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

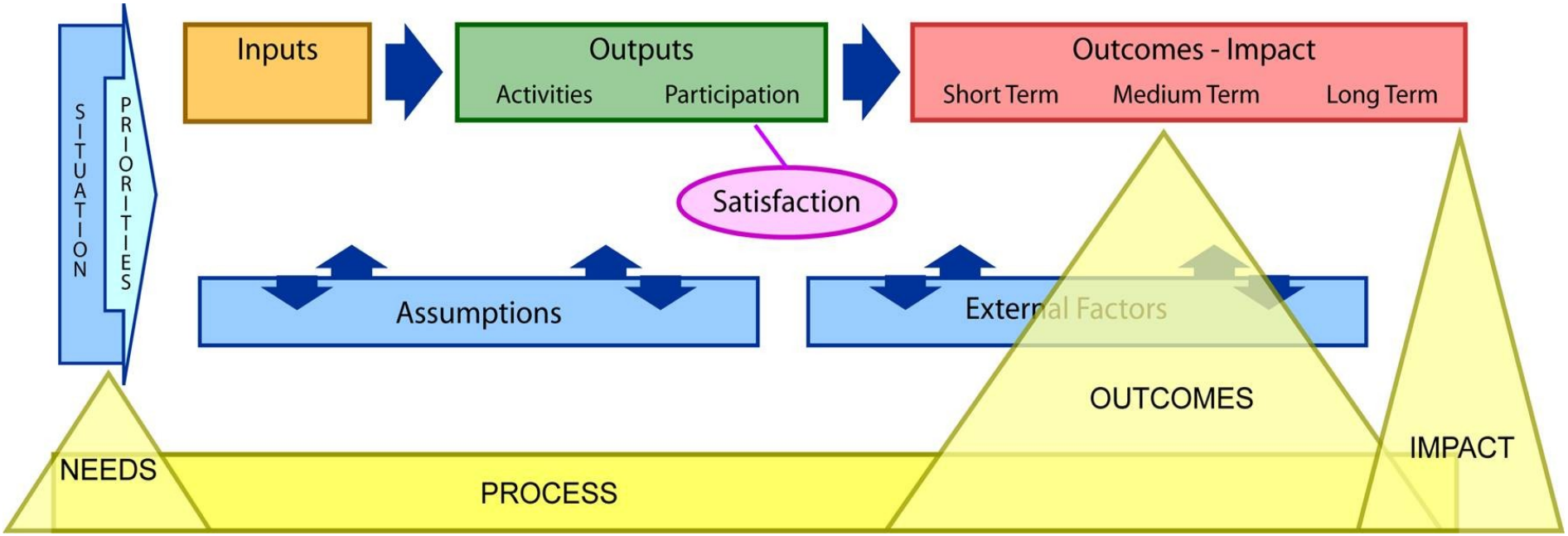
Incorporate Qualitative Evaluation Data

- 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?

