there at the table. You know, the co-workgroup chair that can bring that information back to the agency.

And then even like, you know, some additional prioritization that could happen or feedback from EPA as to like what we've been doing in the background and any updates and then we could -- it just -- it seems to me that at the next agenda in the spring, we'd still want to talk about some of these issues and see

where we're at and it would be nice to know that there's a group of people -- a subgroup that are interested in that topic. And then, you know, we can kind of talk about what's been happening.

So hopefully that answers your question, Amy.

And I've got to switch my ear buds, because I'm losing battery and my sound is cutting out. So let me transition there.

Does that answer your question?

FACILITATOR: While Ed is transitioning, I'll just to make a comment that probably the best way -- I know there's pent-up demand to respond to this question and any future questions that Ed is going to discuss during this block. So if you just put your -- like a lot of you are putting your request to speak in the chat, that way I can get you the order that you that you spoke up, so to speak.

So Damon, you're up, followed by Iris.

MR. REABE: Yeah, my comment is just to help move things along. It seems like of the four workgroups, the emerging technology workgroup formally did request to continue its work, and this might be a great opportunity for the other representatives from the other three workgroups to express an interest -- none of them did in their recommendations, but maybe

there are some that want to and that would direct where we're headed here.

MR. MESSINA: And then Charlotte had a question, Shannon, which if you don't mind answering. It's just, does the chair of the workgroup need to be a PPDC member? And I don't know that that's true. I know that members don't need to be PPDC members, but does the chair need to be a member of PPDC?

MS. JEWELL: Sorry about that. I didn't have an unmute option there. No, I don't believe so. I think that there needs to be at least one member on a workgroup and that that's the limitation, yeah.

MR. MESSINA: Thanks, Shannon.

FACILITATOR: Okay. Iris, you are up next.

MS. FIGUEROA: Sure. So just two things. One, just a practical flag for this discussion is that for many of us on the workgroups, this is our last PPDC meeting and there will be new members coming in. So just realistically, how feasible do we think that between this meeting and the next one when folks are being onboarded, you know, how's that going to work if the workgroup composition is changing?

And then I do think that it's really important, perhaps as a next step, to have the agency weigh in on the recommendations and what they see as

feasible and what progress has been made.

MR. MESSINA: Great, yeah. So we'll definitely put that as an agenda item for the spring and we'll commit to reporting out.

So, Mano, since your group officially had talked about moving forward, had the group thought about who a new chair might be for emerging technologies group?

DR. BASU: We haven't had that discussion, Ed, but certainly there are a few recommendations that I can make and we can circulate it, if those people are willing. If we don't get a volunteer, we may have to volun-told someone. So let's wait and see if anyone from the current working group is willing to volunteer.

MR. MESSINA: Okay. And then if somebody wants to put a motion to continue that workgroup and then have that second and we can kind of review that.

DR. BASU: I am willing to put that motion to continue the emerging technology workgroup.

MR. REABE: This is Damon. I'll second.

MR. MESSINA: Okay. Would we like to vote on that now, Paul?

FACILITATOR: Well, we haven't constructed a poll for that, so -- but let's see how quickly we can

do that. Sarah can create a poll on the fly, I think, but we just have to narrate what that motion is. I'm assuming it's as simple as it sounds. This is a do we approve the motion to continue this workgroup into the next year.

MR. MESSINA: Yeah.

FACILITATOR: I think it's as simple as that.

MR. MESSINA: Yes, and then we can use that for the other --

FACILITATOR: I know I'm putting Sarah on the spot. So, Sarah, can we create that poll?

And I'm assuming this is also a PPDC -- there we go. Look how fast that happened.

MS. BROWN: I have a question. This is Jasmine. As it pertains to the working groups, I really like the idea of having the PPDC have like a standing working group that just focuses on emerging issues and emerging technologies. I just want to throw that idea out there as maybe for future discussion.

MR. MESSINA: Yeah, so that's -- so we do have an emerging technologies workgroup that currently exists. The question is whether to continue it. It's hard to have a standing workgroup because folks are sort of rolling off. So we did it for a year. That's

sort of the term. So the question now is do we continue it into the next year. And we will have some members rolling on and rolling off, and that's okay, the chairs can kind of handle that throughout the year. On the emerging issues group, then maybe at the spring meeting, we can determine if we want to add another workgroup on just emerging issues and see if that wants to be convened and who wants to chair that. So why don't we put that on for the spring meeting question, if that works.

I'm trying to keep track of the chats. And I know we had -- we've got a motion and a second or did we even get a motion and a second on the subject of continuing the -- which workgroup are we actually talking about right now?

MR. MESSINA: Yeah, we did. On the emerging technologies, we did have a second.

FACILITATOR: Okay.

MR. MESSINA: I guess it is -- you generally ask is there a question the motion before we vote.

FACILITATOR: Right. And it looks like Liza had a comment. She says I have a comment prior to the vote.

MR. MESSINA: Sounds good.

