

# Practical Methods to Measure Outcomes

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# Agenda

## HOW TO...

### **Plan for Evaluation**

- **Develop Your Program Theory**
- **Protect Human Subjects**
- **Ensure Culturally Competent Evaluation**

### **Focus your Evaluation**

- **Identify Your Program Outcomes and Measureable Indicators**

### **Choose Evaluation Data Collection Methods**

- **Select Practical Options for Your Cooperative Extension Activities**

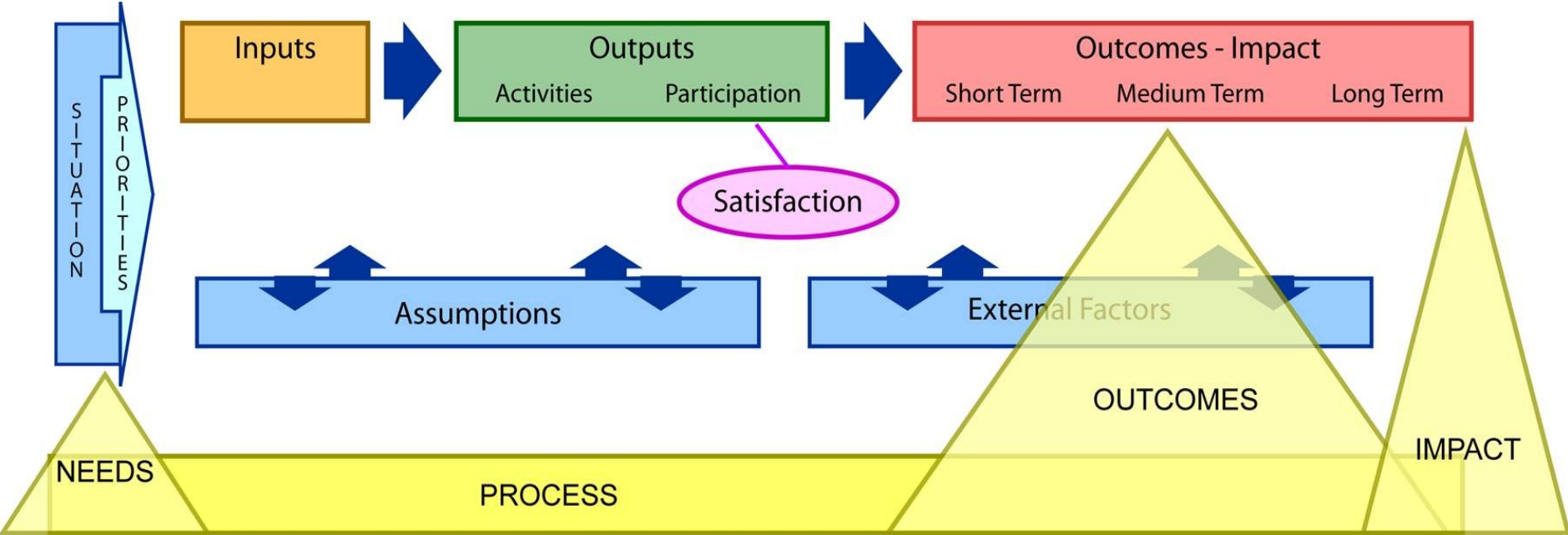
### **Incorporate Qualitative Evaluation Data**

- **Analyze Qualitative Data**

# Desired Outcomes

## Participants will gain...

- experience in defining your program theory
- understanding of why and when to get IRB approval for evaluation purposes
- experience in defining outcomes and measureable indicators
- understanding of options for evaluation data collection methods to measure program participant outcomes



### Types of evaluation

**Needs assessment:**

What are the characteristics, needs, priorities of target population?

What are potential barriers/facilitators?

What is most appropriate to do?

**Process evaluation:**

How is program implemented?

Are activities delivered as intended?

Are participants being reached as intended?

What are participant reactions?

**Outcome evaluation:**

To what extent are desired changes occurring?

Who is benefiting / not benefiting? How?

Are there unintended outcomes?

**Impact evaluation:**

What are the net effects?

What are final consequences?

To what extent can changes be attributed to the program?

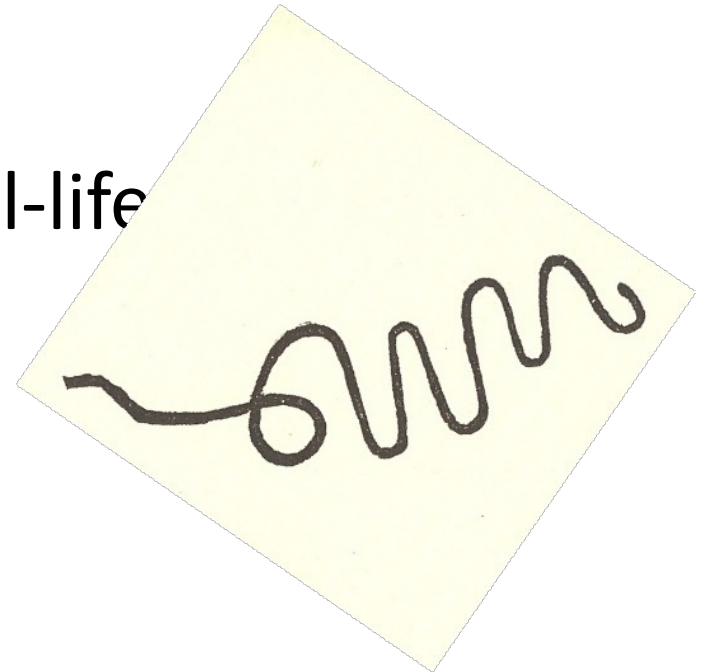
# **Basic Steps for Outcome Evaluation**

- 1. Develop a program theory**
- 2. Define the intended outcomes**
- 3. Identify the indicators**
- 4. Determine sources of information**
- 5. Choose data collection methods**
- 6. Analyze & interpret data**

# Program Theory

If this then that...

Real-life



# **Leigh Johnson, UCCE San Diego Coastal Resources Advisor, Emeritus**



# Program Theory

**Logic Model: chain of connections**  
**showing what the program is to accomplish**

**Issue**

**What we  
invest**

**What you do**

**What results**

**Situation:**

Background,  
Rationale,  
Clientele Needs,  
Goals

**Inputs:**

Time,  
Volunteers,  
Research base

**Methods:**

Outputs, Activities,  
Products,  
Participation

**Learning  
Outcomes:**

Knowledge,  
Attitude/  
Intent to Change,  
Skill

**Action  
Outcomes:**

Behavior,  
Policy

**Condition  
Outcomes:**

Economic gain,  
Societal or  
Environmental  
improvement



Time





# Developing Your Program Theory

## Step 1

### Individual exercise:

- Draft a logic model for one of your programs

### Partner interviews:

- Share your logic model & describe & edit as needed
  - *what's going on in your program?*
  - *who participates?*
  - *how are people – the community – benefiting?*

# Protecting Human Subjects

- “A **human subject** is as a living individual about whom an investigator conducting research obtains (1) data through intervention or interaction with the individual; or (2) identifiable private information.”
- Institutional Review Board = IRB
- Core Principles: Respect, Beneficence, Justice

# Do you need IRB approval?

- ✓ Do the human subjects represent a vulnerable population (e.g., youth, institutionalized individuals, or others whose participation may be considered involuntary)?
- ✓ Is it likely that participants' identities and/or contact information can be linked to their responses?
- ✓ Will evaluation results be published (in peer-reviewed journals)?

