

## Using Microsoft Teams and Zoom to Deliver Pesticide License Training and Certification

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### Abstract

Pesticide safety educators have turned to online delivery to reach a wider applicator audience and to adapt to the impacts of the COVID-19 virus. Microsoft® Teams and Zoom have been the most widely used among this group. This article discusses these platforms and some of the unique features that can be used to ensure that virtual training and applicator recertification are legal, ethical, and ultimately successful. The authors conclude that distance training will likely be part of the new norm in pesticide training.

**Keywords:** applicator recertification, COVID-19 pandemic, Microsoft Teams, pesticide safety education programs, virtual training, Zoom

### Introduction

The United States Environmental Protection Agency, through Title 40, Chapter 1, subchapter E part 171 (<https://www.govinfo.gov/content/pkg/CFR-2016-title40-vol26/xml/CFR-2016-title40-vol26-part171.xml>), requires that every state or tribal area have a mechanism, or default to the federal authority, for licensing applicators using restricted-use pesticides. These plans vary widely from state to state but in general involve an initial certification requirement and subsequent recertification efforts. Some states recertify using set training requirements or through continuing education units (CEUs) within a defined set of time. Some states allow CEUs to be earned through a diverse set of media (correspondence, online video, etc.), while others have a strict “meeting” requirement wherein CEUs can only be received at an in-person setting. Though many state models exist, all have some form of personal contact between the trainer and the applicator seeking recertification.

The onset of the coronavirus disease (COVID)-19 pandemic caused most pesticide safety educational programs (PSEPs) to cease, or severely restrict, in-person contact. This has had a dramatic impact on pesticide safety training, leaving many states wondering how to continue providing recertification opportunities that are safe for both the trainer and applicator, while maintaining the integrity of the process. Though multiple

platforms exist for distance education and their functions seem intuitive, teaching in this online environment is not as simple as it might seem. First, how can a trainer ensure that the applicator is present during the event? Second, how can training be provided in a secure manner that still teaches the needed material? Third, how can the trainer maintain the attention of the applicator through a largely impersonal medium?

These are all questions we will attempt to address below. This article will focus solely on Zoom Meeting, Zoom Webinar, Microsoft® Teams Meeting, and Microsoft® Teams Live Event. Our objective is to discuss: (1) the similarities and differences between each platform, (2) the functionalities of each program, and (3) how to ensure a secure event, both for applicators and the certification process.

## **Platforms**

When discussing software or programs that can be used to host web meetings, the list is nearly endless. The following discussion is in no way meant to be exhaustive or promotional, but merely an examination of commonly used platforms by pesticide safety education programs around the country. The discussion about these platforms' functionality is also not meant to be exhaustive, and by the time of publication could be partially out of date, as software is updated constantly. This discussion is focused on how these programs have been used, the pros and cons of each, and the unique considerations PSEPs need to address when offering programs online.

### **Zoom**

Zoom is a platform that many PSEPs and the public have used to connect in a "virtual" training space. It is a straightforward and user-friendly way to bring groups together online. Within Zoom there are two distinct ways to offer virtual gatherings: Zoom Meeting (ZMeeting) and Zoom Webinar (ZWebinar). A ZMeeting is purposely designed to establish all attendees as equals. Each attendee has control of their microphone and webcam and can speak and interact at will. These features allow and encourage interaction between participants and establish a roundtable discussion format. Conversely, ZWebinar is a one-way communication from presenter to the audience and disallows verbal communication between attendees. Both platforms can use polls (a great way to determine engagement with the material), a preregistration, breakout rooms, chat functions (although there are differences between the types), recording of the meeting, and screen-sharing ability. Because features are updated so frequently, this discussion is not centered on an exhaustive list of all functions, but an analysis of how it is being used by PSEPs currently. For a more detailed commentary on the features of Zoom and their use for hosting meetings, refer to Bultemeier and Atkinson, 2020. For the most current list of features, visit <https://zoom.us>.