FACILITATOR: So I want to make sure I catch

that.

MS. FLEESON TROSSBACH: Thank you so much. First, I support all of the workgroups and I think there's a lot of work to continue to do, you know, in these important topic areas.

I do have a question about continuing the workgroup. Ed, you read off and talked a little bit about the charter and what PPDC does and how these workgroups fit into it. And so it appears to me that the current workgroups have completed their charge based on the previous charge questions and they've done what they've been asked. And I think prior to continuing the work of a specific workgroup, I do think that the EPA should look at the recommendations of the workgroup and determine which are appropriate or need continued work and input from PPDC.

And this kind of goes back to some of the -- I think the comment that Nina has made after mine was, you know, maybe a review of the charge questions and kind of what particular piece of that needs to be further, you know, researched or refined.

Again, I support the work of all the groups, but I do believe that the workgroup needs to have a specific charge and I feel like from these presentations that they met the initial charge. And

in lieu of going down a path that perhaps cannot be a priority right now or maybe there -- you know, some of these things are more important that perhaps that would be a better way to do it and then consider it again at the spring meeting when the EPA has an opportunity to at least review, you know, some of the workgroups' recommendations, or at least perhaps have like preliminary information about those.

Thank you.

MR. MESSINA: Yeah, thanks Liza.

One advantage of having the workgroups stick around, even if there isn't a lot of work that the group needs to do in the next year, which there isn't, is if we had a question about prioritization particular topics or, you know, what if we did this first, if there was some back and forth, then the workgroup would sort of -- we could kind of convene the workgroup and then help the agency prioritize or, you know, come up to speed on some of the things that are continuing to happen throughout the year. Otherwise, we're kind of like going inside our little ivory tower, and then at the PPDC in the spring, kind of getting the reaction there.

It's just nice -- for me, it's been great to have that interaction that particular issue on the

workgroup that I've been on, because there is so much happening all the time and it is s new and cutting edge.

MS. JEWELL: Ed, I'm sorry to interject. This is Shannon. So I do want to point out a FACA issue here, and it's that working groups are to have specific time-limited charges, and this is part of the question that's come up several times during the meeting regarding voting. It's kind of in the vein of why would the PPDC vote on this. The purpose of working groups is to prepare documents, prepare ideas, research, et cetera, for the PPDC that has been invited by the EPA Administrator. Working groups don't have to have all of the same, you know, public meeting requirements, et cetera.

And so that is one thing we're going to want to be very careful around is that it's a time-limited and very specific kind of charge that working groups do for the overall PPDC.

MR. MESSINA: Yeah. So the new charge, if we were looking for a charge, would be, you know, to consult with you on the recommendations that were presented and to help prioritize them. So that could be a charge, if we wanted to, you know, continue that. Again, this is part of that discussion.

FACILITATOR: Ed, one possibility, if it is potentially informative to EPA to have these workgroups kind of available on call, so to speak, but in the same mode that you're talking about, you could just maybe by default say that we're not going to sunset these workgroups right now. We want them to continue to exist over the next few months in a consultative way, you know, for your purposes, in other words, as opposed to their purposes.

I don't know. I'm just trying to think of a way to make this easy so that -- like, what, what, if two workgroups decide they're done, you know, are you going to give them a chance to say, we're done, we're not going to consult anymore or do you want to appeal to them to stay available for the next few months while EPA considers these recommendations and may need to come back with some additional conversations or dialogue?

MR. MESSINA: Yeah. So again, certainly, for me, the emerging technologies workgroup was really great and really helpful. And I think as we think about what we want to do next there, that's going to be helpful. For the other three, I wasn't as close, and so I would rely on that the chairs of those groups and the members to see if a similar model works for

them, or if you guys want to take a break from the workgroups and don't feel like the need to meet, then, you know, that works as well. It's kind of a discussion So yeah, that would be my [connection issue]. That would be my --

FACILITATOR: So we could poll real quick, and I don't mean like the actual official poll, but what have we just got some comments from the other workgroup chairs, at least as a start from the workgroup chairs, to give you some feedback right now on that topic.

MR. MESSINA: Yeah, and maybe how about from the farmworker and clinician training workgroup. Yeah, what are your thoughts there on continuing the group or not?

FACILITATOR: I see a comment from Amy, but others may -- Amy Liebman.

MS. TREVINO-SAUCEDA: Okay, this is Mily. I feel the same way as Amy and the whole group, that we have finished with our charges and -- but I'm just concerned in terms of what's going to go next. That's why I was raising my hand. And it was my understanding that every single group was supposed to come up with recommendations, and my concern now is that wasn't the case. Nonetheless, it's just up in

the air in my head right now.

But we have finished, but it's more of a concern in terms of what's going to be a followup. And if some of the people that are representing farmworkers that are leaving, is EPA -- is the PPDC going to make sure that we do get the same kind of representation. Sometimes I feel that because we're doing -- right now, I'm actually also doing the evaluation -- as going through a process of voting, sometimes I feel like we're outvoted. Yesterday, I think there were only 16 people that voted, when today how many other people were voting. So it's like it's unbalanced. That's that's how I feel.