# **UCCE Example: Rice Storage Education Priorities**



# IRB Policies

- Principle Investigators must be academics with minimum of 50% appointment
- ANR utilizes UC Davis' IRB using new "IRBnet" online software. Begin here:  
<http://research.ucdavis.edu/policiescompliance/irb-admin/>
- Investigators and staff conducting research must complete the Collaborative Institutional Training Initiative (**CITI**) human subjects online training

# IRB Training Resources

- CITI online training programs: [citiprogram.org](http://citiprogram.org)
  - This is not the same as the USDA-required Responsible Conduct of Research (RCR) training- must do both to submit IRB application through UC Davis
- UC Davis Investigator Manual available: <http://research.ucdavis.edu/wp-content/uploads/HRP-103->

# **Ensuring Culturally Competent Evaluation**

## **Cultural Competence:**

“a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals and enables that system, agency, or those professionals to work effectively in cross-cultural situations.”

[Cowles (2005)]



# Ensuring Culturally Competent Evaluation





# Cultural Considerations Group Discussion

## 1. How might participant characteristics affect your evaluation?

- Language
- Age
- Abilities: mental, physical, social
- Male-female interactions, communication styles, family relationships, decision-making styles
- Attitudes to conflict
- Concept of time
- Approaches to knowing and ways of knowing

## 2. How might you make the following data collection methods more culturally sensitive?

- Written questionnaire
- Mailed survey
- Observations
- Interviews

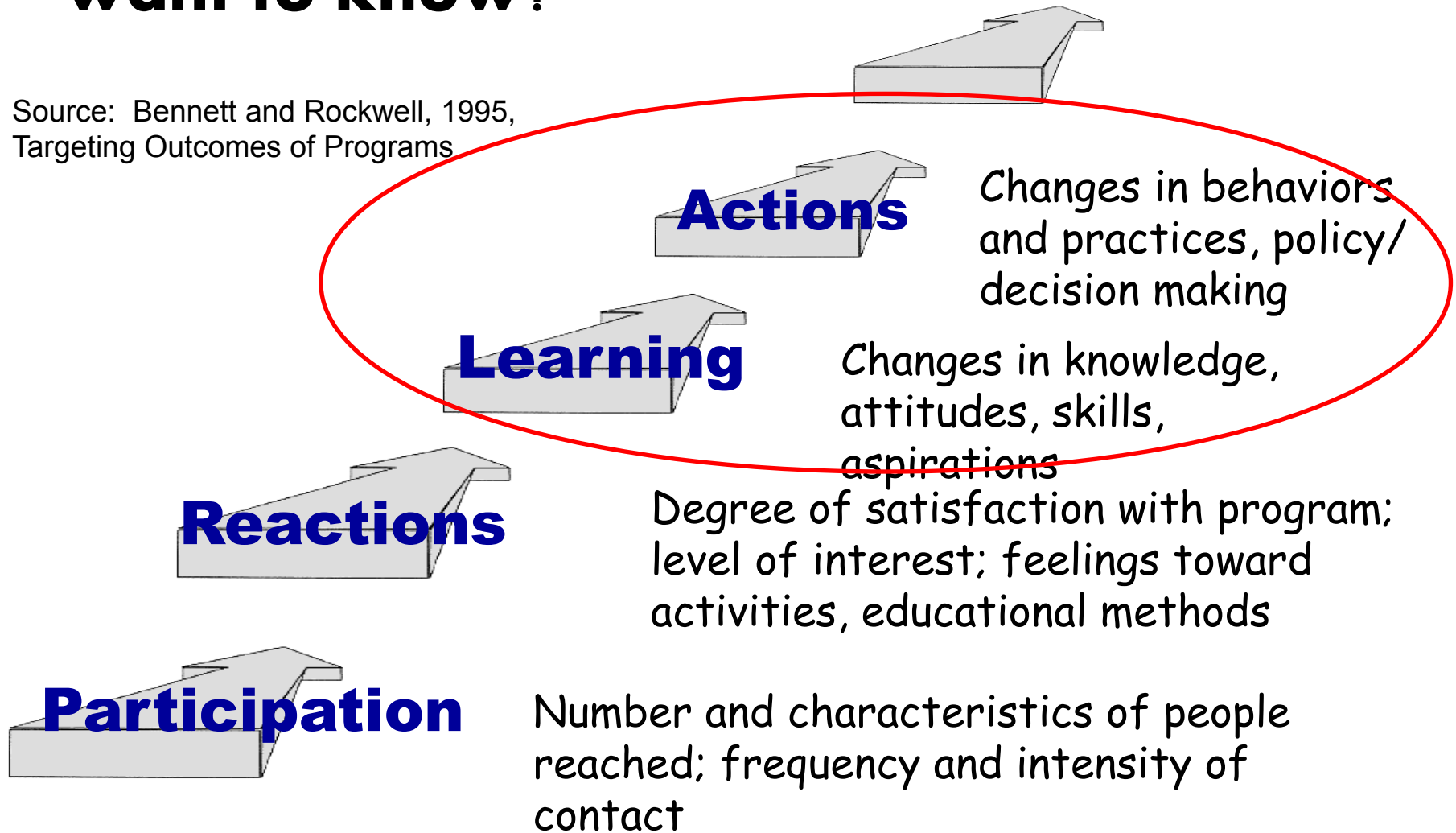
# **Focusing Your Outcomes Evaluation**



# What do you want to know?

## Social-economic-environmental impacts

Source: Bennett and Rockwell, 1995,  
Targeting Outcomes of Programs



# Define Intended Outcomes that are...

## REASONABLE

- connected in a logical way to your program activities?

## REALISTIC

- achievable given the situation and resources/inputs

## IMPORTANT

- represent an important change that is valued by participants and key stakeholders

# Outcome Indicators

**If the outcome is achieved, how will you know it?**

**What will it look like?**

**What is the evidence?**

Criteria:

- Tangible
- Specific
- Useful
- Practical
- Culturally responsive
- Adequate

# Logic model with Indicators



## Activities

## Outcomes

**Program implemented**

**Targeted growers**

**Growers learn**

**Farmers adopt new techniques**

**Farm profitability increases**

**Number of workshops held**

**Quality of workshops**

**Number and percent of growers attending Extension activities**

**Number and percent who increase knowledge of...**

**Number and percent who now practice research-based techniques**

**Number and percent reporting increased profits; amount of increase**

# Sustainable Food Systems

***Intended Outcome:*** Enhanced food system capacity, including new/improved plants, animals, technologies and management systems.



