

Practical Methods to Measure Outcomes

2019

Katherine Webb-Martinez, Associate Director, UC ANR Program Planning and Evaluation

Vikram Koundinya, Evaluation CE Specialist, Dept. of Human Ecology, UC Davis

With presentations from:

Chris Greer, Integrated Pest Management Advisor, San Luis Obispo County

Sheila Barry, County Director & Livestock/Natural Resources Advisor, San Francisco Bay Area

Marcel Horowitz, Healthy Families and Communities Advisor, Capital Corridor

Deepa Srivastava, Nutrition, Family & Consumer Sciences Advisor, Tulare and Kings Counties

Tom Turini, Vegetable Crops Advisor, Fresno County

Agenda

HOW TO...

Plan for Evaluation

- **Develop Your Program Theory and Connect to ANR Condition Changes and Public Value**
- **Do you need Institutional Review Board approval?**

Focus your Evaluation

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

Choose Evaluation Data Collection Methods

- **Select Practical Options to Collect Evaluation Data for Your Activities**
- **Ensure Culturally Competent Evaluation**

Analyze your Outcomes Data

- **Tips**
- **How to Incorporate Qualitative Evaluation**

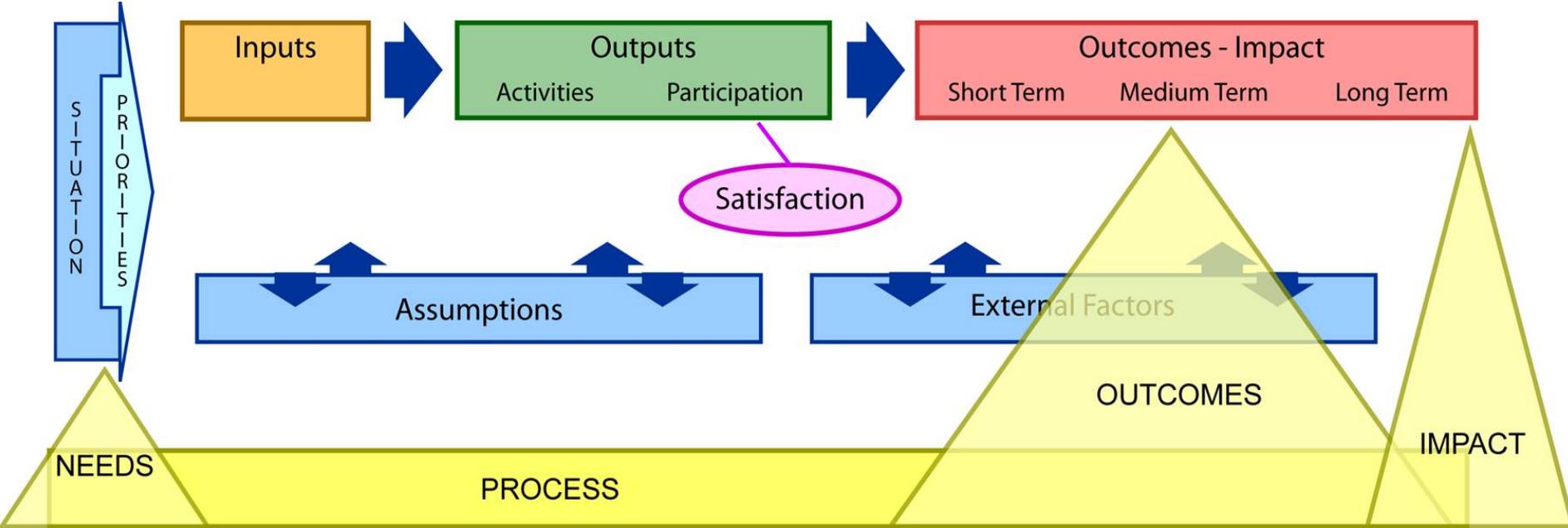
Desired Outcomes

Participants will gain...

- experience defining your program theory, and understanding of how to incorporate ANR's condition changes and public values
- understanding of why, when, and how 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
- understanding of basic approach to qualitative data analysis

Why & How To Use Outcomes Data

- Program improvement
- Program support
- Accountability
- Communications
- Merit and promotion
- Publications



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?

Defining Terms for Outcomes Evaluation

Differentiating Outcomes from Outputs

- **Outcome** is something that *comes out of a program*
- **Output** is *under the control of educator*, whereas outcome is not under the full control of educator.

(Davidson, J. E., 2016)

Examples of Outputs

What you do:

- Workshops
- Field Days
- Meetings
- Services
- Videos
- Blog posts
- Brochures
- Factsheets
- Curriculum
- Evaluation activity
- Working with media

Participation/Who you reach:

- Participants
- Clients
- Agencies
- Decision-makers
- Customers
- Satisfaction

Examples of Outcomes

- Awareness
- Knowledge
- Perceptions
- Attitudes
- Skills
- Behavioral intention
- Behavior
- Practice
- Decision-making
- Policies
- Social condition changes
- Environmental condition changes
- Economic condition changes

UC ANR Project Board & E-Book Definitions: for academic program review and reporting

Outcomes/Impacts

- changes in **learning** (knowledge, attitudes, or skill)
- change in **action** (behavior or practice)
- changes in **policy or decision-making** (science-based information applied to decision-making or results from policy engagement)
- changes in **conditions** (social/health, economic, environmental)

Differentiating Outcomes from Impact

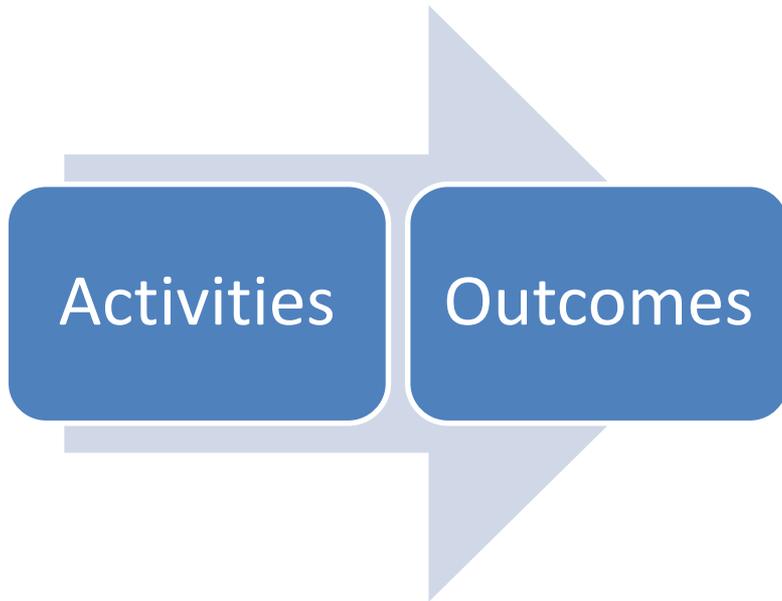
- **Outcome** is “so what” of outputs.
- **Impact** is the ultimate “so what.”

