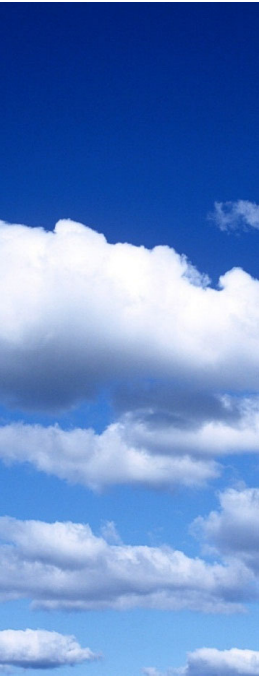
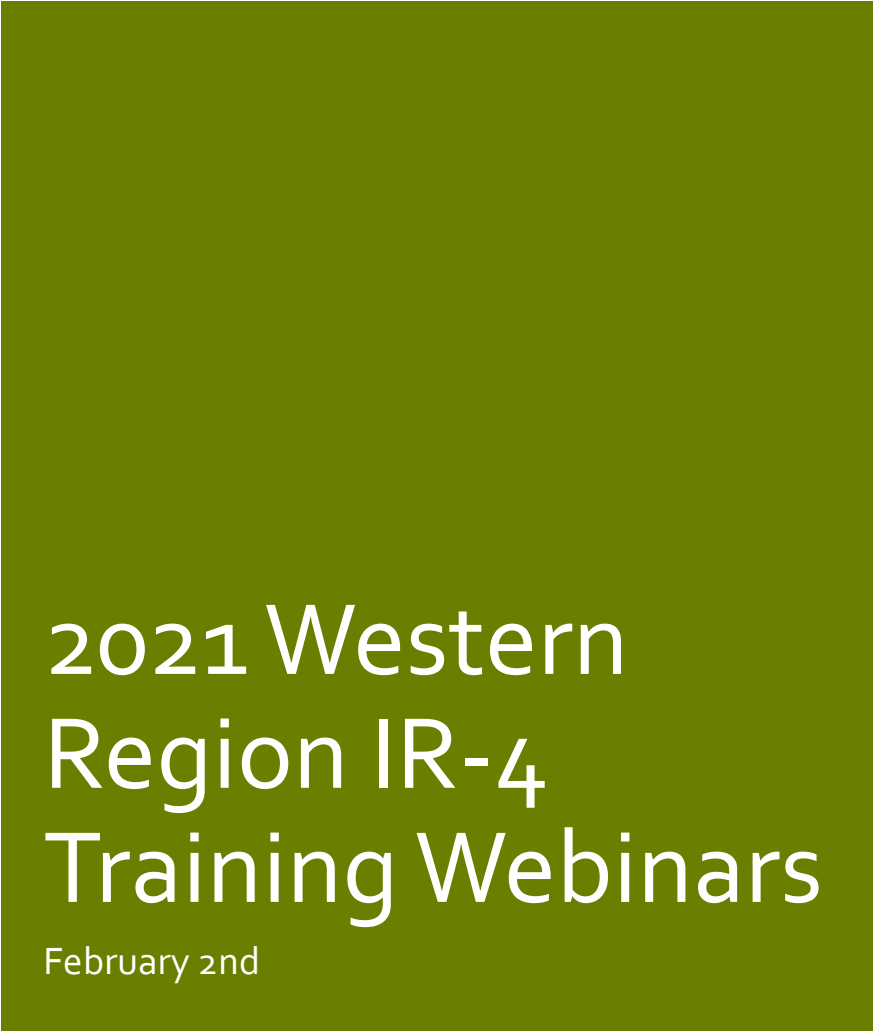