## Outcome Indicators:

- # of new/improved plant releases
- # of improved animal genetics
- # of producers who report adoption of recommended practices (those that increase yields, efficiency, and economic return, reduce inputs, and conserve resources)



# SFS Economics

***Intended Outcome:*** UC ANR programs serving growers and ranchers have contributed to their realizing lower production costs and/or higher return on investment.



**Outcome Indicator:** “Pistachio owner/operators, with orchards covering 50,000 acres, have begun to utilize mechanical pruning instead of labor-based cultural practices, which reduce their management costs from \$200 per acre to about \$50.”



# Endemic & Invasive Pests & Diseases

***Intended Outcome:*** Increased use of research-based IPM practices.

## Outcome Indicators:

- #of program participants that gained the skill to identify natural enemies
- # of program participants that increased use of reduced-risk pesticides
- # agencies that incorporate science-based information into city wide policy



# Sustainable Natural Ecosystems

***Intended Outcome:*** Farmers increase native bee populations on agricultural land.

## **Outcome Indicator:**

“There are 18 newly established acres of native bee habitat on the treatment farms. While more study is required, it appears these habitats are working to increase native bee populations on treatment farms, and may

be supporting increased populations of native



# Water Quality, Quantity & Security

***Intended Outcome:*** Participants in UC ANR programs adopt research-based recommended practices for water conservation.

## **Outcome Indicator:**

# “professional irrigation associations and landscape irrigation leaders adopted use of the new simplified landscape irrigation demand estimation procedure I taught and are now more effectively managing and conserving water in landscapes.”



# **Group Discussion**

***Intended Outcome: Growers have expanded economic opportunities.***

*What are some possible outcome indicators?*

# **Focusing Your Outcomes Evaluation Exercise:**

## ***Step 2 Define Intended Outcomes & Step 3 Identify Indicators***

### **1. On your own**

- **Write intended program outcome(s)**
- **Identify measureable indicator(s)**

### **2. Partner interview**

- **What do you (and stakeholders) want to know about your program, and how you will know?**

### **3. Group sharing**

**Practical Methods  
for Evaluation Data Collection  
to Measure  
Program Benefit to  
Participants**

# Your sources of evaluation information

**Most often  
your program  
participants!**

**Other sources may  
include:**

- Existing data
  - Program records, sales records, etc.
  - Pictures, charts, maps, pictorial records
- Others/Non-participants
  - Key informants
  - Funders
  - Collaborators

# **Extension Evaluation Data Collection Methods**

- **Document review**
- **Observation**
- **Interview**
- **Group assessment**
- **Survey**

## **OTHERS:**

- **Case study**
- **Diaries, journals**
- **Expert or peer review**
- **Portfolio review**

## **MIXED METHODS:**

- **Convergent**  
**Exploratory**



# Document Review

## Use it for:

- ✓ Behavior change
- ✓ Quantitative data
- ✓ Qualitative data

## Content analysis of existing information

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# Document Review

## Use it for:

- ✓ Behavior change
- ✓ Quantitative data
- ✓ Qualitative data

## Content analysis of existing information

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- Sales records or use records
- Little to no participant burden
- If possible, get pre and post data for comparison

# Document Review

## **UC IPM & MG example:**

“The four local Orchard Supply Hardware stores have a “quick tip” card holder kiosk at the end of each pesticide aisle and “shelf talkers” identifying less-toxic products. OSH reported a 12 percent increase in the sale of less-toxic products compared to the more-toxic alternatives.”

# Document Review

Using submitted use records to evaluate IPM adoption and water quality outcomes for a decade of training city and county landscape professionals



# Observation

**Seeing & listening!**

## Use it for:

- ✓ Skills gained
- ✓ Behavior change
- ✓ Qualitative data
- ✓ Quantitative data, if systematically collected

# Observation

## Use it for:

- ✓ Skills gained
- ✓ Behavior change
- ✓ Qualitative data
- ✓ Quantitative data, if systematically collected

## Seeing & listening!

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- You likely already do it!
- Less to no participant burden
- When there is physical evidence that can be readily seen
- When written or other data collection procedures seems unnecessary
- Pre/Post approach for comparison

# Observation

## Field Notes

- Least structured way
- You can commit observations to memory and make notes later
- Carefully record date, location, relevant information
- Leave a wide margin for analysis later
- Consider creating a simple database to pull out participant outcomes to later report



# Observation





# Observation

**Use of  
spotted  
wing  
drosophila  
traps**



# Observation

## Observation Checklist

- Tool to document what you've seen & heard for later evaluation write-up
- Clip board in the field or later in the truck
- Organizes data collection for quantification

# Observation sheet for Winter Feeding and Extended Grazing

Observer: Virginia Tech example Date: \_\_\_\_\_

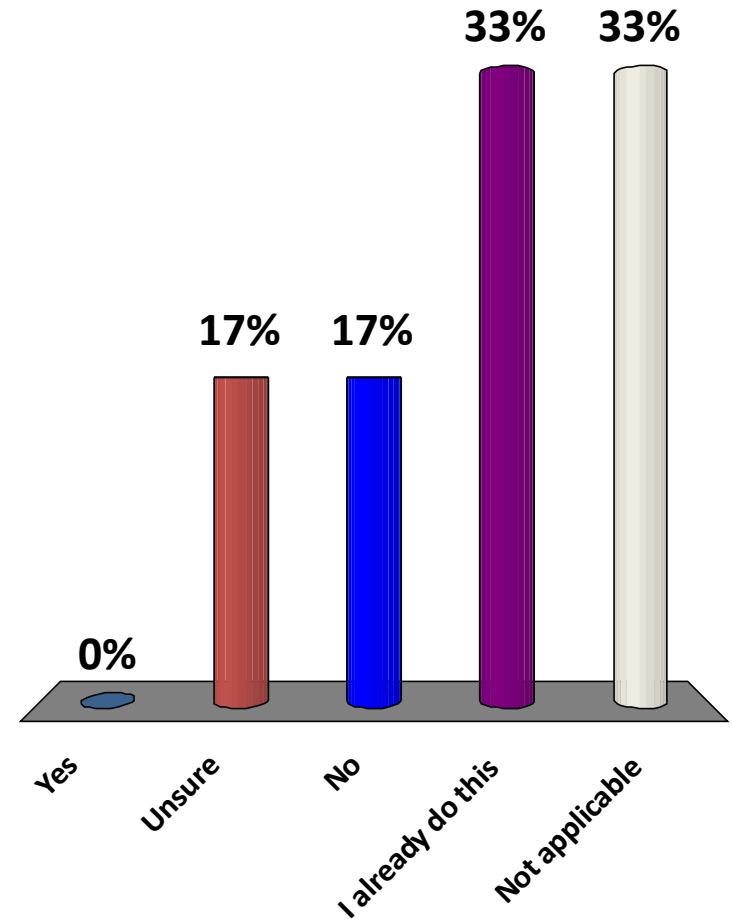
Audience: \_\_\_\_\_ Location: \_\_\_\_\_

Did you observe the following practices during the on site farm visit?

<b>Extended Grazing</b>	<b>YES</b>	<b>NO</b>	<b>EXPLAIN</b>
Stockpiled pasture for extending fall grazing			
Grazing or baling of crop residues			
Using annual crops for summer or extended fall grazing (type of crop)			
Limit-fed grain supplementation (when, how much?)			