Basic Steps for Outcomes Evaluation

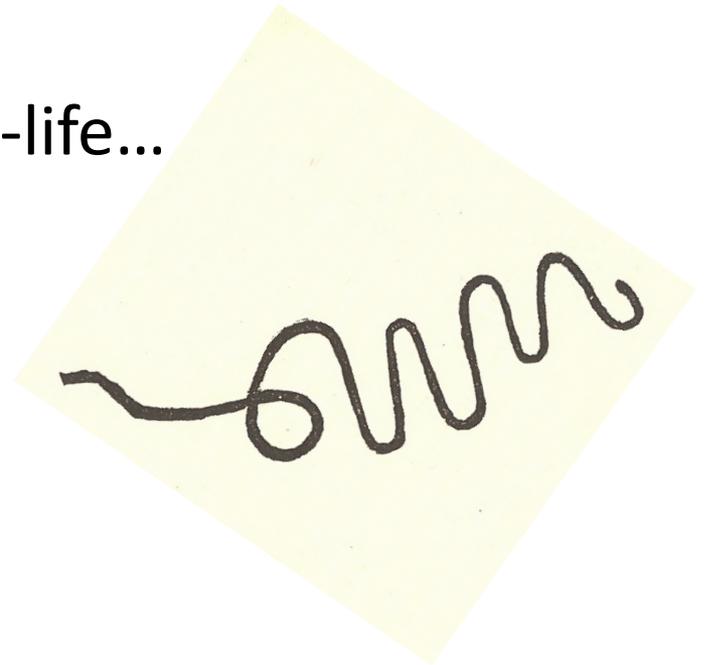
- 1. Develop a program theory**
- 2. Define the intended outcomes**
- 3. Identify the indicators**
- 4. Determine sources of information**
- 5. Choose data collection methods**
- 6. Analyze & interpret data**

Program Theory

If this then that...

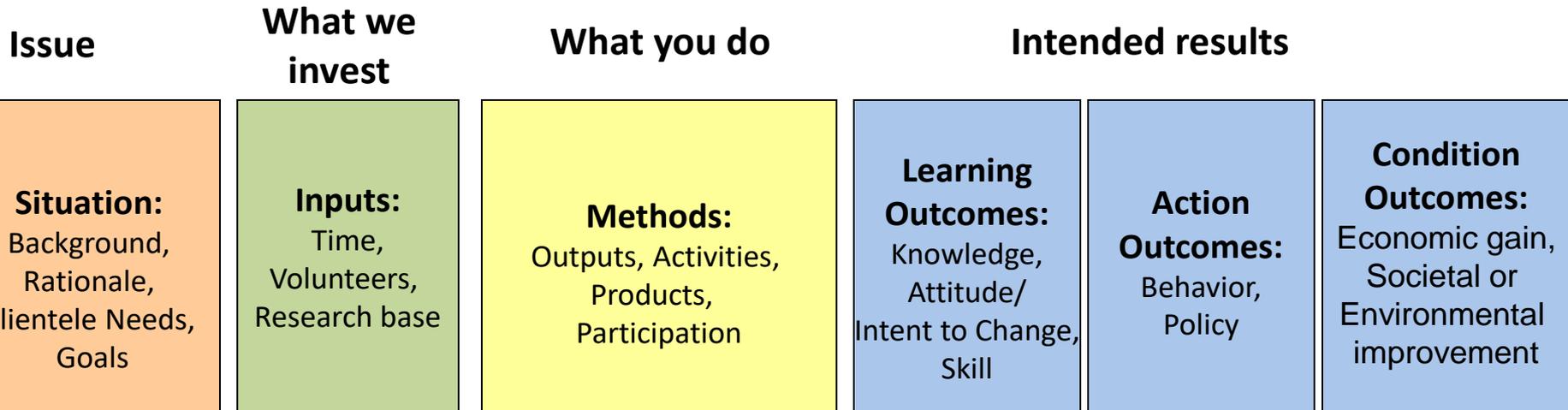


Real-life...



Program Theory

Logic Model: chain of connections showing what difference the program intends to make



UC Master Gardener Example

What difference are we making?

Public Value:
Protecting CA
natural resources

Learning

Participants
gain
knowledge
& skills
about
composting



Action

Participants
adopt
recommended
green waste
reduction
practices



Condition

Reduced yard
waste sent to
landfills
*BioCycle study:
16 households
diverted 5.8 tons
in 10 months*

Increased
ecological
sustainability
of landscapes



Public Values with respective Condition Changes

UC ANR: Safeguarding abundant and healthy food for all Californians

- Improved food security
- Improved food safety

UC ANR: Protecting California's natural resources

- Improved management and use of land
- Improved air quality
- Protected and conserved soil quality
- Increased ecological sustainability of agriculture, landscapes, and forestry
- Improved water quality
- Improved water-use efficiency
- Improved water-supply security

UC ANR: Promoting economic prosperity in California

- Improved individual and household financial stability
- Enhanced community economic development
- Improved animal management, productivity and efficiency
- Increased agriculture and forestry efficiency and profitability
- Increased emerging food economies and markets

UC ANR: Promoting healthy people and communities

- Improved health for all
- Improved community health and wellness
- Improved access to positive built and natural environments

UC ANR: Developing a qualified workforce for California

- Increased workforce retention and competency
- Increased effective public leaders
- Improved college readiness and access
- Increased civic engagement

UC ANR: Building climate-resilient communities and ecosystems

- Increased preparedness and resilience to extreme weather and climate change

UC ANR: Developing an inclusive and equitable society

- Improved living and working conditions for California's food system and farm workers
- Increased diversity, inclusiveness, and cultural competency in California's workplaces

Developing Your Program Theory

Step 1

Individual exercise

- Draft a logic model for one of your programs, connecting your activities to participant outcomes to ANR condition changes and public

Partner interviews

- Share your logic model: describe & edit as needed
 - *what's going on in your program? who participates?*
 - *how do participants benefit?*
 - *how does the program contribute to condition changes? what is the ultimate public value?*

Do you need Institutional Review Board (IRB) approval?

- ✓ Will evaluation results be published (in peer-reviewed journals)? Will they contribute to the existing knowledge base?
- ✓ 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?