IR-4 Western Region Training Webinar: February 2nd

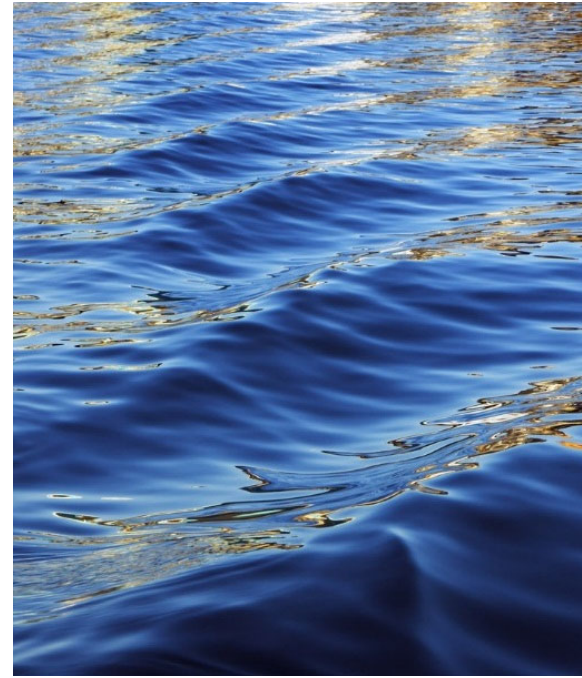
11:00 am – 12:00 pm Pacific Time





2021 Western Region IR-4 Training Webinars

February 2nd



Western Region Training Webinar: February 2nd

- Entering 2021 Field Season
- What to do when things go wrong
- New QC reviewers in the WR
- Field PPE and label information
- Lab PPE
- Measuring devices for TS and diluent
- Measuring in the lab
- Field data notebook changes for 2021
- Ideas for training webinars in 2021



Thoughts from the RFC as we enter the 2021 Field Season

- Safety

- In all we do
 - Routine / New
 - Stop..... Think.... Then Act....



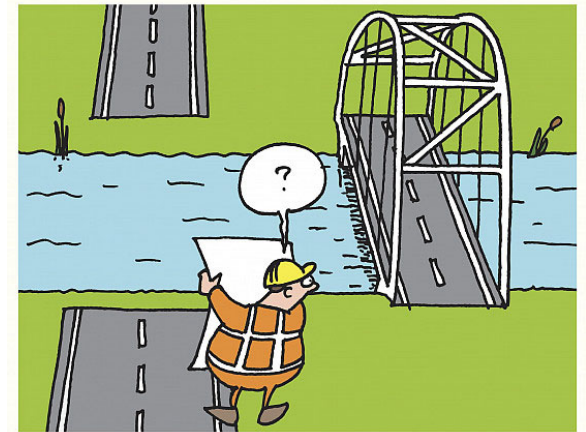
- Focus

- Continued distractions
- Remember
 - Protocols and notebooks have changed
 - If in doubt.... ask
 - Constant vigilance



When Things Go Wrong.....

- Communicate
 - Study Director, Regional Field Coordinator, others
 - SD has final say
 - RFC – future training, monitoring and modifications
 - Early, frequently
 - Wider organization can adjust
- Document what happened
 - Deviations
 - Photos – a picture says a thousand words....
- Never, ever, ever “hide” that something went wrong



New QC Reviewers in the Western Region

- Employees of Western Region Analytical Lab
- Collectively have many years of IR-4 experience



Tey Montalvo



Riza Punongbayan



Alex McFall

Field PPE and Label Information

- <https://ir4works.org/frd/labels-sds/>
- Consult the label & sds for safety requirements
- Beware.... Familiarity breeds contempt
- Even though you've worked with this compound
 - For 1 year
 - For 5 years
 - For 20 years
 - Guess what?
 - It hasn't gotten any safer...



Year	Current Year
FRC	KARE
View	

FRC: KARE

TestSubstance	TradeName	CautionWord	Label	SDS
PENTHIOPYRAD	Fontelis 200 SC	III-CAUTION	Label	SDS
PPE Mixers, loaders, applicators, and other handlers must wear: - Long-sleeved shirt - Long pants - Shoes and socks See engineering control statements for additional requirements. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.				
PARAQUAT	Gramoxone SL 3.0	I-DANGER	Label	SDS
PPE Applicators and other handlers (other than Mixers and Loaders) must wear: - Long-sleeve shirt and long pants - Shoes plus socks - Protective eyewear - Chemical-resistant gloves made of barrier laminate, butyl rubber >= 14 mils, nitrile rubber >= 14 mils, neoprene rubber >= 14 mils, natural rubber >= 14 mils, polyethylene, polyvinyl chloride (PVC) >= 14 mils or Viton (R) >=14 mils - NIOSH-approved particulate respirator with any N, R, or P fi lter, NIOSH approval number prefix TC-84A, or a NIOSH-approved powered air-purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. Mixers and Loaders must wear: - Long-sleeve shirt and long pants - Shoes plus socks - Chemical-resistant gloves - barrier laminate, butyl rubber >= 14 mils, nitrile rubber >= 14 mils, neoprene rubber >= 14 mils, natural rubber >= 14 mils, polyethylene, polyvinyl chloride (PVC) >= 14 mils or Viton (R) - NIOSH-approved particulate respirator with any N, R, or P filter, NIOSH approval number prefix TC-84A, or a NIOSH-approved powered air-purifying respirator with an HE filter with NIOSH approval number prefix TC-21C - Chemical-resistant apron - Face shield				