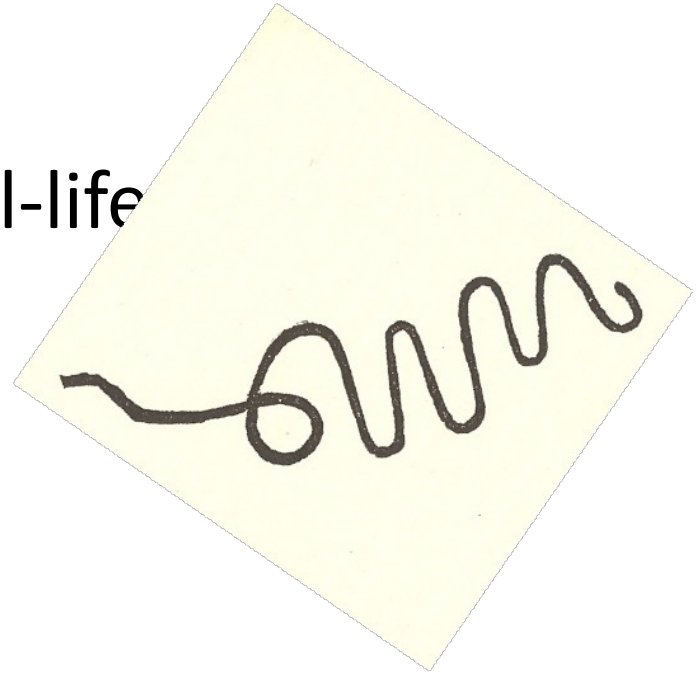
Basic Steps for Outcome Evaluation

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…

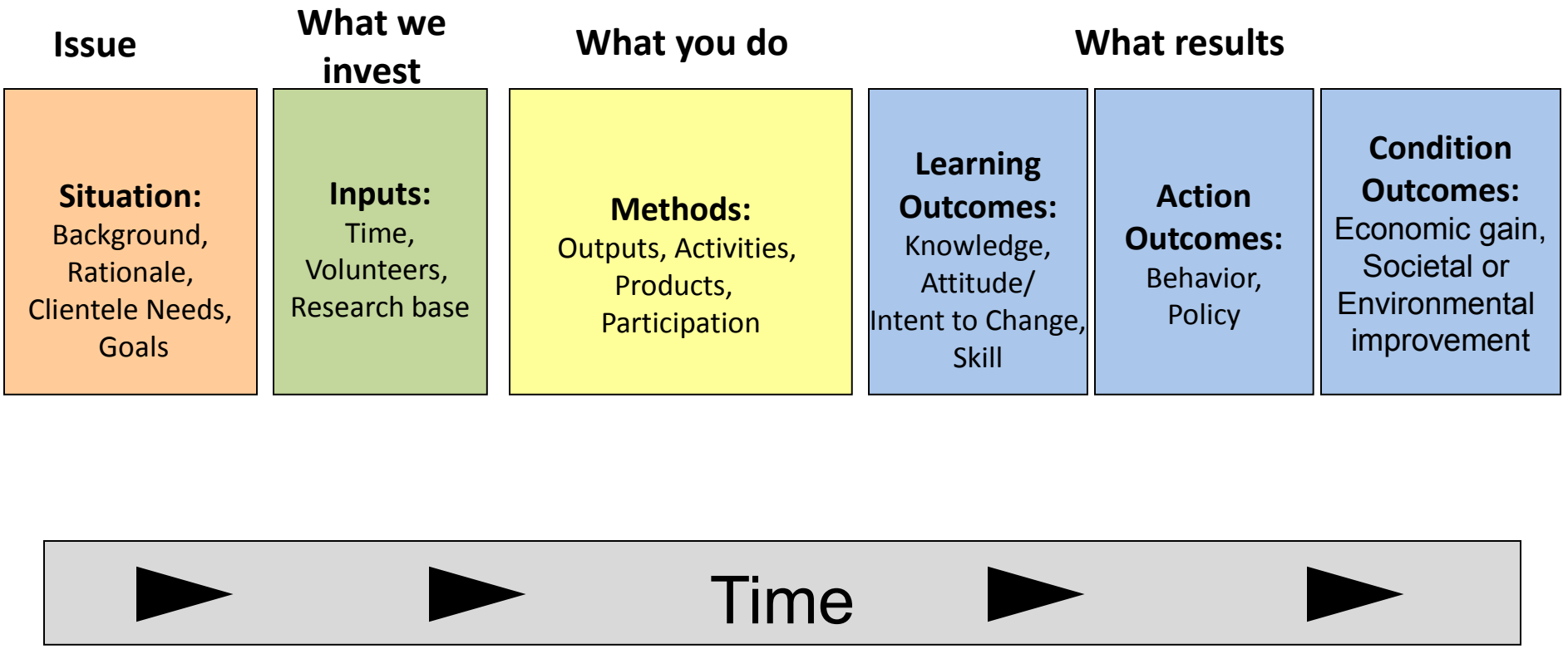
Real-life



Leigh Johnson, UCCE San Diego Coastal Resources Advisor, Emeritus

Program Theory

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



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)?