The chat functionality between the two types (ZMeeting and ZWebinar) is one of the biggest differences. In a ZMeeting, the chat can be used by anyone and shared to the entire group without restriction. In ZWebinar, by contrast, presenters can chat to the entire group, to the other presenters, or to individuals, whereas attendees can only

communicate to all the presenters or individual presenters (but not other attendees). The moderated Question and Answer (Q&A) function allows attendees to pose questions or comments to the presenters but does not display to the entire audience, unless a presenter decides it can be shared. The Q&A function is only available in ZWebinar. Both ZMeeting and ZWebinar generate postmeeting reports that can provide information about the total length of time an attendee was present, their answers to poll questions, a transcript of the chat, and other features. These reports can be used to check attendance, the specifics of which will be discussed later in this document.

Both ZMeeting and ZWebinar are user friendly and simple for applicators and PSEPs alike to use for training. For an event where collaboration and interaction among the participants is a primary goal, a ZMeeting would be a good fit. Where meeting security is at a premium and interaction among attendees must be limited, ZWebinar is the better fit. For the most up to date pricing, please visit <https://zoom.us/pricing/webinar>.

## **Microsoft Teams**

Many organizations have adopted Microsoft Teams to coordinate projects and improve communication among their employees. Considering that it has been recently adopted by many universities, it was natural that PSEPs would use this technology to deliver training. Teams was originally designed for easy collaboration, document sharing, and meeting management within an organization, not simply as a webinar hosting service. Members of a team can host documents, engage in chat discussions, post tasks, schedule meetings, and much more. It allows the members of the team to interact both asynchronously and “live.” For a more in-depth analysis of the Teams platform, refer to Bultemeier and Gasper, 2021. The remainder of this discussion will focus on the functions of the live portions of Teams because that is the portion PSEPs most commonly use to interact with applicators.

Like Zoom, Teams has two general formats: Meetings (TMeetings) and Live Event (TLiveEvent). TMeetings are generally designed for collaborative discussions where participants interact with each other and presenters. Conversely, TLiveEvent is intended for larger audiences and is primarily a one-way communication (presenter to applicator/attendee). Attendance for TMeetings is currently limited to 1,000 interactive participants and an overflow “view only” capacity up to 10,000. By contrast, TLiveEvent can host up to 10,000 view-only attendees with a moderated Q&A. Both formats allow participation from attendees outside the host organization. Neither format currently has an integrated premeeting registration. The unique ways of gathering attendance will be discussed later in this document.

Applicators and PSEPs may find Teams slightly less intuitive than Zoom but still able to meet their needs. For any postmeeting collaboration or working in groups with other PSEPs beyond an online webinar, Teams offers much more than Zoom, which is primarily a webinar hosting service. Within Teams, a TMeeting would be preferable where a high level of interaction is desired and security is less of a concern. Conversely, if security is at a premium and interaction must be limited, TLiveEvent would be the

better choice. Table 1 compares the features of Zoom and Microsoft Teams. As with Zoom, the pricing for Teams and available functions is apt to change. Refer to <https://www.microsoft.com/en-us/microsoft-teams/compare-microsoft-teams-options> for the most up to date pricing and list of features.

**Table 1.** A comparison of Zoom and Microsoft Teams available features

Feature	Zoom	Microsoft Teams
Premeeting Registration	Yes	No
Chat Function	Yes	Yes
Polling	Yes	Teams Meeting Only
Moderated Q&A	Zoom Webinar Only	Teams Live Event Only
Breakout Rooms	Zoom Meeting Only	Teams Meeting Only
Record Meeting	Yes	Yes
Postmeeting Reports	Yes	Yes

### Security

A secure meeting will provide a learning space where communication occurs in an appropriate and unimpeded manner. Both Zoom and Teams platforms have multiple methods of achieving this, but understanding what is available is important.