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
 - Take the *Social & Behavioral Research – Basic/Refresher* course
 - 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-INVESTIGATOR-MANUAL.pdf>
- Start the application at
<https://www.irbnet.org/release/index.html>

IRB Administrator Ph#: 916.703.9166

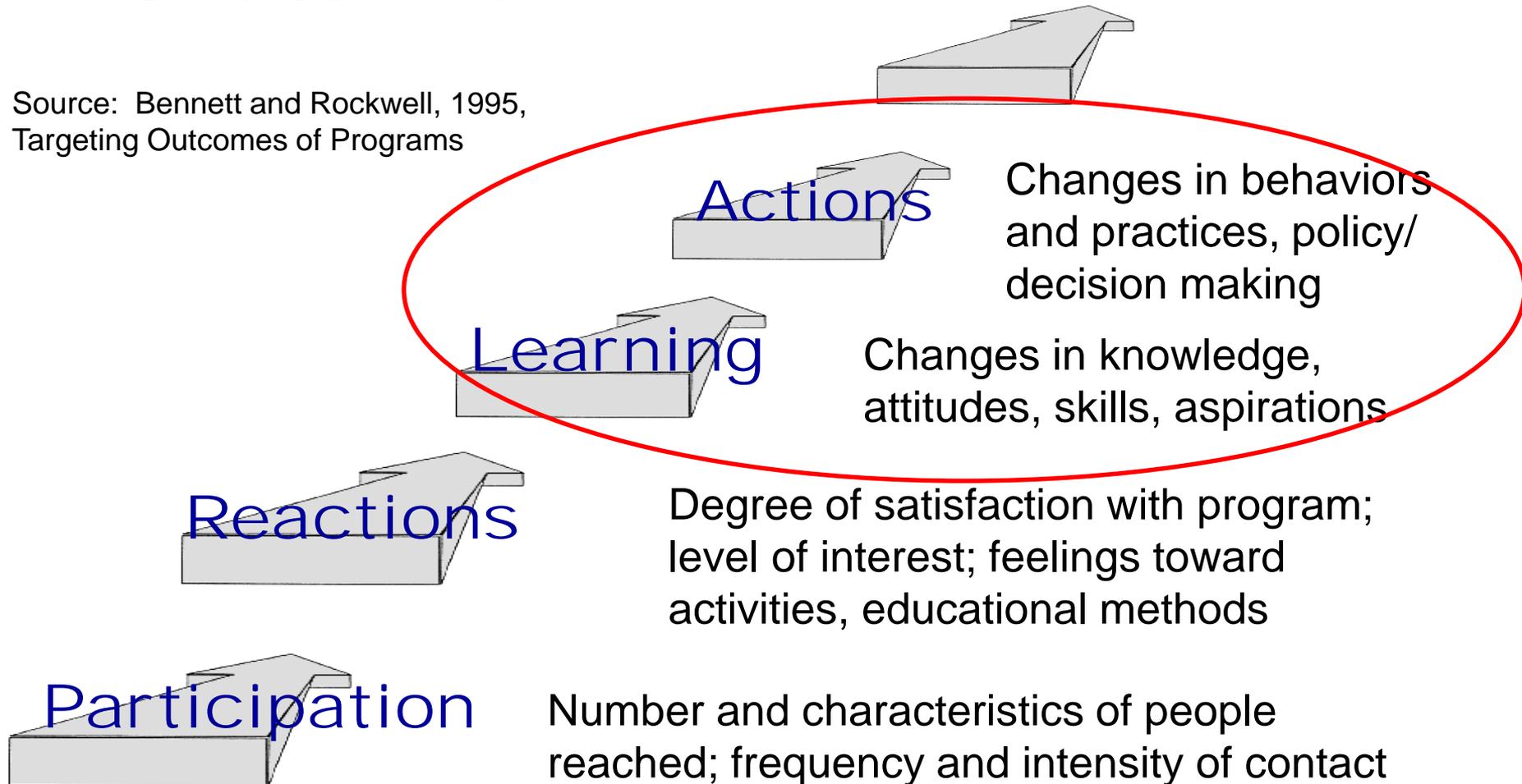
Focusing Your Outcomes Evaluation



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**

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

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

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



UC Statewide IPM Project
© 2000 Regents, University of California



© 2004 Regents of the University of California



Copyright © 2005 Regents of the University of California

Activities

Outcomes

Program implemented

Targeted growers

Growers learn X

Farmers adopt X new technique

Farm profitability increases

workshops held
quality of workshops

and % of growers attending Extension activities

and % who increase knowledge of X

and % who now practice research-based technique X

and % 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 Economic Impact

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: # of “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 the treatment farms, and may be supporting increased populations of native bees overall.”



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?**

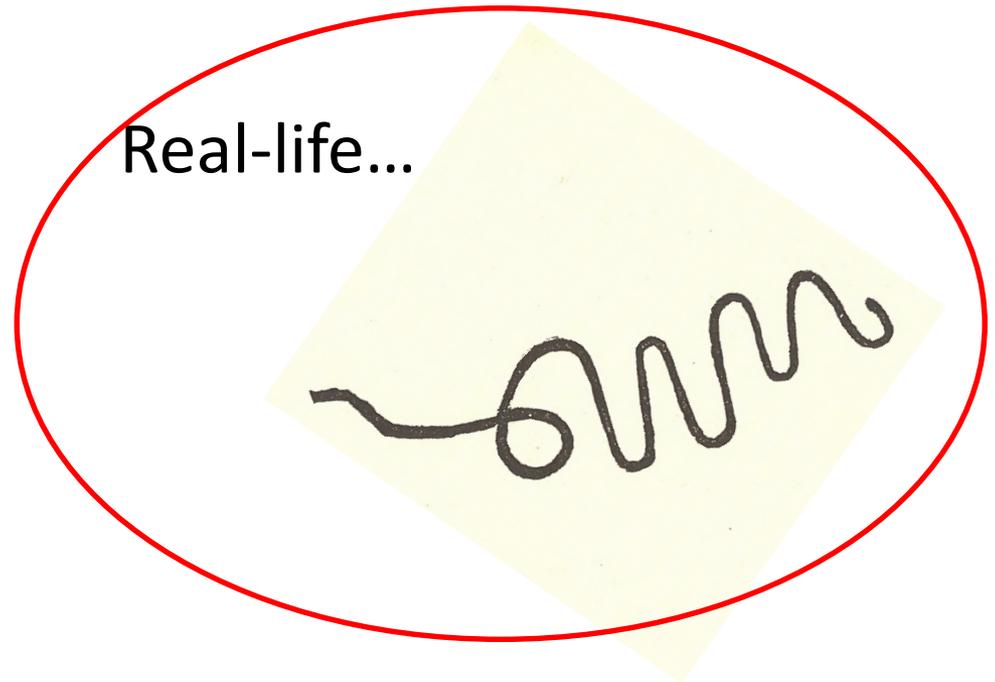
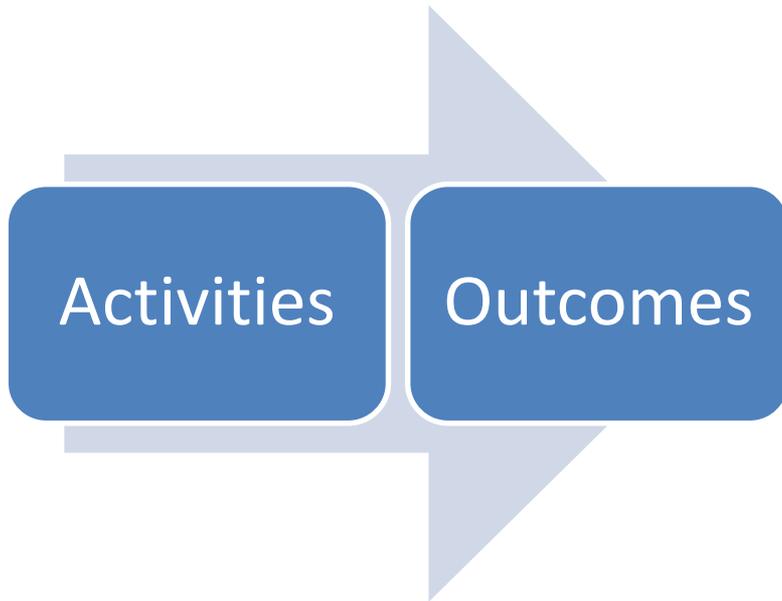
3. Group sharing