MR. MESSINA: So I'm getting the sense -- I just want to make sure I understand -- that the farmworker groups feel like they don't have a need to continue to keep the workgroup formed because you guys submitted your recommendations and we can kind of work from there. And then maybe in the spring, if we need to reconvene, we can continue, but certainly this is going to be a big topic. And as I mentioned, you know, we're going to have our quarterly meetings with the farmworker group. So a lot of these issues, I imagine, that they're not a spillover and we talked about that as well.

MS. TREVINO-SAUCEDA: Yes, I mean, in terms of the charges that were posed, we did finish with that. It's about, you know, the followup. And if the working group will continue, I see it more in terms of the implementation, not necessarily working on more charges. I mean, I don't know how else can we explain more in terms of everything that was already explained. If you want more thorough, then we can get together and explain that.

MR. MESSINA: Okay, well, I'm comfortable with that. How do other BBC members feel where there isn't a need to continue the subgroup, but we'll continue to talk about it at the larger PPDC and continue to talk about the issues at the farmworker quarterlies.

Anybody else want to weigh in on that?

(No response.)

MR. MESSINA: Okay. How about the emerging viral pathogens group?

MS. JAIN: Ed, I will speak as chair.

As far as our initial charter is concerned, we have completed our mission of reviewing and putting together lessons learned. So we have a series of recommendations. One of those recommendations, however, was to pull together an implementation

workgroup. So that would be a separate charter to collaborate and assist the EPA in prioritizing and implementing our recommendations.

I don't have -- you know, I'm not clear as to who would chair that group. It may be me; it may be somebody else, but we do have a quorum of individuals that would like to participate.

MR. MESSINA: So would you like to put that for the spring meeting and think about whether we initiate an implementation group or do you feel like there's enough to talk about today whether we should initiate that implementation group?

MS. JAIN: I think we have more than enough information to move ahead and take a vote today on forming that group.

MR. MESSINA: Okay, wonderful. Thank you. So we'll put that as one of the voting questions.

For the resistance management group --

UNIDENTIFIED FEMALE: I'm sorry. David had to step away so he asked me to comment. It was in our recommendations that the group that was formed continue more as an information group like was pointed out with the last group, and also set up stakeholder groups because we believe in our recommendations that our group is a good group for

help with implementation, clarification, prioritizing some of our recommendations. But it's very important as well that stakeholder groups be allowed to chime in on some of the issues and some of the ways we can implement moving forward.

MR. MESSINA: And would you like to put a vote today to continue?

UNIDENTIFIED FEMALE: Yes, I believe that if you're voting on the other ones, we have enough information to vote on continuing today.

MR. MESSINA: Okay. So, Paul, do we want to do a poll for the three groups each individually? We can call them out and then move on, and then we can -- for folks that want to build the future agenda, as, you know, prior to our PPDC meeting we put out a call for agenda items, we'll continue to do that for the members of the PPDC group. And then if you'd like, and then throughout the day, if you want to put something in the chat to talk about future meetings. And then, I think, depending on how the vote goes, we'll definitely have those three topics on the agenda for the spring as well.

So I'm pretty good with that piece. So if folks want to move towards voting, I'm good with that. And then if there's any loose ends or things people --

other questions, we can kind of open the floor there as well.

FACILITATOR: Okay. So let me just make sure I understand, Ed, so we do this -- we just heard from four chairs, three of whom are saying move forward. We heard one voice from each of the workgroups. We also heard from the fourth that, no, we're good, we're done with our work. Is the voting -- now the PPDC is actually voting on whether to agree with those chairs or not?

MR. MESSINA: Yes, so just for the three groups.

FACILITATOR: Okay.

MR. MESSINA: We would need somebody to make a motion and, in fact, we have the motion for the emerging technologies group. We had a second. That full was put up and is still up and so we could go ahead with that being the first one, and then do the other two in the time we have left. And is there -- but before we do that, are there any questions about that particular motion and that second? So this poll that you've got in front of you now would just be for the emerging technologies workgroup. Are there any questions about that or comments before we --

MR. FREDERICKS: And this is Jim Fredericks

with MPMA. You're reading my mind on the questions because it feels -- although it was the recommendation of our workgroup that it be continued, it almost -- it feels a little bit strange for me to vote on continuing a workgroup that doesn't really have a charge. And I get the idea of a consultancy or an implementation, but I'd hate to have work these workgroups last forever when maybe there's other workgroups that could be formed.

And so I just want to put that out there. I'm struggling with that as I'm trying to decide which button to click on this end. (Inaudible) others may be feeling that way.

MR. MESSINA: (Inaudible). Yeah, that's why we asked the question. So would like helping EPA with implementation of the recommendations be a potential charge. That was one of the charges we've heard from the emerging viral pathogens workgroup.