Zoom Meeting and Teams Meeting were purposely built to allow group participation – meaning all participants have control of their microphones and webcams. The drawback with these platforms is that participants can keep their microphone open and cause distractions such as dog barks, phone rings, and other auditory disruptions. Fortunately, ZMeeting and TMeeting allow the host to “Mute All” if this begins to occur. If using ZMeeting or TMeeting to conduct training, having a cohost to mute all when necessary or allow those to unmute who need to communicate with the group is beneficial. For large groups, this can be a continual and frustrating practice; thus, ZWebinar and TLiveEvent (which disable microphones and webcams) would be the ideal choice if no audio participation is needed.

The meeting host should also have a plan in place to disallow a malicious individual that attempts to hijack the meeting with continual rude speech, inappropriate use of their webcam, or using screen sharing to push unsuitable content. This is known as “Zoom bombing” and can be reduced by only providing the link to the meeting to those who completed a premeeting registration. A password or personal identification number can be required for entry to the meeting. Additionally, these platforms often have a “waiting room” or “lobby”: a holding area where participants cannot see any material, share the

mic or webcam, or chat with one another until they are allowed into the meeting by a host. Although someone must constantly monitor the lobby to admit participants, it does greatly reduce the chance of an uninvited participant joining.

## **Attendance**

Recertification is a critical exercise to build on knowledge so that the applicator may continually improve their ability to steward the products they use. However, recertification is of limited value if the applicator is not being attentive and not acting in good faith. Those who provide training for recertification must provide material that is engaging while also ensuring that attendance at these meetings can be confirmed and maintained throughout.

One key to successfully hosting a digital training is making sure that the only participants in the meeting are those who are supposed to be there. Using a registration process, either internal to your platform or through a third party, can help to limit unwanted attendees. Only those who have registered (and possibly paid) will be given the event link, which will greatly reduce security issues, as discussed above. Teams has not yet released a built-in customizable registration like Zoom, but those licensed for Teams often use the included Microsoft Forms service to collect registration information.

Preregistration can also help to gather biographical or other data that may need to be sent to the state lead agency to ensure recertification credits are assigned properly. Having a registration for the event generates an expected list of attendees ahead of time, which can help create an attendance checklist during the event. Furthermore, many PSEPs must document what groups they are reaching and which ones might be underserved, so gathering that information at registration is helpful.

Additionally, tracking who is present during the entirety of the meeting is important for certification. Keeping track of who is present and participating in a virtual meeting is much more challenging than for in-person meetings. Registration at least gives a list that can be checked during the meeting itself. The specifics of how to track attendance throughout the meeting are discussed below, but having the list ahead of time for a dedicated person to check off during the meeting is helpful. Checking attendance throughout the event is important because attendees' comprehension of the knowledge required will be much lower if they are not present or paying attention. However, tracking this information in a virtual environment requires some creativity.

## **Small Trainings**

One possible solution for small groups is to simply require all participants to have a webcam so that you (or a dedicated person) can see them during the event. This allows the host to identify the applicator and observe their participation. However, this approach has inherent weaknesses. Webcams can malfunction and/or the meeting grow to a size that keeping track of everyone is untenable. Some applicators may also find that their internet connection does not support webcam capabilities. Additionally,

some applicators' surroundings could cause distractions, such as a ceiling fan, strobing light, unsolicited talking, or other noises. Therefore, another option for small groups is to use the chat function, available in both Zoom and Teams, during the meeting. This works by regularly asking questions to the audience during the presentation and requiring them to respond via chat. This is when the meeting organizer can use the specialized questions from the registration step and ask attendees to type in their name, license number, and/or date of birth. This can serve as an identifier and for participation. If someone is logged in but not participating, this can verify that the individual is not acting in good faith and CEUs or other credits can be withheld. But this tactic also has limitations, as someone must manually tally who responded each time a chat was required. Additionally, an open chat feature allows individuals to misbehave by placing inappropriate material in the chat.

## Large Events

Having an automated means of capturing attendance and participation becomes essential as group sizes increase. Zoom contains a polling feature that allows the provider to instantly gauge attendance and participation, while limiting the amount of interaction between participants and minimizing inappropriate behavior. A poll can be launched at any time and remains open or available for a set amount of time – as determined by the presenter. At the end of the meeting the polls can be downloaded to a comma separate value (CSV, most commonly Microsoft Excel spreadsheet) file, and participation can be confirmed relative to the registration list. More information on using the polling feature is discussed at length in Bultemeier and Atkinson, 2020.