Adapted from Ellen Taylor-Powell's *Building Capacity in Evaluating Outcomes*

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
  - 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?

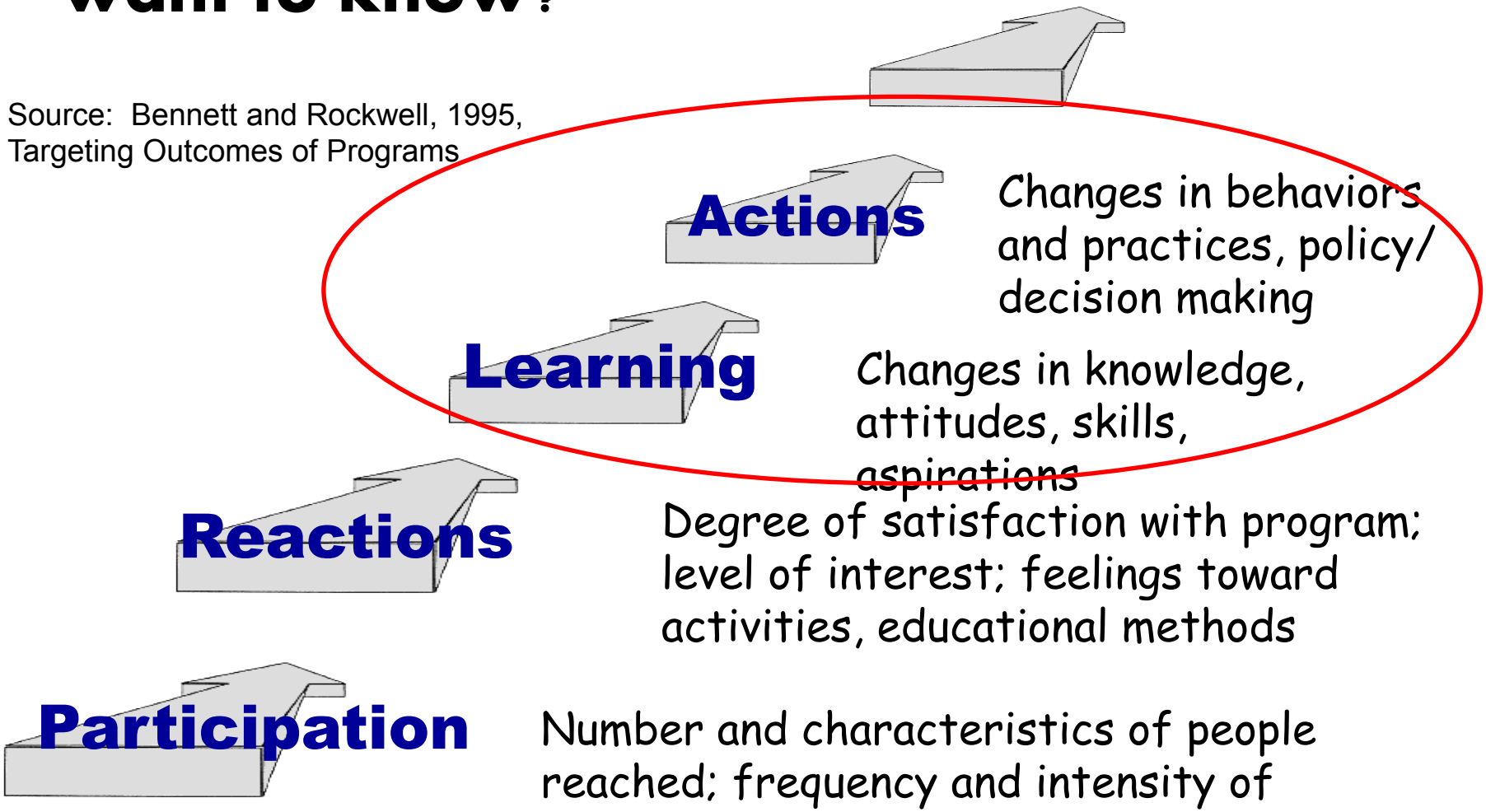
- Written questionnaire
- Mailed survey
- Observations
- Interviews

Borrowed from *Building Capacity in Evaluating Outcomes*, Univ. of WI - Extension

Focusing Your Outcomes Evaluation

What do you want to know?