MR. FREDERICKS: Perhaps. I think that's something to discuss. I feel like my video is still on, so you and I are having this conversation together.

MR. MESSINA: That's fine.

MR. FREDERICKS: (Inaudible) does that look like, right? So what does that -- helping with the

implementation look like? I love the idea of stakeholder engagement. I love that idea. I'm trying to figure out how the workgroup actually does that at this point.

MR. MESSINA: Mm-hmm.

MS. JAIN: Jim, maybe I can jump in since the emerging viral pathogens group was brought up. So we have, you know, a 20-page report we put together. There are probably 50 recommendations there. They need to be prioritized, but we couldn't do that independent of feedback from the agency. So we'd like an implementation group so we can work alongside the agency to prioritize and then develop whatever needs to be developed to implement, whether that be that guidance documents need to be authored whether it means that we need to petition for rulemaking, whatever the case may be.

So the report alone isn't going to do enough because it really is almost too much for the agency to read through and assimilate. So I feel like it's our continuing job to talk them through and work through that process with them.

MR. FREDERICKS: Okay, yeah. And so I think a well stated charge like that is appropriate to make a decision.

MS. JAIN: Okay, great.

Shannon, I hope you noted that for the point when we may vote on the continuation or actually the new charter for the emerging pathogens group.

MS. JEWELL: I'm sorry, could you repeat that? I got another message and I did get pulled away for just a second, if you wouldn't mind repeating, Komal.

MS. JAIN: Don't worry. When we get to my group, I'll restate it.

MS. JEWELL: Thank you so much.

MR. MESSINA: All right, so can we take the polling that's -- has anyone voted on this -- or the voting hasn't opened up yet, correct, which is good.

Okay. So for the emerging viral pathogen workgroup folks and to respond to Jim's question, do you have a charter-like proposal for what you would continue to work on?

FACILITATOR: I just want to -- this is Paul. I just want to jump in. I'm sorry, Ed, to interrupt. I'm watching the time. At 4:30, we're opening a public comment period.

MR. MESSINA: Yep.

FACILITATOR: This is a complex topic that we're bringing up here and with four separate votes,

and now we have the concept of we want to combine charters with the votes. It's getting a little bit complex. Just from a procedural perspective, and I see people chiming in quickly here, I haven't had a chance to speak on this topic. So there's some energy around this topic and it's (inaudible) clean-cut as --

MR. MESSINA: So why don't we do this. Yeah, there's not poll open at the moment. I think what we'll do is, at the spring meeting, we'll have this be a topic and maybe, you know, as the workgroups are finishing their work and -- which they've done if any of them want to continue, we can think about what good charge questions would be to continue [connection issue] but we can pick us up in the spring. I agree it's complex and I wasn't sure we would finish all of this, but I think for the wrap-up as we continue to think about, you know, we've got these great workgroups, we've got these great connections. How do we maintain that momentum where we'd like and then how do we -- as folks highlighted, there's a lot of information for EPA to go through here. How can the workgroups sort of help?

So we'll add that as a topic for the spring session and, in the interim, you know, we all have each other's phone numbers if there's questions or

comments to talk about.

MS. JAIN: Ed, I'm sorry. It's Komal again. Just to be clear, we're not saying then these workgroups have been sunset, right? I mean, we can at least agree that until a decision's made in the spring, we can move forward.

MR. MESSINA: Yeah, we guys can keep chatting.

MS. JAIN: Okay.

FACILITATOR: And EPA has the option --

MS. JAIN: And to engage with EPA? Okay.

FACILITATOR: Oh, go ahead.

MS. JAIN: Paul, I think you were getting to my point. And move forward with engagement with the EPA.

FACILITATOR: Exactly.

MR. MESSINA: Yep.

MS. JAIN: Okay.

MR. MESSINA: Where there's conversations that need to happen with the folks that put the recommendations forward, we can definitely talk with you. So there's nothing prohibiting --

MS. JAIN: Okay.

FACILITATOR: Exactly.

MR. MESSINA: All right. But we'll

definitely, you know, from a formality standpoint, put this is a topic in the spring.

And so let me just conclude, great meeting, great topics. You know, a lot a lot of discussion this time. I feel like, in the past, you know, when we were starting virtually, it was hard to get people to speak up or to call, but this meeting was really great. Lots of great comments and as you see we sort of ran out of time to continue talking about it. But that's great because we do meet periodically and I'm looking forward to the spring session and we'll work on building yet another great agenda that's informative, impact, and we'll get to continue to work on these issues.

So thanks again to the workgroups, everyone that participated [connection issue] just really great things for us to consider [connection issue]. So thanks, everyone.

With that, I think we're ready to go to the public comment session, Paul.

FACILITATOR: Right. Thank you. Thank you, Ed. And thanks to everyone, also. Ed, please stick around. I think you're going to officially close the meeting at the end of the public comment period. So you're not quite off the hook yet.