Overall Approach to Evaluation for Projects and Career

Reflections, lessons learned, and tips
from the field

Program Theory

If this then that...



Leigh Johnson, UCCE San Diego Coastal Resources Advisor, Emeritus



LUNCH!



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
 - Etc.

Extension Evaluation Data Collection Methods

- **Secondary Data**
- **Observation**
- **Interview**
- **Group assessment**
- **Survey**

OTHERS:

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

MIXED METHODS:

- **Convergent**
- **Exploratory sequential**
- **Explanatory sequential**

Secondary Data

Use it for:

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

Content analysis of existing information

Secondary Data

Use it for:

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

Content analysis of existing information

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

Systematic Analysis

S. No	Title of the article	Year published	Questionnaire Validity	Population	Response rate	Major inservice need	Major recommendation
1	Inservice needs and problems of agricultural science teachers in Krara state, Nigeria	1988	Face and content validity	All agricultural science teachers in the 60 secondary schools that offered agricultural science course during 1985 school year	97%	To either increase their knowledge in agriculture or update and keep current in agricultural development. Topics on teaching methods and techniques.	School administrators of the board should design short and long-term plans for in-service programs. In-service workshops on Ag mechanics should be organized.
2	An assessment of microcomputer utilization in Kansas vocational agricultural programs	1989	Face and content by expert panel (Face inferred)	All 158 secondary vocational agriculture programs in Kansas. Radom sample of 87 unique programs.	93% (Population validity established by comparing means of sample to population on two variables)	Inservice on agricultural specific software.	Implied that computer related inservice activities should continue to be offered. Microcomputer competencies should be required for certification of new teachers (preservice).
3	An analysis of the agricultural mechanics laboratory management inservice needs of Missouri agriculture teachers	1990	Since original competencies were developed by nationally recognized agricultural mechanics education experts, the instrument was judged to be valid	All 240 secondary agriculture teachers listed in 1988-1989 Missouri Agricultural Education Directory	84% (Early and late respondents were compared on all 50 competency statements).	In the area of agricultural mechanics laboratory management and the greatest need was in the area of safety.	Programs should be conducted to improve the agricultural mechanics laboratory management abilities.

Secondary Data

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.”

Secondary Data

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!

- You likely already do it!
- Less to no participant burden
- When there is physical evidence that can be readily seen
- Confirm fidelity of implementation
- 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 Guide/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 Prompts	Actions You See or Comments You Hear
<p>1) Engagement/Delivery</p> <ul style="list-style-type: none"> a. How are students engaging in the activities? b. What is their body language? <p>2) Learning</p> <ul style="list-style-type: none"> a. Are students expressing what they are learning? b. Is the environment conducive to learning? c. Are students forming new connections? Why? How? 	
<p>3) Staff friendliness & circulation</p> <ul style="list-style-type: none"> a. Warm tone of voice and respectful language b. Attentive and responsive c. One-on-one interactions with every student 	
<p>4) Emotional safety</p> <ul style="list-style-type: none"> a. Respect to all students and insistence in mutual respect b. Staff address any incidents in which student(s) are made fun of or where there are misunderstandings 	
<p>5) High expectations & good challenge</p> <ul style="list-style-type: none"> a. All students are encouraged to try out new(er) skills b. Students seem challenged (in a good way) by the activities 	
<p>6) Active, cooperative and experiential learning</p> <ul style="list-style-type: none"> a. Activities include both hands-on and cognitive processes (problem-solving, practicing skills, manipulation of ideas, creatively expressing ideas and building with materials exercises) 	
<p>Other observations</p> <ul style="list-style-type: none"> a. Anything stand out from a positive or negative perspective? b. Any other observations? 	

Observation Guide: Elkus Ranch Summer Camp (June 25th – Aug. 26th, 2018)

Adapted from

Klink, J. (2014). *Field Day Observation Guide*. Environmental Resources Center, University of Wisconsin-Extension.

Carlson, S. P., Heimlich, J. E., Storksdieck, M., & Meyer, N. (2009). *Best practices for field days. Assessment tools and observation protocols*. University of Minnesota Extension.