PROPER PPE: COVID CONSIDERATIONS

Alex McFall
IR-4 Western Region
Training
2 February 2021



STANDARD PPE



Lab coat



Safety glasses/goggles



Gloves



Long pants



Close-toed shoes



MODIFICATIONS FOR LABS DEALING WITH COVID-19

- Mask mandate when on campus
- Frequent sanitization of common surfaces (PC's, doorknobs, etc.) – 70% IPA recommended
- Frequent hand washing (> 20 sec)
- Spacing of laboratory personnel and work areas (if possible) to mitigate risk of transmission
- Weekly testing (UCD mandated)



DAY-TO-DAY COVID SAFETY

- Viral load is the key factor to limit, remember the 3 D's: **D**isinfect, **D**efend, and **D**isperse
 - Disinfect with alcohol/bleach to kill the virus on surfaces
 - Defend yourself with your PPE: masks, gloves, safety glasses
 - Disperse the virus across a larger, more ventilated area to prevent buildup of higher viral loads.
- Avoid cramped areas with low ventilation, clean surfaces regularly, wear PPE, and stagger work whenever possible

Measuring Devices: Test Substance v. Diluent

- Appropriate tool for the appropriate measurement:
- Liquids
 - Ts = small volumes (1.5 – 50 mls)
 - Low Volume Diluent = medium volumes (800 mls – 5L)
 - Airblast Diluent = large volumes (15 L – 50L)
 - Irrigation = very large volumes (200 – 400 Gal)
- Dry Materials
 - Analytical Balance (mg accuracy)
 - Field balance (grm accuracy)



MEASUREMENTS: THE RIGHT TOOL FOR THE RIGHT JOB

Alex McFall
IR-4 Western Region
Training
2 February 2021



WHAT DO YOU NEED TO DO?

- Consider:
 - What are the properties of your material?
 - Viscosity, hydrophilicity, surface interactions
 - What volumes are you working with?
 - How accurate do you need to be?
 - What is the impact of your measurement on your final result?



MATERIAL PROPERTIES

- Viscosity: Very high/low viscosity materials are difficult to transfer, consider measuring gravimetrically
- Hydrophilicity: Does the material take up water? If so, weighing must be done quickly to determine an accurate mass.
- Surface Interactions: Does the compound of interest stick to glass? Use HDPE or Teflon.
- Remember: MSDS and phys-chem properties are your friends. Know your chemical before starting work.



ACCURACY, VOLUMES AND EFFICIENCY

- How accurate do you need to be? What is your desired result?
 - For 2 liters of 50:50 MeOH:H₂O, a 1000 mL graduated cylinder is better than a 5 mL autopipette or a 250 mL graduated cylinder
 - When working with standards, small volumes, etc., autopipettes/volumetric pipettes or Hamilton style syringes are best
 - For autopipettes, always try to use delivery volumes well above the minimum possible (e.g., $\geq 50 \mu\text{L}$ on a 200 μL pipette)
- **Always balance accuracy and efficiency, erring on the side of accuracy.**



EXAMPLES:

- Preparing a 1:100 dilution of a 1.00 $\mu\text{g/mL}$ standard solution (10 mL final volume)
- Preparing 100 mL of a 10 $\mu\text{g/mL}$ solution of morpholine (high viscosity) in ACN
- Preparing 500 mL of 0.1% Formic Acid in Water

2021 Field Data Notebook Changes

- **Reminder about changes that started in 2020**
 - Optional pages 2B Personnel Qualifications Summary, 2C Temporary Personnel, and 4F Balance Calibration Check
 - These pages can be removed from the notebook
 - Be sure to list them in the front of the book on Page 6

OPTIONAL PAGES REMOVED FROM THE FIELD DATA BOOK			
FDB Part	Enter X if removed	Initials	Date
2B			
2C			
4F			
5C3			