MR. MESSINA: Yeah, I'll be here. I want to hear the public comment, so I'll be sticking around.

FACILITATOR: Perfect. Perfect. So we're now in that public comment period, which is part of the agenda yesterday and today, an opportunity to hear for the public on any issues that they have associated with pesticides, pesticide-related programs. We've got a few attendees who are registered. Just like yesterday, we may not have all of them on the line at the moment. So we are going to flash a slide up here and maybe it's already up -- here we go. We're going to flash this slide and I'm going to call on these people in sequence. We will be able to tell if you're here or not. And Sarah and I will interact kind of live on that topic.

We'd ask you to limit your comments to, you know, two to three minutes, and we would also just reiterate that this is for us to receive -- for EPA and the PPDC to receive your comments. It's not a discussion nor is there an opportunity to ask questions and expect answers live. You can certainly ask rhetorical questions and you always have the opportunity to send in your comments in a more formal way in writing to Shannon Jewel at EPA. That's Jewell, J-E-W-E-L-L, .shannon@epa.gov.

So with that, I think we'll move into the public comment period. We have eight people listed.

And, Sarah, I'm just going to go down the list unless you want to tell me who's actually here.

FACILITATOR 2: Sure, yeah. So the first person I see here in the meeting is the fourth person the list, Jessica. I don't see any of the other three -- the first three people on, but certainly if I've missed your name, feel free to let me know in the chat and I will make sure that you are unmuted and can make your comment. But the first person I see is Jessica Ponder.

So I can go ahead and unmute your line, Jessica.

FACILITATOR: Thank you, Sarah. And let's have an audio test for Jessica real quick.

MS. PONDER: Can everybody hear me?

FACILITATOR: Just barely. Try again.

JESSICA PONDER: I can sit a little bit closer to the computer. Did that help?

FACILITATOR: That didn't help a whole lot. Maybe other people could give some feedback to Jessica on her audio.

MS. SANSON: Turn off the --

FACILITATOR: I here very faint coming from

Charlotte.

Jessica, could you -- is there any way to move -- I'm not sure if you're on a laptop. Is there any way to move closer to your device, whatever it is.

MS. PONDER: Is that any better?

FACILITATOR: No, it's not. Now, we can go ahead and take your comments. I'm not sure if the recording is going to pick it up and let's actually make sure that we're -- that the recording is in progress. It is. Okay. That's good. So I'll ask you to make your comments. We'll strain and listen, but you might consider -- if you've got written comments, you might consider sending those in for the record.

MS. PONDER: Can you hear me now?

FACILITATOR: Wow. That's a complete difference.

MS. PONDER: Fantastic. I think it was my headset. I apologize.

FACILITATOR: Okay. You're up then, Jessica. Your name and the organization that you are representing today?

MS. PONDER: Sure thing. So thank you, everyone, for this opportunity to provide a public comment at today's meeting. My name is Jessica Ponder and I am commenting on behalf of the Physicians

Committee for Responsible Medicine. The Physicians Committee is a nationwide nonprofit organization representing over 17,000 physicians and more than 175,000 members, who advocate for efficient, effective and ethical medical and scientific practices. These comments are my own professional opinion as a PhD toxicologist and also the input of my colleagues at the Physicians Committee.

First, I want to think the PPDC for their dedication to working together to advanced the strategic goals of the EPA, and I also want to echo Ed Messina's admiration for this cross-section of stakeholders as an example of how government and engagement should work. We, at the Physicians Committee, were also happy to hear from Mr. Li the OSCPP is ready to make progress in addressing health disparities and addressing environmental justice. As engaged stakeholders, we appreciate that Mr. Li himself takes time to review public comments that play a critical role in this committee.

As these issues are important and stakes are high for everyone involved, I will be practicing what I learned yesterday from Ms. Buhl about risk communication in today's comment. We understand that the PPDC has had an unprecedented workload responding

to the pandemic and we applaud your resilience and efficacy in handling the insurmountable number of pesticide registrations. Emergencies are always effective tests of character, and I think in light of where we are today, that Ed's comment about the successful collaboration of the PPDC over the past year speaks volumes about that character.

And as we all start to move forward, it is a good time to reflect on lessons learned from the COVID-19 pandemic. That evidence (inaudible) is still needed.

Key takeaways that have been covered in this meeting have a common thread, that protecting vulnerable populations in the 21st century requires an agency-wide commitment to new methodologies, not only for the dissemination of pesticides, but for understanding the health risks from chemical exposures, not just from the perspective of laboratory control, but in real-world scenarios, with real-world human variability.

I do want to highlight a few examples of the drawbacks of an overreliance on animal testing for understanding health risks that we've heard in the past couple of days. We still don't have a good understanding of the effects of chronic low dose

exposure to agrochemicals for rural communities and farmworkers. We don't have a system in place to understand chronic exposures of children to new disinfectants in schools. We don't understand how chemicals disproportionately impact marginalized individuals and communities. And last, but not least, we still need to be able to respond to risks and make decisions in real time with real limitations on resources.