Virginia Tech example

Observation sheet for Winter Feeding and Extended Grazing

Observer: _____ Date: _____

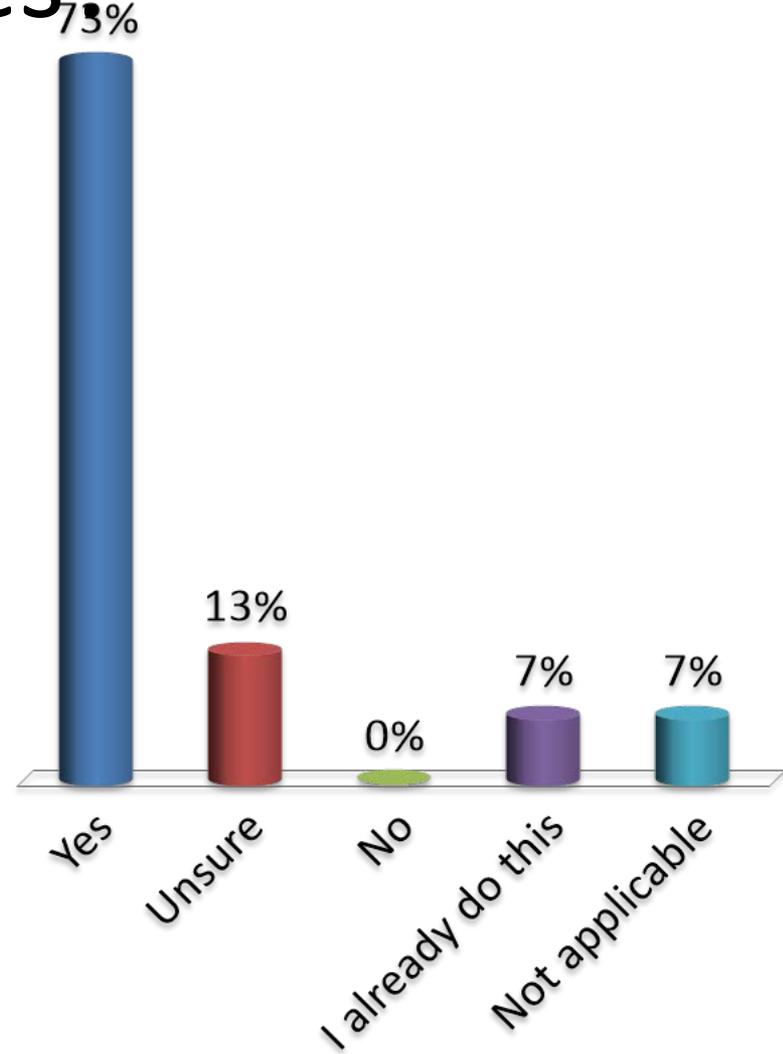
Audience: _____ Location: _____

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

Extended Grazing	YES	NO	EXPLAIN
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



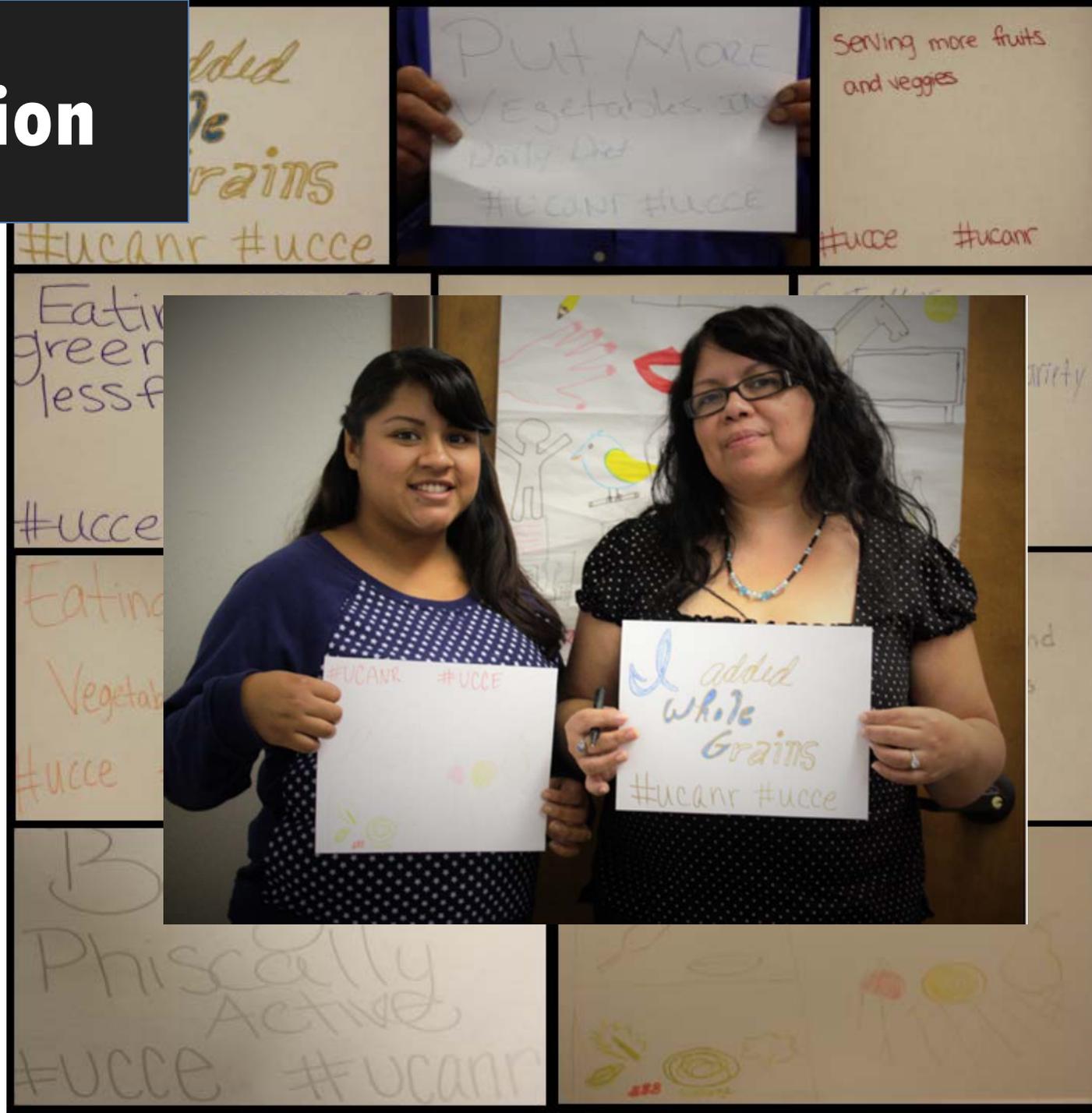
Observation

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

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

- Range from free-flowing, semi-structured, tightly structured
- 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

Formal interviews

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

California Naturalist Program

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?

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
 - No more than 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

Focus Group to evaluate Extension wetlands project

Wetlands Project Focus Groups Introduction

Welcome to the focus group!

The purpose of this interview is to know in more detail your views about this field day training. We want to know if the information presented today and in the online course (*FSA-858: A Tool for Wetland Screening*) has prepared you/the SECs adequately to understand the various steps in FSA 858 form, complete the FSA 858 form and provided you/SECs with sufficient background to identify potential wetlands on an applicant's property that may impact their loan application. We would also want to take your inputs on what was missing or what could be improved to prepare you/SECs better to perform these two important aspects. We are dedicated to take your feedback seriously to improve the next offering of the online course and field days, and to reflect on the value of this project.