# Are you interested in using an observation checklist to measure outcomes?

- A. Yes
- B. Unsure
- C. No
- D. I already do this
- E. Not applicable



# Observation

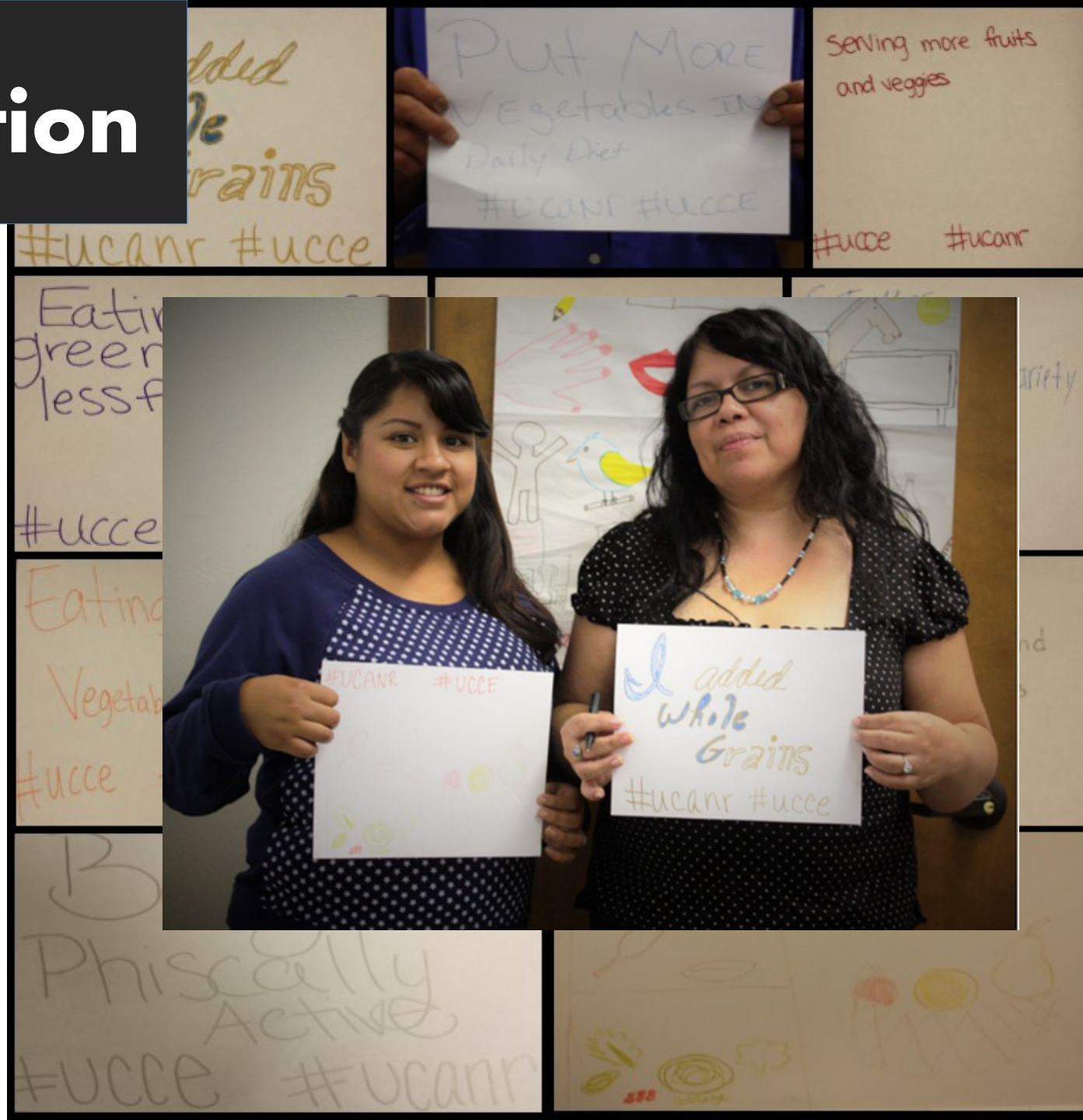
## Photograph/Video

- Present powerful visuals to illustrate behavior change or adoption
- Can be documented by volunteers, participants, YOU!
- Can be analyzed using matrices/rubrics (e.g. youth photo journals)



# Observation

Participants document outcomes using #healthyselfie



# Interviews

## Talking and listening to people

### Use it for:

- ✓ Self-reported knowledge, attitude, behavior changes
- ✓ When surveys inappropriate
- ✓ Qualitative data
- ✓ Some quantitative data

# Interviews

## Use it for:

- ✓ Self-reported knowledge, attitude, behavior changes
- ✓ When surveys inappropriate
- ✓ Qualitative data
- ✓ Some quantitative data

## Talking and listening to people

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- Range from free-flowing, semi-structured, tightly structured
- Helpful to create an interview protocol for consistency
- Can also ask about impact, unintended outcomes, as well as process evaluation questions (ideas for improvement or barriers to implementation)



# Interviews

50 % adoption  
(over time)  
of new nitrogen  
guidelines  
discovered  
through informal  
interviews  
with growers

- Some adopted the practice early on, many more during the dry winters (and subsequent nitrogen burn from pre-plant fertilizer).
- Informal interviews in fields with pointed questions about nitrogen use and total acreage.

# Interviews

## California Naturalist Program

### Formal interviews

- Collect consistent data overtime; using the same questions
- IRB

UpdatedQuestions\_PrelimReview\_CalNat\_2017\_DCca\_sld - Word

Sabrina Drill

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California Naturalists Project Interview Summer 2017

Location: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

[Interviewer](#)

Version for current CC participants

**Background**

1. General demographic questions (age, ethnicity, etc. -this could be a given already)
2. Which Conservation Corps Program are you participating in? How did you find out about it?
  - a. What factors motivated you to participate?
3. When did you first develop interests in the things that made you to want to participate in the program?
4. Growing up, did your family participate in nature-based/outdoor activities ?
5. Growing up, were you interested in nature and/or science?
6. What are some environmental issues facing your community?
  - a. How do you engage with them?
7. Are there particular environmental issues that are important to you (for example, climate change, energy consumption/carbon footprints, water quality (or clean air etc.), air quality, habitat loss, trash and recycling, etc.??)? If yes, what are they and why?
8. Do you see yourself as someone who knows about the environment?

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# **Group Assessment**

**Uses group processes  
such as focus groups &  
forums**

## **Use it for:**

- ✓ Self-reported knowledge, attitude, behavior change
- ✓ Qualitative data
- ✓ Some quantitative data

# Group Assessment

## Use it for:

- ✓ Self-reported knowledge, attitude, behavior change
- ✓ Qualitative data
- ✓ Some quantitative data

## Uses group processes such as focus groups & forums

---

- Group processes foster trust and relationship-building in addition to the activity's goals
- Costly (time/personnel) to analyze
- Piggy back off existing meetings
- 4-10 people for in person
- Can also ask about impact, unintended outcomes, as well as process evaluation questions (ideas for improvement or barriers to implementation)

# Group Assessment

## Assessment for UC IPM Program Strategic Planning: Questioning Route for Pest Control Advisers Focus Group

**TOPIC: Current Usage**

### Opening Question

- Please tell us your name, who you work for, the general area and crops in which you work, how long you have been a PCA, and how long you have been interacting with the UC IPM program.