The Physicians Committee has long been an advocate of putting agency resources behind the development and implementation of modern testing methods, as outlined in the EPA's new approach methods work plan published last year. We hope that Mr. Li, Ms. Messina, and others in leadership appreciate that in vivo testing cannot address the myriad of challenges involved in protecting health and the adoption of new technologies for characterizing risks and hazards is paramount to addressing the very real threats to humans and the environment in real time.

Understanding real-world exposures are a critical first step in next generation risk assessment, and the PPDC has emphasized the important role of communication and outreach for understanding pesticide exposures in the population's most affected.

We applaud the PPDC for these efforts and we encourage the EPA to invest similarly in the in vitro methods that allow us to characterize human responses and human variability, and also the in silicone methods, including read across that allow us to make the most of the data we already have, to characterize the risks of data poor pesticides and new formulations.

And finally, we appreciate the agency's efforts to eliminate duplicative in vivo testing through the implementation of dermal toxicity waivers and, in particular, we encourage the EPA to take pride in these efforts and not only report the number of animal lives spared from testing, but also the resources saved by these policies. We would like to see the EPA formally announce policies like these and share these positive effects with all stakeholders to encourage innovation and continued progress.

And as the PPDC plans the spring meeting agenda, we encourage members to think about how to accelerate the implementation of new approach methodologies to achieve the agency's strategic goals to protect human and environmental health and work to achieve environmental justice in the 21st century. It is critical that the advancement of new approach methodologies be included as a focus of this meeting.

Again, thank you for the opportunity to comment today and thank you for your attention.

FACILITATOR: Thank you very much, Jessica. Thank you for your comments.

Sarah, is Nina Wilson available?

FACILITATOR 2: Yes.

MS. WILSON: I am.

FACILITATOR: Oh, excellent. Okay, Nina, you're off mute and you're live. Just your name and your organization you represent for the record.

MS. WILSON: [Connection issue] Alliance where I serve on the board of vice chair and I have been a member of the PPDC for six years. So this is my twelfth and last meeting at the PPDC and I want to thank both EPA and the current administration and the past and all the fellow committee members for their time and dedication, and for all those that I got to meet and talk about my passion, which is the biological products industry.

I think it's great that Ed is mixing things up and keeping everybody on their toes. You know, it is a little bit disconcerting, but I can kind of see where he's trying to go. And I agree, the presentations that the workgroups had were great because I think they had to clear charge questions,

they had the appropriate expertise, and they obviously put a lot of work into what they did and I think it really was one of the better set of presentations that I've heard over the last few years.

I hope EPA can use the recommendations in a tangible way. You know, I always listen to them and think back as to my own industry and what we can do to take those sort of viewpoints and weave them into some of the work that we're doing. And I think that -- I'm hoping that the feedback -- and I think Ed went there and didn't get a chance to really talk about that tremendously, but it sounds like it will be done in the future, that the feedback that EPA can give the PPDC as to how useful they are -- how useful some of these recommendations are and what they can work with and having the PPDC workgroup members be a resource to them, without it being a huge burden to EPA for those -- for that feedback, I think is important.

I think the one common thread in all the disparate topics that we've heard and that was pretty nicely illustrated in the risk communication presentation, most of our topics seem to fall into discussion the outcome of assigned space risk assessment. And I know EPA, based on some other comments, has, you know, tried to have some

presentations and some training on what a risk assessment is, but I think it is helpful to have committee members. It's difficult to have a discussion for those members who are well versed in both the policy, as I know this is a policy and not an SAP, but for both policy and science behind the policy and what the risk assessment means. There are obviously some major disconnect about what a refinement is or how degradation is used and worst case scenarios.

But, listening to the evolution of the workgroups, perhaps that's a place where the rubber meets the road where the policy and the science meets and I actually am pleased to hear that there was some disparate sort of recommendations from the group because that's where, you know, that's where you get some of the good information and where you learn and where you try to figure out why is -- somebody or someone has the different opinion than mine and I think that's where your communication really starts.

So I, again, appreciate all the hard work that EPA did to keep this going and I wish everybody good luck and I hope to see you soon.

FACILITATOR: Thank you, Nina. Thank you very much for your comments.

I believe the next person that's on this list that had registered that is actually present in the meeting currently is Ray McAllister from CropLife. America.

MR. MCALLISTER: Good afternoon. Can you hear me?

FACILITATOR: Yes, sir.

MR. MCALLISTER: Well, thank you very much for this opportunity to comment.

Labels were a central theme in the recommendations of all of the workgroups, as well as other presentations over the past few days. There are several aspects of labels that would benefit from a comprehensive review across stakeholders, content, format, order of information, means of distribution, et cetera, et cetera. Labels have been subject matter for previous PPDC workgroups as well in bits and pieces.