Before we begin, I want to take your consent to record these interviews so we don't lose any valuable information. We are recording simply for the reason of not needing to remember everything you say or write it down now, so that we can instead be present and listen now.

So, let's begin. As we can see, this is a focus group, which is a qualitative evaluation method that is used extensively by social scientists to generate richer information than is possible through a paper or online survey. I will be asking you a set of questions over the next 50-60 minutes. There is no right or wrong answer, only your opinion!

Now a few rules of focus groups:

1. You may not have any inputs on a question that I ask, and that is fine. You don't have to answer every question if you have nothing to add.
2. Please be respectful of everyone's opinions. The information you provide will be kept confidential within the project planning team. Any written reports will NOT include names and will only include aggregate (combined) results.
3. If someone is speaking, please hold your comments so we only have one person talking at a time.
4. Please be honest so that this exercise is a good use of everyone's time.

For SECs

Wetlands Project Focus Group Questions

Introductions [10 min] (including Vikram's brief introduction to focus group methodology)

Tell us what your occupation is and briefly describe what you do, years of experience with FSA/similar jobs, & any prior related experience of working on wetlands identification.

Questions 1 & 2: [10 min]

1. Why were you interested in attending this field day?
2. Overall, how did you feel about the field day in terms of your learning? Please elaborate (*Note that more detailed questions will follow on the design of the field day and how you'll use information learned during the field day, so please be brief about your first response here*).

Question 3: [15 min]

3. How will what you learned today benefit you in your job?
 - Has this training prepared you adequately to understand the various steps involved in the FSA 858 process and to complete the FSA 858 form?
 - Has it provided you with sufficient background to identify potential wetlands on an applicant's property that may impact their loan application?
 - o To what extent do you anticipate using what you learned here in your job in the next one year?
 - o What specific aspects taught today will you use most in identifying wetlands while working on a loan application?
 - o What specific topics do you want more information on to work with your clients on FSA 858 form and to identify potential wetlands?
 - o Are there other barriers not related to this training that are standing in your way of using what you learned in the field with customers?

Question 4: [10 min]

4. *Those that didn't talk about a benefit above:* If it won't benefit you, why? What could have been done differently to provide more benefit?

Group Assessment

Ripple Effect Mapping

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



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

- 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?!



FIGURE 10.9 Examples of the effects of advance token incentives in mail surveys.

Population (year, survey director)	Sample Size	Experimental Groups	Response Rate
Oregon State University students who left the College of Agricultural Sciences without graduating (1997, Lesser)	133	\$0	28%
	130	\$2 Check	44%
	125	\$2 Bill	53%
Recent graduates of the College of Agricultural Sciences at Oregon State University (1998, Lesser)	129	\$0	59%
	135	\$2 Bill	67%
	141	\$5 Bill	81%
Oregon State University distance education students (1997, Lesser)	249	\$0	20%
	91	\$2 Check	25%
	92	\$2 Bill	32%
	87	\$5 Check	31%
	97	\$5 Bill	32%
Oregon State University June 1997 graduates (1998, Lesser)	231	\$0	52%
	234	\$2 Bill	65%
New residents of Washington who obtained a state driver's license (1994, Dillman)	368	\$0	44%
	357	\$2 Bill	63%
New residents in Iowa who obtained an Iowa state driver's license (1997, Lorenz)	317	\$0	42%
	313	\$2 Singles	70%
	313	\$2 Bill	73%
New residents of Idaho aged 50 to 70 (1996, Carlson)	526	\$0	53%
	526	\$2 Bill	72%
	524	\$300 Lottery	58%
Centre County Pennsylvania Residents (1998, Lesser)	470	\$0	39%
	288	\$2 Bill	62%

Survey

Pre/Post

- Survey participants at the beginning and end of activity
- Objectively measures learning gain
- 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

Retrospective Post-then-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%



Home - ANR Portal | Edit Survey | Qualtrics Surveys

Secure | <https://ucanr.co1.qualtrics.com/ControlPanel/?ClientAction=EditSurvey&S>

Apps | ANR | CalNat | ANR Portal | Box - UCD | UCR | Eskalen Lab: Fusarium | ANR | PSHB | Outlook.com -

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

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



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.

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

University of California

Survey



Adoption of Best Management Practices for the Landscape 2015

As a result of your visit to the UC ANR 5th Annual Residential Landscape Gardening Open House and Vendor Fair, do you plan to adopt any of the best management practices that you may have learned about such as: re-programming your controller, retrofitting your irrigation system, re-plant your landscape with low water use plant material, or install warm season turf?

Yes

No

If yes, what changes have you made or plan to make in the near future?

Is there additional information regarding landscape water use and conservation not available during the event that you would like to learn more about?

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

Follow-up survey sent as part of Extension product

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

california photo scott vidler

The views and conclusions contained in this document are those of the authors, and should not be interpreted as representing the opinions or policies of the U.S. Government or the National Fish and Wildlife Foundation. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government or the National Fish and Wildlife Foundation.

The University of California prohibits discrimination or harassment of any person on the basis of race, color, national origin, ancestry, citizenship, religion, sex, gender identity, sexual orientation, pregnancy, physical or mental disability, medical condition, marital status, age, or status as a covered veteran in any of its programs or activities. University policy is intended to be consistent with the provisions of applicable State and Federal laws.

Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action/Staff Personnel Services Equal Opportunity Director, University of California, Agriculture and Natural Resources, 1111 Franklin Street, 8th Floor, Oakland, CA 94607, (510) 987-0096.



JUNE
Take care of plants & landscape in a safe way. Leaf litter, dead branches and shrubs, and their condition, as well as other conditions, may also be a fire hazard due to regular water and water.

REVIEW SUMMER VEGETATION MAINTENANCE

- Water according to plant needs, not foliage without enclosing a water pan.
- Harmonize the water branches of shrubs to reduce fuel of growth. Remove, edge and pruning some shrubs in water. Do not over-water.
- Use areas of weeds by maintaining a regular schedule of hand pulling or weed whacking before the seed heads mature. To reduce the hazard and make seed bank.
- Water must be sufficient.
- Do water and other plants that have collected in your can gutters can be dangerous and fire. Make sure. Check out the water. Check out the water. Check out the water.
- For general landscape maintenance and irrigation information, check out the [California Landscape Irrigation Handbook](#) or [California Landscape Irrigation Handbook](#).

KEEP YOUR PROPERTY FIRE-SAFE WHEN ON VACATION.
This can be a difficult task, but it is important. If you are away from home, there are several preventive measures before leaving to ensure your home is safe.