### Transition Question

- How did you learn about the UC IPM program and the information it offers?

### Key Questions

- Which UC IPM products do you use? How do you use them? How often?
- Prompts for *facilitator only* – specifically do they use the following: sections of the PMGs on water toxicity information; air quality information, natural enemies/bees chart, pesticide recommendations table, year round program information, manuals, degree day models, etc.
  - *Probes:* What value do you find in these products? What has been particularly helpful? What has been particularly frustrating?

# Group Assessment

# Ripple Effect Mapping

- Appreciative Inquiry
- Intended and unintended outcomes
- Participatory
- Visual
- Qualitative analysis

MG ripple effect picture.PDF - Adobe Acrobat Pro

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Tools Fill & Sign Comment

## Connecting Extension Master Gardeners with Historically Underserved Communities: Strategy and Outcomes

Sarah Jayozsok and David Moen, Extension Master Gardener Program  
Melvin Giles, Community Liaison and Extension Master Gardener Program  
Scott Chazdon, Extension Center for Community Vitality KJ Alvarez, Extension Center for Family Development

UNIVERSITY OF MINNESOTA EXTENSION

### Background


The Ramsey County Extension Master Gardener program has been intentional about extending resources and services to all Ramsey County residents, especially those living in the historically underserved Frogtown and Rondo neighborhoods in St. Paul. Because these neighborhoods are very diverse in population and the Extension Master Gardener program is not a community organizer, Melvin Giles, was hired as a community liaison to guide the program. He connected Master Gardener volunteers with community members, and perhaps most important, legitimized the program and volunteers in their presence. He started the key process of building local relationships, something necessary before any programming could be successful. These relationships are founded on mutual learning and respect for the knowledge, resources and programs already existing in the community. Side-by-side, Master Gardeners and community members worked to grow existing gardens and projects. Over time, they have created new gardens and new opportunities in the community.

### Strategy

- Build upon pre-existing Extension networks and diversity efforts in Frogtown and Rondo
- Hire a cultural liaison to guide our presence in the community
- Build relationships, trust and meaningful community connections
- Share garden information and resources to benefit the community
- Conduct Ripple Effect Mapping to show the effects

### Goals Specific to Ramsey County Extension Master Gardener Program

1. To increase the cultural competency of Master Gardener staff and volunteers
  - Through relationships that developed and from intercultural competency training...Master Gardeners have more skills and conceptual understanding for working...in the community.
2. To provide equal access to Master Gardener services and information for all diverse cultures in Ramsey County
  - We are now working with residents in 30+ community gardens—and increasing the formal educational opportunities there—so the Ripple Effect results show.
3. To increase the number of ethnically/racially diverse Master Gardeners
  - Since 2009, the number of Extension Master Gardener volunteers coming from the community have increased from 1 to 10



*"It is evident that Extension Master Gardeners have really become a part of the fabric of the Frogtown and Rondo communities and are seen as a resource for the community."*

Ripple Effect Mapping (REM) is a participatory method for community impact evaluation that engages program and community stakeholders to retrospectively and visually map the "performance story" resulting from a program or complex collaboration. The method provides a visual map of accomplishments, aligning connections between activities and outcomes and facilitating collective brainstorming and reflection.

For more information about REM: [http://www.extension.org/ripple-effect-mapping](#)

### Providing access to garden knowledge

As relationships and trust grew, they shared their knowledge and resources with community members—informally and formally, in backyards and community gardens. Now Master Gardeners are seen as a resource for garden knowledge and are sought to assist with community projects.

*"Master Gardeners worked through the Peace Garden to bring plans and suggestions to other neighborhood gardens."*

*"Together with PPL, the strategy is to work with kids living in PPL properties to reach the adults."*

*"We have requested a train-the-trainer program from Master Gardeners."*

*"We leveraged access to Master Gardeners to get a hoop house (for Gordon Park High School)."*

### Nurturing teaching and learning

After trusting relationships formed, community members started to ask for garden information. As a result, Master Gardeners now teach and assist, directly or indirectly, with over ten garden programs in the neighborhood.

*"We're helping in the Peace Garden, teaching the kids to know, grow and eat vegetables."*

*"I've learned how to compost, how to grow my own soil."*

### Creating economic opportunities

Community members said the gardens fostered economic benefits, an unexpected "ripple" that resulted from the relationships and networks that developed.

*"Access to free produce increases the ability to feed families, friends and neighbors."*

*"Providing economic alternatives for youth"*

### Preserving and creating green spaces

As relationships developed, Master Gardener energy added to the community's own energy for creating and preserving green spaces in the city. The community itself has gone on to create some large-scale, open-space gains.

*"I'm proud of our acquisition of Frogtown Park and Farm, a good investment not centered around crime and poverty."*

*"People are starting to think about how to look at the space as more than just a space for businesses"*

### Promoting broader community activism

Gardeners create a space and opportunity for community organizing on broader issues. Community members and Master Gardeners cited greater awareness of social justice issues that link gardening with community action.

*"Urban farming connected us back to our environment. If our soil isn't healthy, then everything else isn't going to be healthy."*

*"He thought everyone gardened, but once he connected he saw a NEED for community gardeners. He became a voice with Summit-University planning committee and became a Master Gardener."*

### Changing how universities engage with the community

Stronger, trusting relationships make it possible to have dialog about perceptions and difficult issues. Doing so starts to address barriers that keep people from engaging with programs, institutions, and communities. It is cause for examining how institutions structure programs, relate to individuals, and execute projects. This often means adapting to better meet the community.

*"Diversity isn't just having people of color engaged, it is having people of color in leadership roles..."*

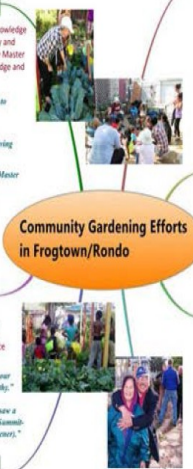
*"We tried to take University rules and make exceptions to do better work in the community"*

### Strengthening relationships

With the help and guidance of a community liaison, Extension Master Gardeners developed relationships founded on mutual learning and respect for the knowledge already held in the community. They started by just being present. Over time, being together in the gardens, sharing food, and "showing up" led to strong connections and meaningful impacts.