State regulators have an abiding interest in the subject. In the mid 1990s, a consumer label initiative was set in motion by then EPA Administrator, Carol Browner, who was dismayed by pesticide labels she found in the local hardware store. Its findings are likely still relevant today, and perhaps OPP wearies of this subject.

We understand that the OPP electronic label project, or OPPEL, is planned for public launch early next year. However, the current status of that project is something of a mystery, and closer collaboration with the owners and authors of those labels is essential for a successful launch. It is very important for all to understand, registrants must put on the label the statements and information required by EPA's reviewers in the order, format, font size, and even color that they prescribe.

We recognize the critical need for improvements to readability and comprehension, but we need the cooperation of EPA reviewers, management, and leadership, and the recognition of their influence over the end user's experience with the label. We would support a new PPDC workgroup or other appropriate forum to further explore label improvement and its multiple facets.

Thank you.

FACILITATOR: Ray, thank you very much for your comments.

I'm checking and I think William Jordan is -- let me just make sure I get this right -- is available. Is that right, Sarah?

FACILITATOR 2: Yes, William is online.

FACILITATOR: Very good. William, you're up.

MR. JORDAN: Thank you very much for the opportunity to comment. I've been participating in PPDC meetings for over 25 years, first, as an EPA employee, and then more recently as a member of the public, and I've got to say that this meeting of the last two days has been one of the most productive that I've seen, and I commend the workgroups and the EPA folks who work with them on having such a productive meeting.

And I think the secret to it is bringing together stakeholders from different perspectives to pool their knowledge to dive into the issues in depth to come up with practical suggestions. And that's really been evident and I think that this kind of collaboration is a good sign for the health of this particular effort of the PPDC, and I think that the time is right, as Ray McAllister suggested, for the PPDC to have a labeling workgroup that tackles some of the cross-cutting issues that were pointed out by each of the four different workgroups.

So I hope that the next PPDC meeting looks at developing charges for that workgroup and sets them to work to see if they can bring the same kind of productivity that we've seen in these first four

groups.

I want to comment about the other workgroups and their reports, starting with the emerging technologies group, and I want to do that in the context of the hierarchy of control. As some of you may know, public health and public safety officials recommend a series of different types of controls to deal with risky situations, where possible eliminate the risk or substitute something that's safer. If those things can't work resort to engineering controls making it -- the risk as small as possible, or administrative controls changing the way work is done, or finally using PPE. The last resort should be PPE in this hierarchy. Changing the way of work is the next choice and a better choice. But the best choice is engineering controls. And the emerging technology group pointed to lots of different technologies that would be safer engineering controls.

I encourage people to look at those. I just want to give you an example using the pesticide world. Farmworkers go into sites that have been treated with pesticides and they come in contact with the foliage of crops or soil that have pesticide residues. They're exposed, and if the exposure is too high, then they get sick. And that's not a good thing.

The way that's dealt with in a lot of cases is by using PPE, cut down on exposure by blocking it from getting to people. But there's a better way, like restricted entry intervals which say don't go into the site until the residues have declined. The best way would be to use even less pesticide through the see-and-treat technology, for example.

So I encourage the people at EPA not just to wait until registrants come to you and propose ideas about using these new emerging technologies, but actively look at requiring them to get away from PPE, get away from administrative controls, and make the workplace safer in ways that are consistent with this hierarchy.

And another aspect that I wanted to point to that got little attention, but Greg Watson mentioned it, and that is again labeling. The emerging technologies that we have today in our phones and the internet system, and the ability of computers to sort and provide information in an instant means that we ought to be bringing -- the world ought to be bringing labeling information to users in a much more user-friendly fashion than the labels that are poorly formatted, they're long, where information is hard to find. So emerging technologies really needs to look at

labeling, as well as all these pesticide delivery mechanisms.

I want to shift over to resistance management. The workgroup there, I think, would benefit from having more folks from environmental advocacy and worker advocacy organizations participate, and I think you would see a request on advocacy for even more aggressive action. EPA had, I think, one of the strongest sets of resistance management requirements imposed on a registrant when they issued the registration for Enlist Duo.

Getting those kinds of programs applicable to all of the different products that have resistance management issues would be a good idea. At the very least, at the very least, EPA should require all registrants to have the language that's recommended in the PR notices about resistance management practices. It seems to me just unexplainable and indefensible for some registrants to do the right thing and put those statements on their labels, but other registrants, for whatever reason, decide not to do that. That creates an unlevel playing field for registrants and EPA should step in and compel everybody to do that.

The last topic I want to talk about is the emerging viral pathogen workgroup. I thought their

recommendations and their work was really astounding and great, and they commended OPP's Antimicrobials Division for their efforts, and I also want to just join and say that they did a terrific job, too, and continue to do a terrific job. The American citizens should be really proud to have such hardworking, smart folks putting their minds and their energies to addressing the pandemic.

The one thing that the emerging pathogens workgroup did not talk about is the universe of products called pesticide devices. There are a lot of pesticides out -- pesticide devices in the marketplace today that are making claims that are unsubstantiated, that are exaggerated about their ability to address pathogens and EPA, I think, needs to look hard at those products, and where they find those products are making statements that are misbranded, use their enforcement authority to address and get those products off the market.