PAGINATION INSTRUCTIONS FOR THE FIELD DATA BOOK

2021 Field Data Notebook Changes

- Highlights from select changes in 2021 book

- **Part 5 Plot Plan**

- Instructions revamped – no more checklist
- Slope % as well as direction now required
- Adjacent treated plots now on separate and optional page

- **Crop Destruct**

- New prompt for date of destruction



2021 Field Data Notebook Changes

• Part 6A Application Equipment

- Application type more specific
- Treated area=plot area changed to clarify

APPLICATION EQUIPMENT TYPE (Check one) TRACTOR____ BACKPACK____ GRANULAR____
OTHER____ (Describe) _____

PROPELLANT (Check one) CO₂____ COMPRESSED AIR____ PUMP____
OTHER____ (Describe) _____

TYPE OF APPLICATION (Check one) FOLIAR BROADCAST____ FOLIAR DIRECTED____
SOIL BROADCAST____ SOIL BANDED____ SOIL DIRECTED____
IN-FURROW (SEED ROW)____ IN-FURROW (BETWEEN ROWS)____
OTHER____ (Describe) _____

NUMBER OF PASSES THAT ARE NEEDED TO TREAT THE PLOT _____

NUMBER OF NOZZLES OR HOPPER OUTLETS USED			
MESH SIZE USED IN THE STRAINERS		SPACING BETWEEN NOZZLES OR HOPPER OUTLETS	
NOZZLE BRAND/TYPER/SIZE (e.g. T-Jet 8004, even flat fan)			

TREATED AREA² _____

²Calculated width of nozzle discharge pattern (CWNDP) at proper boom height X length of plot sprayed or treated. For a broadcast application, CWNDP = (# of nozzles X nozzle spacing). For a banded application, CWNDP = # of nozzles X swath per nozzle. If application is foliar directed or soil directed enter row width X # of rows X length of plot sprayed or treated; treated row width may differ from actual row width when the actual row width is wider or narrower than local commercial practices. In this circumstance, the application rate should be calculated using a local commercial row width, and an explanation should be included on this page or inserted behind this page. Contact the Study Director if guidance is needed.

DOES AREA USED FOR APPLICATION RATE CALCS. = PLOT AREA (from Parts 5C/5D)? YES____ NO____

(For foliar directed and soil directed applications, check "YES" above unless local commercial row widths are used instead of the actual row width on the research plot. This prompt is intended to help data reviewers calculate the applic. rates correctly.)

IF NO, PLEASE EXPLAIN: _____

2021 Field Data Notebook Changes

• Part 6 Calibration

- Recheck selection more prominent
- Alternate page on IR-4 website if >6 nozzles are needed
- Average discharge rate clarified

C. DISCHARGE CALIBRATION FOR APPLICATION NUMBER _____

INSTRUCTIONS: Use this form when conducting full (3-run) calibrations or rechecks. If conducting a recheck, please provide calculations to verify that the output is within +/-5% of the most recent full calibration.

If you are conducting a 3-run target check, please use the 3-run target check form provided on the IR-4 website.

EQUIPMENT IDENTIFIER _____

DISCHARGE CALIBRATION DATE _____ TIME _____ PERFORMED BY _____ (INITIALS)

LOCATION WHERE THE CALIBRATION WAS PERFORMED _____

INSTRUMENT USED TO MEASURE WATER (e.g. 100 ml graduated cylinder) _____

BRIEFLY DESCRIBE PROCEDURE USED TO CHECK DISCHARGE CALIBRATION _____

PRESSURE (psi) _____ UNITS (e.g. ml, grams) _____

Output Run Number	1	2	3
Nozzle/Hopper	1		
Outlet Number	2		
Along Boom	3		
(If more than 6 nozzles, use the alternate form Part-6C. Large Boom provided on the website.)	4		
	5		
	6		
Total Boom Volume			A
Mean per nozzle or outlet			B
Time (seconds)			C
Discharge Rate			D

Is this a recheck?