*"The first year Master Gardeners just needed to learn to be present."*

### Community Gardening Efforts in Frogtown/Rondo



# Survey

**Collecting standardized information through structured questionnaires**

## **Use it for:**

- ✓ Knowledge change
- ✓ Self-reported knowledge, attitude, behavior change
- ✓ Qualitative data
- ✓ Quantitative data

# Survey

## Use it for:

- ✓ Knowledge change
- ✓ Self-reported knowledge, attitude, behavior change
- ✓ Qualitative data
- ✓ Quantitative data

## Collecting standardized information through structured questionnaires

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- Fast and cheap
- Typically used for participant reaction, but potential for much more!
- Consider using for in person and online Extension activities
- People are over surveyed consider adding an incentive or use clickers for better engagement
- Qualtrics!
- Always test your survey (cognitive interviews)



# Survey

## Incentives?!



# Survey

## Pre/Post

- Survey participants at the beginning and end of activity
- Objectively measures learning gain (limited)
- Comparison data allows for attribution of learning gain to the Extension activity
- Can use clickers

# Survey



The snail pictured above is a: \*

- White garden snail
- Brown (European) garden snail
- Decollate snail
- Amber snail
- I don't know



The snail pictured above is a: \*

- White garden snail
- Brown (European) garden snail
- Decollate snail
- Amber snail
- I don't know

# Survey

## Post with Retrospective-Pre

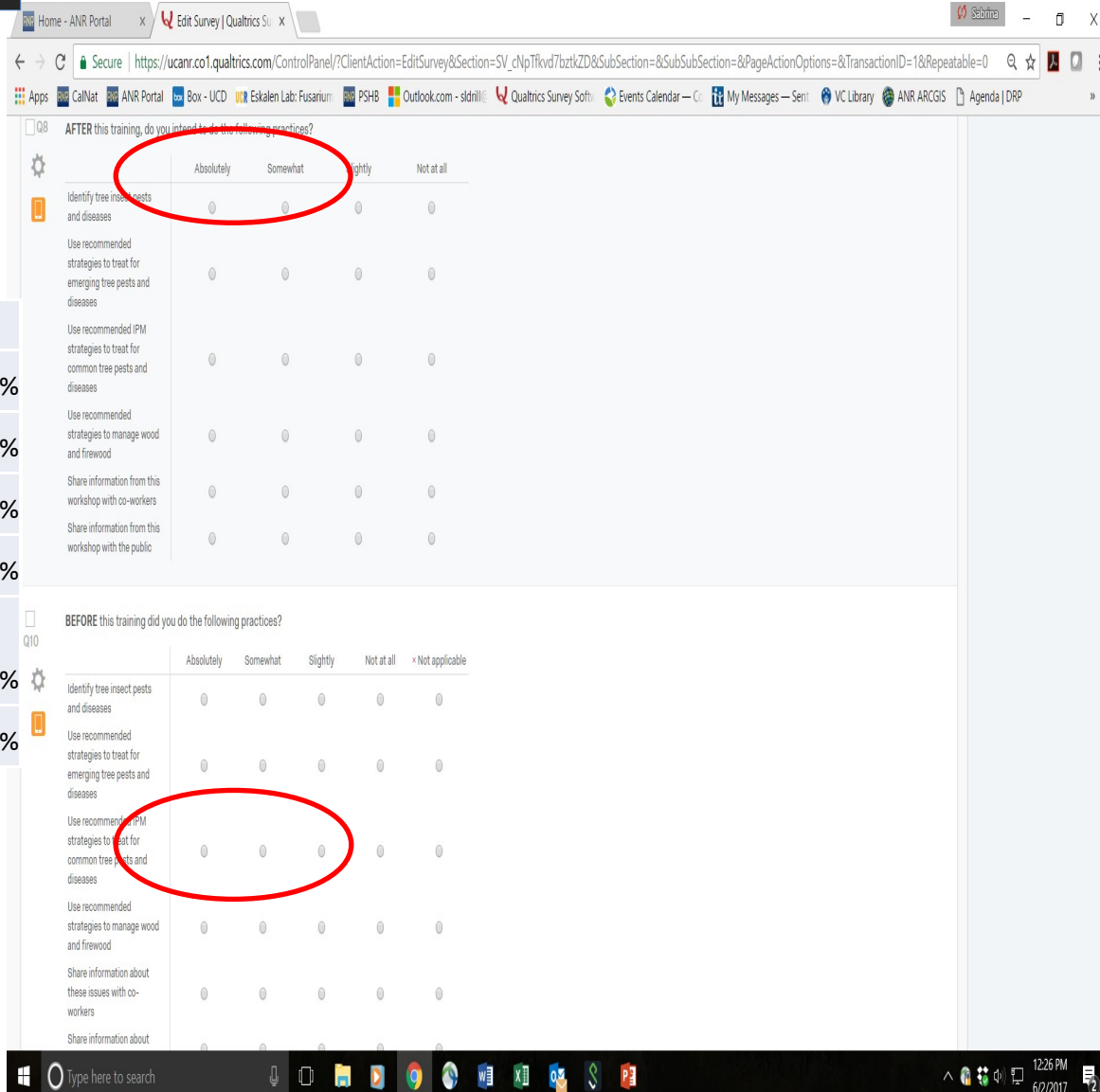
- Survey participants at end of activity only
- Measure self-reported learning gains AND changes in skills, attitudes, intent to adopt, etc.
- Comparison data allows for attribution of gains to the Extension activity
- Respondent bias

# Survey

# Shot-hole Borer Workshop

## On-site (or shortly after) survey with retrospective questions

Practice	Abs Before	Abs After	#VALUE!
ID pests	29.00%	63.00%	34%
Treat emerging	25.00%	54.00%	29%
Treat common	27.00%	57.00%	30%
Manage wood	32.00%	75.00%	43%
Share to co-workers	37.00%	85.00%	48%
Share to public	40.00%	78.00%	38%



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Secure | [https://ucanr.co1.qualtrics.com/ControlPanel/?ClientAction=EditSurvey&Section=SV\\_cNpTtkvd7bztKZD&SubSection=&SubSubSection=&PageActionOptions=&TransactionID=1&Repeatable=0](https://ucanr.co1.qualtrics.com/ControlPanel/?ClientAction=EditSurvey&Section=SV_cNpTtkvd7bztKZD&SubSection=&SubSubSection=&PageActionOptions=&TransactionID=1&Repeatable=0)

Q8 AFTER this training, do you intend to do the following practices?

	Absolutely	Somewhat	Slightly	Not at all
Identify tree insect pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to treat for emerging tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended IPM strategies to treat for common tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to manage wood and firewood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share information from this workshop with co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share information from this workshop with the public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 BEFORE this training did you do the following practices?

	Absolutely	Somewhat	Slightly	Not at all	Not applicable
Identify tree insect pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to treat for emerging tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended IPM strategies to treat for common tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to manage wood and firewood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share information about these issues with co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share information about	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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# Implementing the Grape Powdery Mildew Index in Foothill Vineyards

2. Prior to this presentation, had you visited the UCIPM powdery mildew page with the Amador and El Dorado stations? (Yes/No)

3. Since this presentation, will you visit the UCIPM powdery mildew page with the Amador and El Dorado stations? (Yes/No/Maybe)

## RESULTS:

**2013:** Electronic ANR survey sent after workshop via email. 24/104 responded (23%). 83% of respondents said they would visit the UCIPM powdery mildew webpage SINCE my presentation, up from 29% who said they had visited PRIOR to my presentation.