Fortunately, EPA's Office of Research and Development has studied the efficacy of these products and demonstrated that the really just don't work. And a lot of people are losing money and a lot of people are relying on these products for protecting them from exposure to pathogens and they're not getting what

they pay for and they may be getting sick instead. So for those reasons, I think that it's important for that group to continue to work and find ways to address the device universe, as well as pesticide products.

I want to thank you all for the opportunity to comment and wish all of you good luck. Thank you.

FACILITATOR: Thank you very much. Mr. Jordan. Appreciate it. Thanks for your comments.

We have one final speaker and hope I get the name right, Julie -- it's Julie Spagnoli (phonetic)

MS. SPAGNOLI: Can you hear me?

FACILITATOR: Yes.

MS. SPAGNOLI: Okay. Actually, my comments, some of it has already been brought up. Like Bill, I've been around for more than 25 years participating in these committee meetings, and 25 years ago, I also participated in an agency initiative known as the consumer label initiative. It was a partnership of EPA, consumer products, marketers, and other stakeholders. And we did exhaustive consumer research, both qualitative and quantitative research, into consumers' understanding of label language, how they use label language, what they read, what they didn't read, what was important and just their, you

know, basically understanding.

So from that effort, there was a number of recommendations made to the agency and many that were adopted. First aid was adopted from statements of practical treatment. Inert ingredients was changed to other ingredients. 800 numbers were added. We also had a project, we were working on developing a box on the -- it was called either product facts or facts box, which would be similar to the drug facts box on labels. We adopt -- we were working on this, but no real standardized format had ever been finalized. However, a lot of companies did kind of adopt these kind of formats, if you look at a lot of -- especially lawn and garden products that have the booklet labels, a lot of them will have a product facts or quick facts box on the outside of the label. And, you know, I definitely support efforts to continue that work and maybe come up with standardized information and formats for that.

And then also we came up with a lot of formatting and other types of recommendations, going from block texts to bullet points, and putting things in boxes to separate information and make it clearer, you know. And so there was a lot that came out of that. And that research is still available. It’s in

the agency's archives. And those recommendations and the work that that group did, you know, like many other things, a new administration had come in and some of that work was just kind of left by the wayside as people changed and priorities changed and FQPA was being enacted.

So I would just encourage if a label group is initiated and they're going to look at consumer labels that they may want to go back and look at that research, because I think a lot of it is still very valid because it really had more to do with, you know, what's important to people. And I don't think a lot of that has really changed.

And I wish everyone good luck on that, because it was a great project and I'd like -- I wouldn't mind to see it continue.

FACILITATOR: Thank you, Julie. Thank you very much for your comments.

Sarah,. I'm just going to check in with you one last time. We've come to the 5:00 mark. I've been watching the participant roster. I don't see anybody else's name that's listed here present on the participant roster. Maybe you can correct me if I'm wrong.

FACILITATOR: No, that's correct. I don't

see any of them on the line.

FACILITATOR: Okay, very good. So that concludes the public comment portion of the agenda.

And before I hand this over to Ed to the formally close the meeting, I'd just -- on behalf of Sarah Chadwick, who's been in the background here helping us make it through the technology for the last couple of days and on behalf of certainly many of my colleagues at Apt Associates that have supported the EPA mission for decades, thanks for entrusting us to support, Ed, you, and Shannon and the workgroups and the PPDC for these important public meetings. We wish all of you well as you continue to evaluate and prioritize these really important recommendations. So thank you very much.

And, Ed, it's over to you.

MR. MESSINA: Thanks, Paul.

So let me thank a couple of individuals and call them out. I know the workgroup leaders did an amazing job, but I did want to acknowledge and recognize a special thank you -- the slide is up there -- to Lori Ann Burd, Center for Biological Diversity, Komal Jain, ACC Center for Biocide Chemistries, and Amy Liebman, Migrant Clinicians Network, and Nina Wilson. You did get to hear from many of them today

and they are finishing out their term-limited six years with PPDC. So I really appreciate [connection issue] service to this group.

Lori Ann, I noticed you put something in the chat and wanted to see if you wanted to make any statements. We could kind of extend the public. Comment period or if you felt like what you provided in the chat was enough.

MS. BURD: Oh, that's okay. Thanks.

MR. MESSINA: Okay. So thank you all for your service. Thank you for a great meeting. To all the workgroup chairs again, to Paul and Sarah and Shannon Jewell, a special thanks for her coordinating this meeting and doing a great job reaching out and providing all the materials in a timely manner.

I look forward to the next time we can get together and appreciate your thoughtful comments throughout the entire day, the public comments, and the workgroup recommendations. So we will convene in the spring and reach out. Until then, have a wonderful evening, stay safe, and we'll be in touch. Take care of everyone.

(The meeting was concluded.)