Yes _____

No _____

Average Discharge Rate* D _____

Indicate whether discharge rate is calculated for: Total Boom Volume _____ Mean Nozzle Volume _____ *(A or B)/C=D

2021 Field Data Notebook Changes

• Part 6 Speed Calibration

- Time of calibration now required
- Gear, RPM and length of test track moved to entries above
- Entry table simplified
 - Space for Target or Original calibration time added

D. SPEED CALIBRATION FOR APPLICATION NUMBER(S) ____

INSTRUCTIONS: Complete a separate form for additional times when a complete calibration or calibration- recheck of application equipment is required.

EQUIPMENT IDENTIFIER _____

SPEED CALIBRATION DATE _____ TIME _____ PERFORMED BY _____ (INITIALS)

TERRAIN OF CALIBRATION TRACK (e.g. tilled field) _____

LOCATION WHERE THE CALIBRATION WAS PERFORMED _____

BRIEFLY DESCRIBE PROCEDURE USED FOR SPEED CALIBRATION _____

GEAR _____ RPM _____ LENGTH OF TEST TRACK (include units) _____

SPEED CALIBRATION: Calculate the speed of the application equipment. If appropriate, note the gear setting and /or RPM setting used in the speed calibration. Indicate the distance (in feet or meters) of the track on which the application equipment was tested to determine speed (e.g. speed of application equipment tested for 100 ft.). Entry prompts have been provided for 2 additional runs. If this is a recheck, calculate the result is within 5% of the original calibration. Show all calculations. A speed recheck (one run) is required whenever an output recheck is performed, except for multiple applications within a study that are made on the same day on the same farm.

RUN #	1	2	3	TOTAL	AVERAGE	TARGET OR ORIGINAL CALIBRATION TIME
TIME (sec)						

CALCULATIONS:

2021 Field Data Notebook Changes

- **Part 6G Application Information**

- Confusing question removed about equipment being used since last app
- Container# removed (redundant info)
- Time applied/initials clarified to by whom
- Placement of TS changed to Application Type

PART 6. APPLICATION RECORDS

G. APPLICATION INFORMATION FOR APPLICATION NUMBER ____ APPLICATION DATE ____

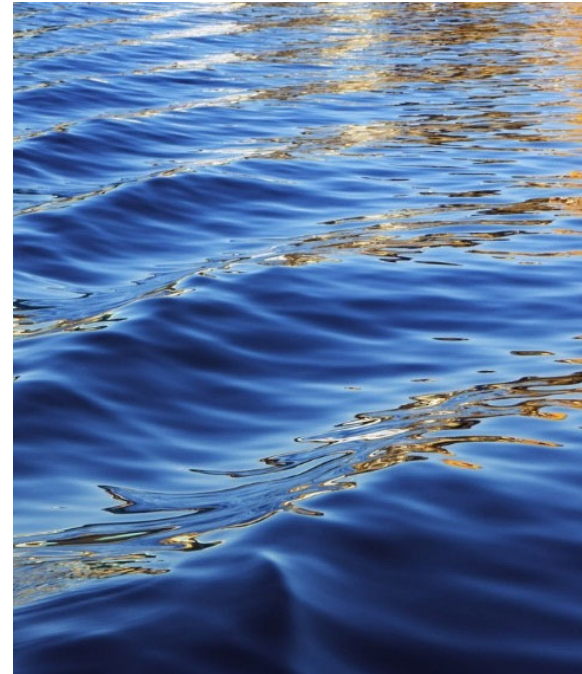
INSTRUCTIONS: Complete a separate form for each application date and for each treatment on one application date (use the Treatment Number as indicated in the protocol).

TRT Number ____		
NUMBER OF DAYS SINCE PREVIOUS APPLICATION	TIME OF ADDITIONAL AGITATION (if applicable) e.g. "10:00" or "continuous" or "just prior to application"	
TEST SUBSTANCE		
BATCH/LOT NUMBER		
TIME MIXED/BY WHOM ¹		
TIME APPLIED/ BY WHOM ¹		
EQUIPMENT IDENTIFIER		
APPLICATION TYPE ² (e.g., foliar broadcast, soil directed)		
TANK MIX AMOUNTS	MEASURING EQUIPMENT with INCREMENTS*	
CARRIER (starting volume of water)		
VOLUME of WATER REMOVED from starting volume (if applicable)		
TEST SUBSTANCE (formulated product)		
ADJUVANT		
TOTAL VOLUME OF TANK MIX		*e.g. 1000 mL grad. cylinder/10 mL incr.
NOZZLE DISTANCE from TARGET		ORDER IN WHICH ITEMS WERE ADDED TO SPRAY MIXTURE* W=Water, TS=Test Substance, A=Adjuvant *e.g. 1-W, 2-TS, 3-A, 4-W
PSI AT BOOM		
INCORPORATION - Methodology and/or Equipment - DEPTH - TIME		