**2014:** Paper survey given at workshop. 20/90 responded (22%). 90% of respondents said they would visit the UCIPM powdery mildew webpage SINCE this presentation; up from 50% of respondents who said they had visited the page PRIOR to my presentation.



# Quantifying Potential Impact Using Cost Study Data

Conversations with vineyard managers revealed they are looking at the PMI index-some are using it and think they saved a spray. We showed in trials that we saved one spray using the index during that particular season.

If one applied spray costs \$82/acre  
(cost study referenced),  
one fewer spray on  
8,000 acres, estimated  
winegrape acreage  
in the MCP,  
= \$ 656,000 saved!



# Survey

## Follow-Up

- Highly recommended practice
- Can measure self-reported behavior change
- 3-6 months, but it depends!
- Mail, online, phone
- Can identify barriers to participant implementation
- Standalone or combine with a pre/post or post/retro-pre survey



# Survey

Online educational materials evaluated with follow-up survey

Downloadable at no cost, but asked for name, email, employer, city, and state to gather evaluation information

Did you increase your knowledge on the use of pesticide handling best management practices to protect water quality?

75% (9/12) Yes

17% (2/12) No

8% (1/12) Did not answer

# Survey

Content by  
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UCCE-IA  
[http://celosangeles.ucdavis.edu/Natural\\_Resources/Wildland\\_Fire.htm](http://celosangeles.ucdavis.edu/Natural_Resources/Wildland_Fire.htm)  
 phone #323-260-2267

or contact

Los Angeles and San Gabriel Rivers Watershed Council  
<http://www.lasgrwc.org>  
 phone #213-229-9945

Now that 2008 is over, save this calendar as a seasonal guide to fire safety.

calendar cover photo: scott vickus

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# Follow-up survey sent as part of Extension product

**JUNE**  
 Give your leafy stems a vacation with a color boost. Leaf droppers like pansies and begonias will first react to the dry and hot weather. They are also a fire hazard due to higher heat and sparks.

**REVIEW SUMMER VEGETATION MAINTENANCE**

- Water appropriately to maintain healthy leaf moisture without encouraging excess growth.
- Hand-prune the ends or branches of shrubs to reduce fuel of growth. Remember, edging and clearing stone steps in shade, too, to grow and move fuel.
- Stay ahead of weeds by maintaining a regular schedule of hand pulling or weed whiping before the seeds mature, to reduce the hazard and increase seed banks.
- Water plants to suppress weeds.
- Do weeds and other debris that has collected in your car gutters can be dangerous and create a fire risk. Clearing your car gutters regularly can prevent this from being a threat.
- For general landscape maintenance and irrigation information, check out the [Landscape Caregivers' Association](#) or visit the [University of California's online database of Southern California Climate Plant Guides](#).

**KEEP YOUR PROPERTY FIRE-SAFE WHEN ON VACATION.** You can take a vacation this summer with less worry if you take some preventive measures before leaving to ensure your house is fire-safe.

- Close window shades if you have them.
- Check your smoke detectors to make sure they are functioning before you leave on vacation and when you return. Batteries could get dead or the components could be under your house.
- Check to make sure that all stoves and have been turned off or disconnected.
- Turn off all unnecessary appliances and make sure everything that could cause a fire in this equipment while you're away.
- Put out irrigation systems on timer, or leave an auto-irrigation timer your property if and when needed to help maintain plant health and the landscape.
- Make sure all flammable materials are stored completely away from the exterior of your home.
- Leave your house and call back with a neighbor or relative in case of emergency.

**FEATURED PROBLEM PLANTS OF THE MONTH**  
 Spanish Broom (Scaevola taccada)  
 Yellow Broomrape (Sarcocolla aurea)

**Spanish Broom:** Once considered a pest to maintain plant shrub with sharp spines to barbs and golden yellow flowers. Spanish Broom (Sarcocolla) is a perennial shrub with upright branches and light yellow flowers. They can be found throughout the southern coastal counties of California. Spanish Broom is a highly invasive species and the native plant competitors, and threatens as the habitat for the species. Planting with seed heads that attracts for animals combined with cover crops of photosynthetic capacity, reduce habitat competition with the seed and reduce the ability of animals to eat them. Seed dispersal is done by birds, but as seeds, the seed to take into property and to back their barbs and help in fire management zones.

**JUNE 2008**

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7	
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	
29	30						

We hope you enjoyed this SAFE-Landscapes Calendar! Please take a few minutes to answer these questions so that we can improve our program!

Do you live in or own property in the wildlife-urban interface?  Yes  No

Please rate the following: (circle one)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Agree
1. I found this calendar useful	1	2	3	4	5
2. Information in this calendar was new to me	1	2	3	4	5
3. I liked having the information in a calendar format	1	2	3	4	5
4. I am saving this to review in future years	1	2	3	4	5
5. I would have preferred to get this information in another format	1	2	3	4	5
6. I still feel the need for more information	1	2	3	4	5
7. I am changing/have changed my landscape because of this calendar	1	2	3	4	5
8. I am more concerned about invasive species	1	2	3	4	5
9. I have taken invasive species out of my landscape	1	2	3	4	5
10. I avoided buying any invasive landscape plants	1	2	3	4	5

Do you recommend any additional topics?

# Survey

## Follow-up survey: Watershed University 3-5 years later



Welcome to the Watershed U. evaluation survey. We really appreciate your guidance as we work to expand and improve the Watershed U. program.

Which Watershed U. Course(s) did you participate in?  Arroyo Seco (2003)  Santa Clara River (2005)

**Knowledge/Learning**

I learned valuable information at Watershed U.  Strongly agree  Agree  No opinion  Disagree  Strongly disagree

I learned information that would have been harder to find without Watershed U.  Strongly agree  Agree  No opinion  Disagree  Strongly disagree

Please share any examples from the questions above

Were there any additional topics you wish we had covered, or covered in more detail? Please describe.

My effectiveness in watershed work increased due to my participation in Watershed U.  Strongly agree  Agree  No opinion  Disagree  Strongly disagree

Please share any examples of ways in which your participation in Watershed U. increased your success in watershed activities.