- Check window shades if you have them.
- Check your smoke detectors before you leave. Batteries should be checked in other components should be checked in a fire.
- Check to make sure that all doors and have been locked off or disconnected.
- Turn off all unnecessary appliances and make sure everything that is on fire is turned off. Turn off the water. Turn off the water. Turn off the water.
- Do not forget to check the fire in the landscape while you are away.
- Do not forget to check the fire in the landscape while you are away.
- Have your fire insurance and check your policy. Have your fire insurance and check your policy. Have your fire insurance and check your policy.
- Have your fire insurance and check your policy. Have your fire insurance and check your policy. Have your fire insurance and check your policy.

FEATURED PROBLEM PLANTS OF THE MONTH

Spanish Broom (Cytisus scoparius) is a plant in the legume family that is highly flammable and is a major fire hazard. It is a highly flammable plant that is highly flammable and is a major fire hazard. It is a highly flammable plant that is highly flammable and is a major fire hazard.

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 Disagree
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

Post, Retrospective Pre, and Follow Up

BEHAVIORS: Identify natural enemies, use reduced-risk pesticides

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

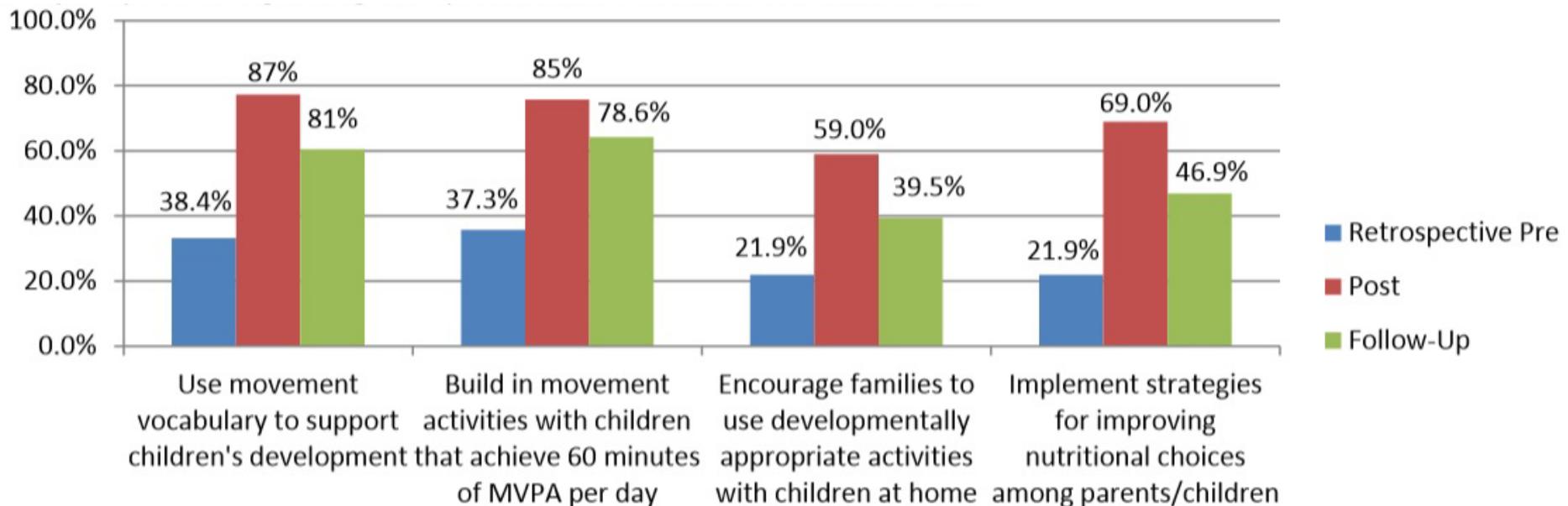
QUESTIONS

- 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 responses for data visualization:



Ensuring Culturally Competent Evaluation

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

Ensuring Culturally Competent Evaluation UCCE Example



Recap on Methods

- 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

Types Of Outcomes Captured At Different Follow-up Time Intervals – Koundinya et al. 2016 JOE paper

Comparison of Evaluation Outcome Measures on the Two Follow-Up Surveys

Outcome	2-month follow-up		10-month follow-up		<i>n</i>
	Frequency	%	Frequency	%	
Made a new business connection	48	67	48	67	72
Shared gained knowledge with others	129	95	126	93	136
Learned about/implemented nutrient management technologies/practices	59	64	56	61	92
Created as-applied maps using GPS	0	0	7	12	58
Sold additional equipment/service	11	34	16	50	32
Purchased equipment, product, or service seen at the Expo	5	8	22	35	63

Deepa Srivastava, UCCE NFCS Advisor



Needs Assessment, Program Planning, Implementation, & Evaluation	Procedures	Product
FORMAL NEEDS ASSESSMENT PLANNING (2017)	Collaborations, IRB, Pilot test of surveys (n=6), Printing, Putting together survey packets.	1) Surveys pilot tested and printed.
QUANTITATIVE DATA COLLECTION (Spring 2018)	<u>Participants:</u> Directors/Preschool Teachers in licensed childcare/ preschool settings Tulare/Kings (n=701) <u>Data Collection:</u> About the childcare program, foods & beverages served, mealtime practices, nutrition education, parent engagement, access to training, and demographics.	2) Completed surveys (n=117) and data entry SPSS file.
QUANTITATIVE DATA ANALYSIS & DISSEMINATION (Fall 2018-Summer 2019)	Descriptives and Chi Square using SPSS.	3) Results documented. 4) One peer reviewed conference abstract published showcasing needs assessment results. 5) Two poster presentations at state/national levels. 6) Community presentation-needs assessment findings. 7) IRB approval received.
PROGRAM PLANNING (Fall 2018-Spring 2019)	Collaborations, Implementation planning meetings, Focus group planning, IRB.	
PROGRAM IMPLEMENTATION & MONITORING (Spring 2019)	Program intervention focus: one preschool site in Kings county. Partnership meetings from January May 2019. Evidenced-based <i>Go Glow Grow</i> nutrition education curriculum was implemented by CalFresh Healthy Living, UC Program Nutrition Educator Kings County in collaboration with community college culinary student chefs provided food demo and taste test for preschoolers.	8) Lesson observation tools and related surveys completed. 9) Three success stories published in the weekly newsletter of CalFresh Healthy Living, UC Program.
QUALITATIVE DATA COLLECTION (Spring 2019)	<u>Participants:</u> Preschoolers (n=72), Student chefs (n=10) and Program community partners (n=3). <u>Data Collection:</u> Two focus groups were conducted based on SNAP-Ed evaluation framework. Participants completed demographic questionnaire.	10) Two audio files
QUALITATIVE DATA ANALYSIS & DISSEMINATION (Fall 2019-Spring 2020)	Quantitative descriptive analysis. Qualitative thematic analysis in progress.	11) Transcripts 12) UC ANR Blog posted 13) Conference poster presentation for FY20 14) UC Delivers FY20 15) Publication planned FY20

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.