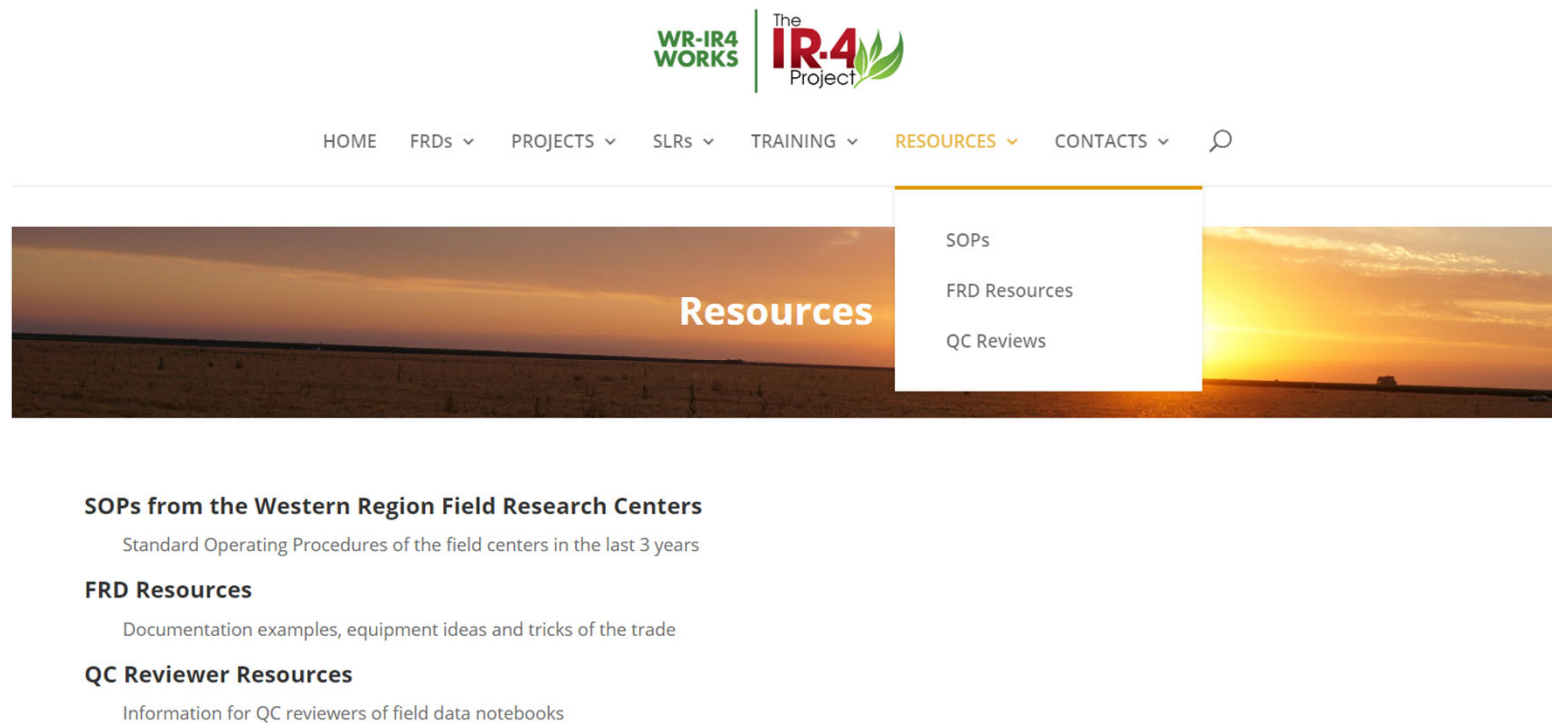
Training Topics for 2021

What would you like to see?



New Location for Resources on Website

<http://ir4works.org>



Thank You for Attending!

- Please send ideas for future training or questions to wrfield@ucdavis.edu
- **GLP training certificates will be sent to all attending**
 - If multiple people connected on one computer, send chat with all names + emails
- **2021 Webinars:**
May, August, November