Teams has an integrated polling feature for stand-alone meetings, but for a TLiveEvent organizers must share a poll designed in Microsoft Forms with the participants. In Teams, requesting the attendee's name or other identifier in the poll can help mark the attendees active at that point in the training. Collection of responses can be disabled after sufficient time has passed to respond. Then, the collected responses in Forms are available in an Excel file and include time of submission. Other options in Teams to track participation at specific points during training include requesting attendees to use the raise hand feature (easy to mark those that do not) or reactions (thumbs up) to a chat message from the facilitator. Each of these must be manually documented by a designated person. Zoom automatically logs each attendee's response and links it to their information gathered in the premeeting registration. Polling in Zoom is easier to use for collecting attendance via poll questions. Zoom automates much of the attendance-checking features discussed, whereas Teams requires a manual documentation. In this instance, Zoom is the better platform for more seamlessly gathering attendance.

Regardless of whether Zoom polling or Microsoft Forms is used, the host or presenter needs to decide before the meeting what level of communication is acceptable. The organizer of a meeting must balance the need for meeting security (turning off chat, mics, and webcam) with maintaining audience engagement. The more removed an audience feels from the presenter the more likely it is for other distractions to compete

for attention. For example, the host of a daylong training may have 10 check-ins and require attendees to complete at least eight to be eligible for credit. However, malfunctions do occur, and some participants may not see every poll, so an alternative (either a chat response, or, even better, a moderated Q&A response) interaction should be offered. Prepare participants with clear expectations on how many polls they will be answering and what to do if the polls do not appear. Provide this information to the participants multiple times, such as during registration and again in the welcome message before training begins. Also, providing a “practice” poll at the beginning of the meeting will help attendees feel comfortable.

Poll question creation must follow a fine line. Questions should only be answerable if participants are engaged in the material but should not be overly complicated. Questions can be content specific or more general to simply monitor attendance. Multiple choice options can also be included, such as: What picture is currently on your screen? Who is the current presenter? What is today’s date? If a participant successfully answers these questions in the time allotted, it can be assumed the individual has operated in good faith and the provider has offered a training with high, but reasonable, ethical standards.

Polls can additionally be used to track knowledge gain over the course of a meeting, or even as an interactive way to link participants together. For instance, sharing the poll results so the audience can see the overall knowledge in the “virtual crowd” can be helpful. Polls can be used for more than just an attendance check; they can enhance the overall meeting experience if used creatively. Polls can highlight areas of strength among the crowd or help to demonstrate areas that might need to be reviewed or covered again. This helps to make the meeting dynamic and adjustable in the virtual environment, not simply a static delivery of content. It is a chance to actively make audience members participate in the training even though it is being delivered in a largely distanced and impersonal platform.

### **Certification Forms**

Historically, applicators who attend recertification training obtain credit for that attendance by receiving a personalized form that either they or the meeting organizer sends to the state authority that oversees licensing. This is a simple task for in-person meetings as the forms are physically provided. For a virtual meeting, it is more challenging from both a logistical and security standpoint. Creating forms that can be emailed to all participants that meet attendance requirements can be tedious, as the form will have to be filled out with their information ahead of time. A second option is to send a partially blank form to all attendees. Though this reduces the amount of work for the provider, it creates the opportunity for fraud by improper distribution of this form to those that did not attend.

## Conclusion

Web-based training may be viewed as an unfortunate result of COVID-19 restrictions. Though the authors agree that in-person training provides unique and irreplicable opportunities to convey information, a distance (virtual) format can be highly successful with the proper planning and the right platform. Though more data needs to be collected relative to these delivery methods, we have observed significant participation via chat from individuals that are usually hesitant or unwilling to participate in an in-person training. Therefore, we encourage all pesticide educators to become familiar with the platforms listed here, as well as others not mentioned, as both virtual and face-to-face delivery will be the new norm in pesticide training.

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