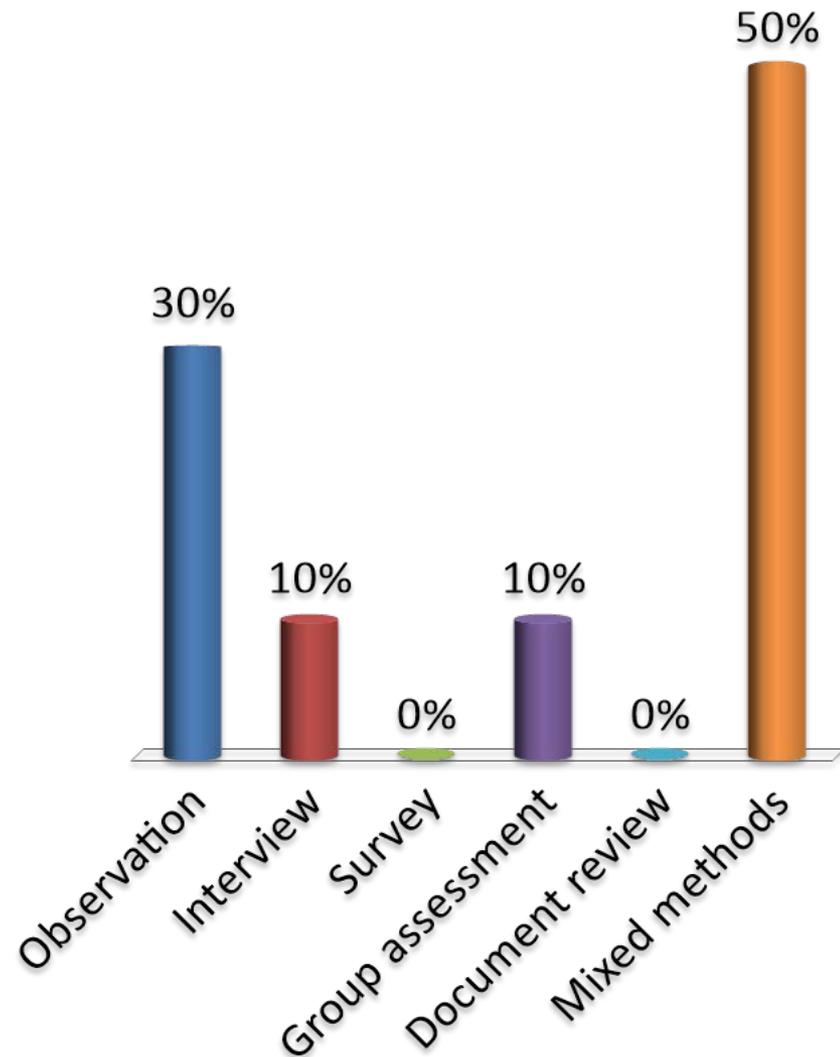
2. Partner interview:

– *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 Analysis

- Brief why & how
- A little practice analyzing qualitative data

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
- Get info. on unintended outcomes

Qualitative Data Analysis

1. Familiarize with the data
2. Organize data in one place
3. Read through the data thoroughly
4. Code data

A code is “...most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldana, 2016, p.4).

Qualitative Data Analysis

1. Categorize codes (major and minor)
2. Summarize: Look at the categories and see if some fit together into themes
3. Interpret results with colleagues
4. Develop the report

Some Best Practices

- ❑ Make best efforts to understand the situation being researched
- ❑ Resist quantifying [follow rich and “thick description” (Zhai & Scheer, 2002)].
- ❑ Do not assume that you don’t have bias
- ❑ Work as a team
- ❑ Have member checks

Coding Examples

Coding Examples

- I notice that the grand majority of homes have chain like fences in front of them. There are many dogs (mostly German shepherds) with signs on fences that say “Beware of the Dog”.

SECURITY

Saldana (2016)

Coding Examples

- He cares about me. He has never told me but he does. He's always been there for me, even when my parents were not. He's one of the few things that I hold as a constant in my life. So, it's nice. I really feel comfortable around him.

SENSE OF SELF-WORTH

STABILITY

FEELING COMFORTABLE

Saldana (2016)

Group Exercise

Data Analysis Activity

Reporting Example

What are the motivating factors for active management of woodlands?

Woodland owners seem to actively engage in forest management for the benefits derived from woodland, for forest improvement, and for the obligation they felt to maintain the property. Around 64% of the participants identified the primary benefits they derived from their woodland as recreation and enjoyment. Most of these landowners indicated economic benefits as something inherently present in woodlands. One participant said, “I would say the number one [benefit is] being able to spend time in the outdoors. I'm currently at about 15 year mark with tree planting and I would say I actually get joy now out of walking in the woods...” Another landowner expressed “If I ever get depressed, I step out of the house and I go for a little walk and I say that’s one of the things in life that give me joy.” A different landowner indicated that owning woodland offers various benefits, elucidating:

There are numerous [benefits]. of course there’s economic benefits and there has to be because one makes a big investment but the benefits you know are much wider spread than that.... You know, the intrinsic values are the most important. An individual’s love for the outdoors, his love for the woods, there’s something spiritual About seeing something as big as a tree grow ... and getting bigger ...

The other benefits of woodlands indicated by a few participants are privacy, regular exercise walking the woods and improvement of the environment.

Wrap-Up

Group reflection

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

Individual end of session surveys

Extension Evaluation Resources

- 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>
- Dillman, D., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys. The tailored design method* (4th ed). John Wiley & Sons, Inc, Hoboken, New Jersey.
- Davidson, J. E. (2013). Actionable evaluation basics: Getting succinct answers to the most important questions. Real Evaluation Ltd. NZ.
- Koundinya, V., Klink, J., Deming, P., Meyers, A., & Erb, K. (2016). How do mode and timing of follow-up surveys affect evaluation success? *Journal of Extension*, 54(1).
- Rockwell, S. K., Jha, L., & Krumbach, E. (2003). Success Outcome Markers in Extension (SOME): Evaluating the effects of transformational learning programs. *Journal of Extension*.
- Saldana, J. (2016). *The coding manual for qualitative researchers*. SAGE Publications.