# Survey

## Post, Retrospective Pre, and Follow Up

**BEHAVIORS:** Identify natural enemies, use reduced-risk pesticides

**SCALE:** Not at all, Slightly, Somewhat, Absolutely, Not applicable

### QUESTIONS

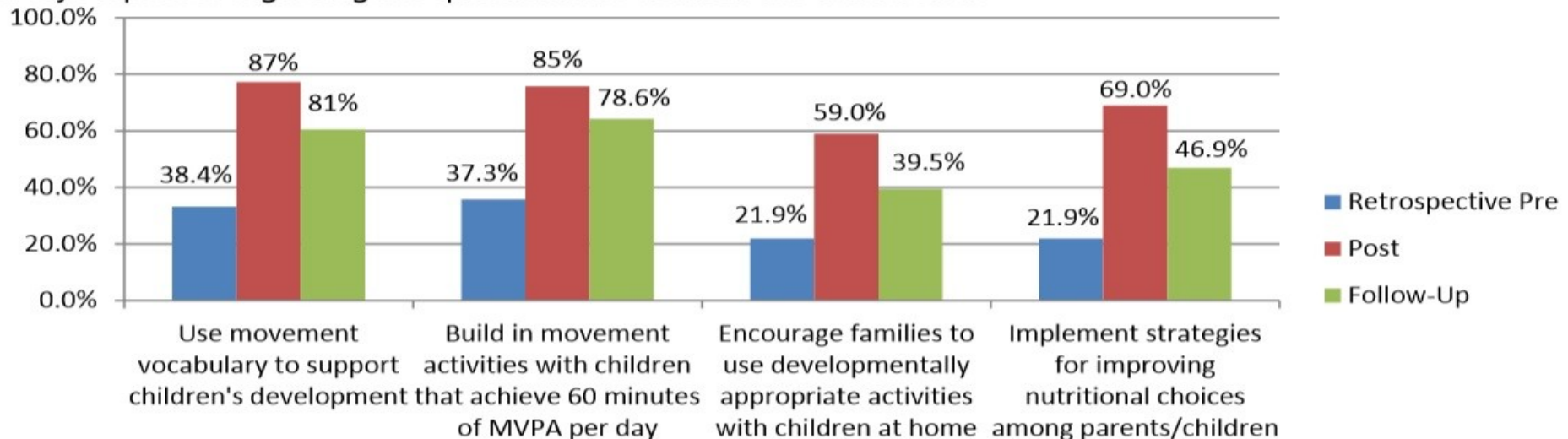
- AFTER the training, do you intend to do the following practices?
- BEFORE the training, did you do the following practices?
- [Several months later]: Do you do the following practices?

# Survey

## Post, Retrospective Pre, and Follow Up

- Compare pre responses with more conservative follow up responses
- Consider lumping positive and negative for data visualization:

Positive and significant changes ( $p < 0.01$ ) occurred between retrospective pre-, post-, and follow-up training survey responses regarding the questionnaire items in the chart below:



# Survey

## Analyzing pre/post/follow up data:

- **Numerical data: T-tests, etc.**
- **Everything else: Change scores**

*Assume a rank to each response category (not at all=1, slightly=2, somewhat=3, absolutely =4). Subtract the follow up response and the pre response for each participant to see if individuals progress from a lower level or a higher level. You can report the number of individuals who progress for each question.*





*Example in the works:* **Measuring success to increase pesticide application understanding and adoption of good spraying practices within management structures.**

- Retrospective pre-post survey after trainings
- Follow-up survey at the end of the season (non-paired for feasibility)



# Mixed Method

# Mt. Diablo Region

Self-Confidence:

Change in the % of respondents that strongly agree they are capable of making a positive impact on the environment from pre to post course

36.3% pre  
81.8% post

## 2017 California Naturalist Course Scorecard

Plan to Volunteer

100%  
(n=11)

### General Stats:

- Number of Courses & Participants: 33
- Graduation Rate: 94% (31/33)
- Evaluation Response Rate: 33% (11/33)
- Course History: 2017 (first course)

### Evaluation tools:

- Retrospective survey
- Interviews with select groups
- Focus group with instructors
- VMS to record hours, activities, 2<sup>o</sup> contacts, acres

Overall Satisfaction: (satisfied + very satisfied)

82%



University of California

Agriculture and Natural Resources

California Naturalist Program

# Data Collection Plan Exercise

## *Step 4 Determine Sources of Information*

### *Step 5 Choose Methods*

#### 1. **Complete your data collection plan:**

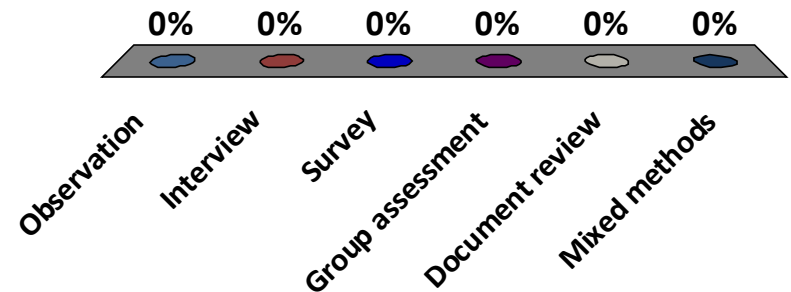
- Write down what methods you think would work well for you and your clientele.

#### 2. **Partner interview:**

- *Why did you chose this evaluation method(s)?*
- *What questions/concerns do you have that others may be able to help with?*

# What evaluation method are you most interested in using?

- A. Observation
- B. Interview
- C. Survey
- D. Group assessment
- E. Document review
- F. Mixed methods



# Qualitative Data

## Why ask open-ended questions in surveys, interviews, and focus groups?

- To explore respondents' thoughts and opinions
- To collect more context or detailed information on successes, challenges, barriers, etc.
- When you don't know what close-ended response categories to use

# Practical Approach to Analyzing Qualitative Data

1. Organize data all in one place
2. Read through open-ended answers & identify emergent themes
3. Develop *codes* to categorize data
4. Apply *codes* to each response
5. Count repetitions of *codes* & highlight representative responses for *code*
6. Interpret results (more than description) -- with colleagues!

# Group Exercise

1. Review end-of-session/workshop evaluation data example
2. Practice developing *themes/codes*
3. Apply *themes/codes*

# Qualitative Analysis

“Gold Standard” = same steps but working with a team

1. Decide on how to *code* each line or quote.
  - Pre-existing list vs. emergent list (commonly used); or combo
2. First and a second team member “code/index” each line of data. Apply the categories to every single line of data.
3. Compare each person’s coding to ensure that you coded in the same way. Discuss discrepancies. Finalize list of codes.
4. Additional team members repeat steps 2& 3.
5. Review and summarize the data that falls under each code.
6. Interpret.

✎ **The more people, the more “validated” your coding.**



# Some things to remember...

- There is no one right method for collecting evaluation data
- Each has a purpose, advantages and challenges
- Consider purpose, participants, and resources available when selecting you method
- The goal is to obtain trustworthy, authentic and credible evidence
- Often a mix of methods is preferred

# **Evaluation Methods**

## **Group Reflection**

Given what you discussed in small groups, is there something you might change or do differently in your approach to measuring outcomes?

# Extension Evaluation Resources

- New Evaluation CE Specialist COMING SOON!
- ANR CE Program Evaluation Resources <http://ucanr.edu/sites/CEprogramevaluation/>
- Toolkit for Assessing IPM Outcomes & Impacts <http://ipmimpact.ucanr.edu/>
- University of Wisconsin-Extension Program Development and Evaluation  
<http://www.uwex.edu/ces/pdande/index.html>
- Collecting Evaluation Data: An Overview of Sources and Methods  
<http://learningstore.uwex.edu/assets/pdfs/g3658-4.pdf>
- Using Research Methods to Evaluate Your Extension Program <http://www.joe.org/joe/2002december/a1.php>

**“Measure what you value  
and others will value what  
you measure.”**

-- John Bare,  
The Arthur M. Blank Family Foundation