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?

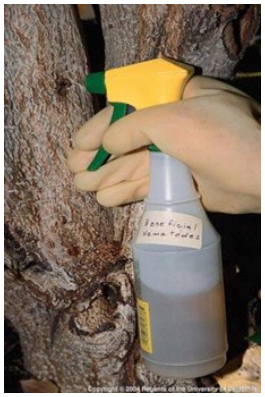
What will it look like?

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 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: “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 populati
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

Content analysis of existing information

Use it for:

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

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Content analysis of existing information

Use it for:

- ✓ Behavior change
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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

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- ✓ Skills gained
- ✓ Behavior change
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Seeing & listening!

- 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

Virginia Tech example

Observer: _____ Date: _____

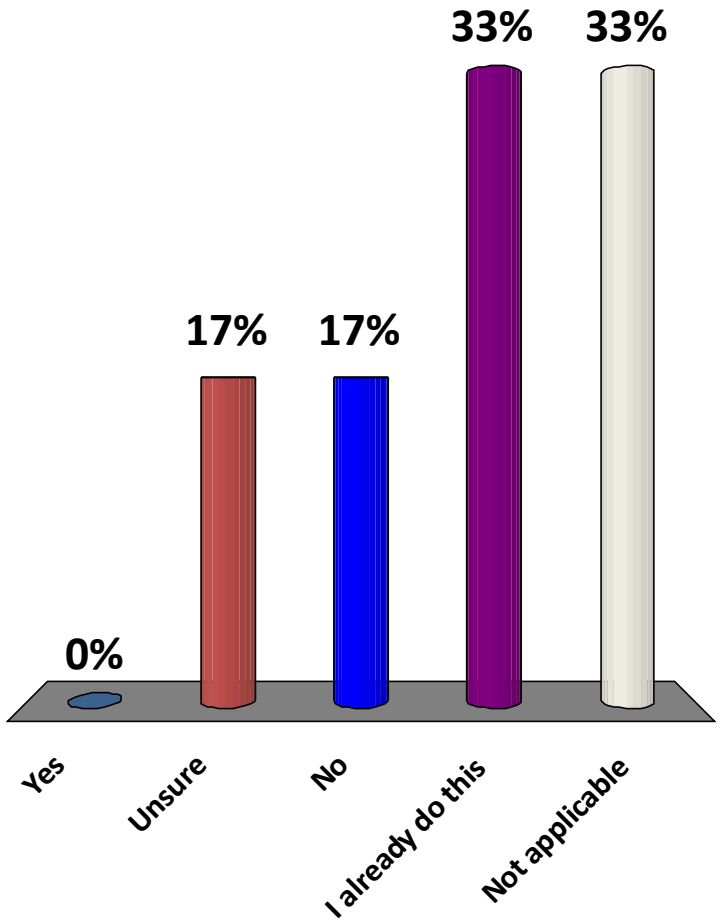
Audience: _____ Location: _____

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



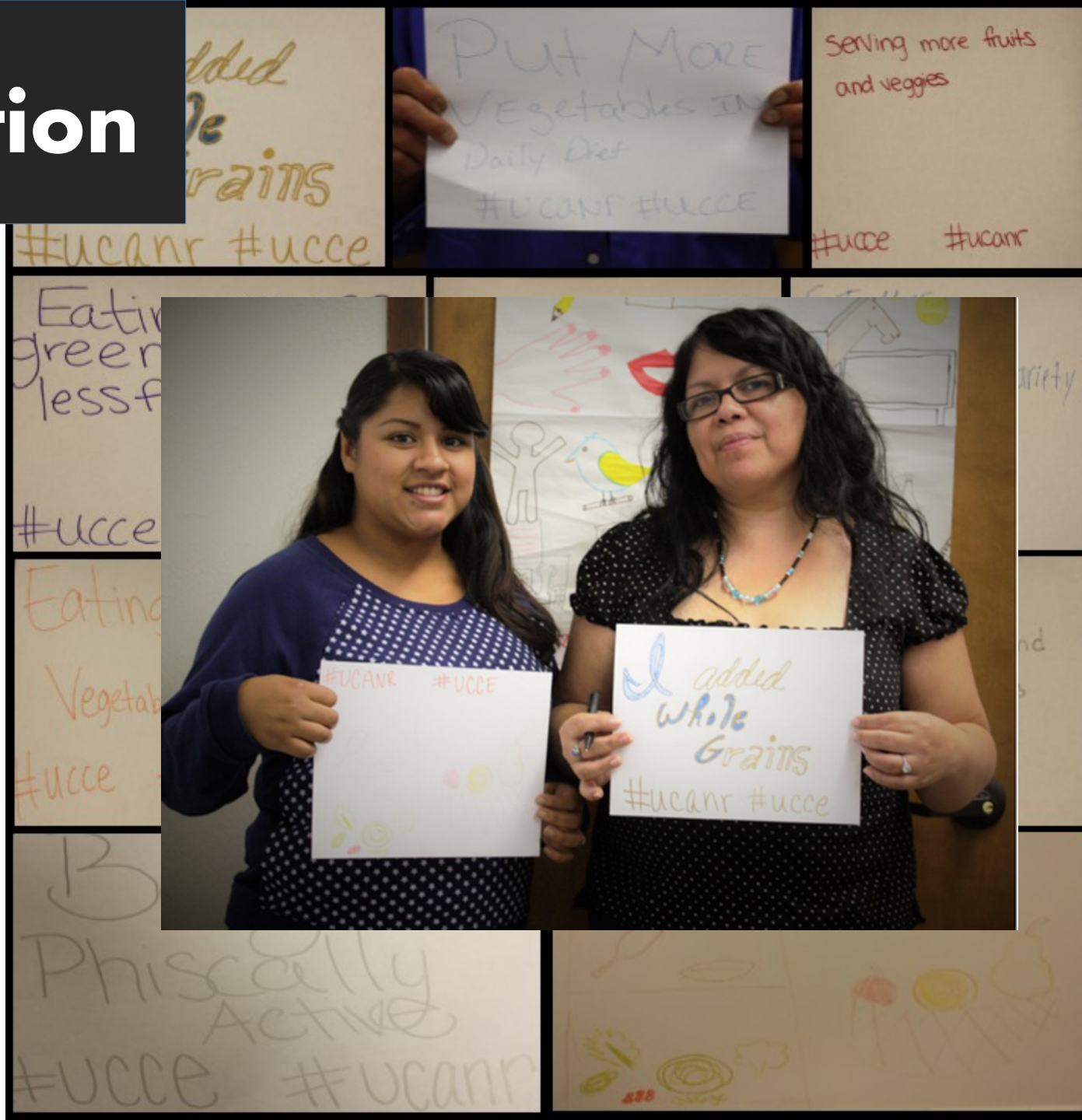
Observation

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

Talking and listening to people

Use it for:

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

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Use it for:

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

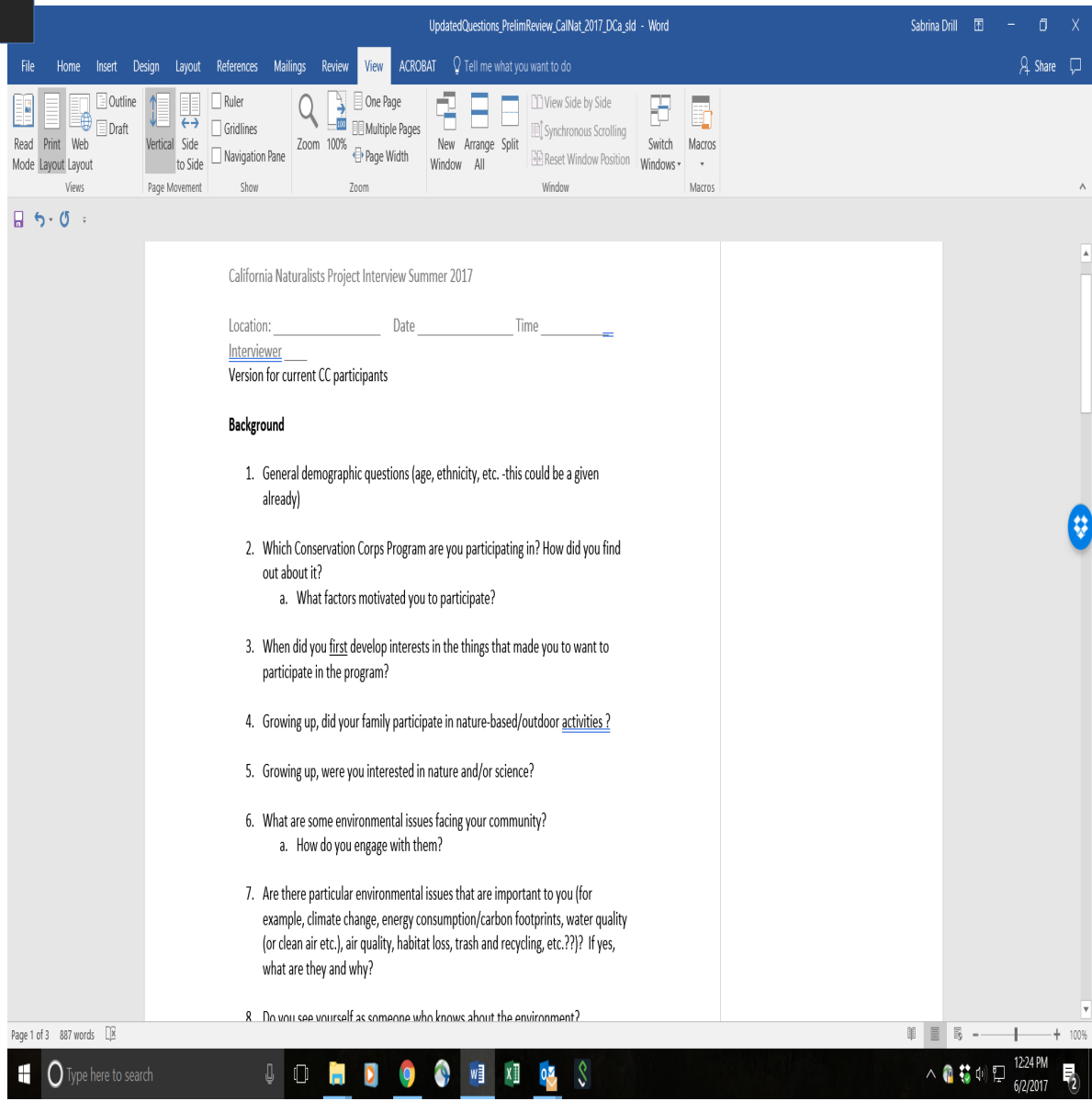
- Some adopted the practice early on, many more during the dry winters (and subsequent nitrogen burn from pre-plant fertilizer).
- Informal interviews in fields with pointed questions about nitrogen use and total acreage.

Interviews

California Naturalist Program

Formal interviews

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



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 Assessment

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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?

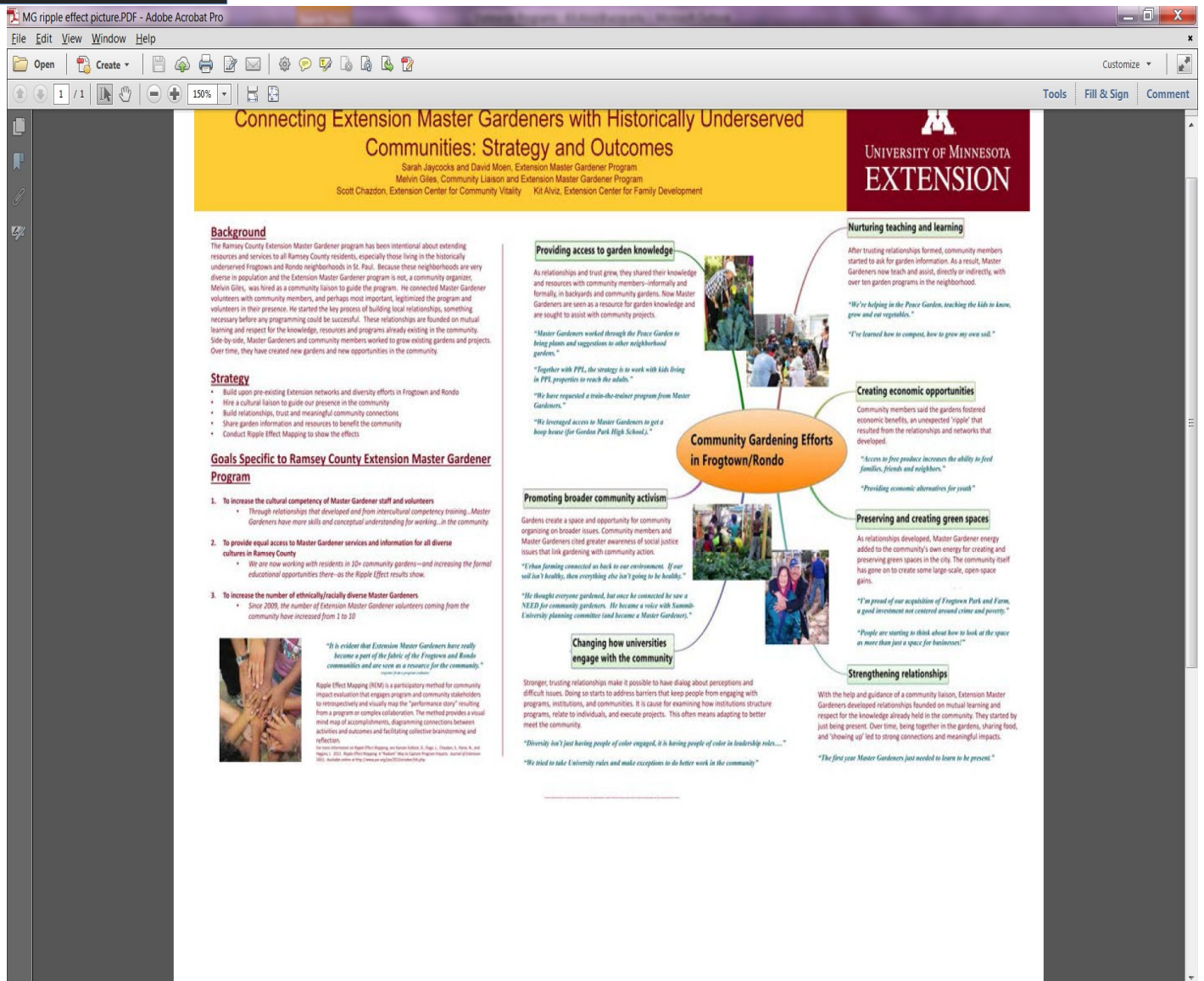
Key Questions

- 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



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?!

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

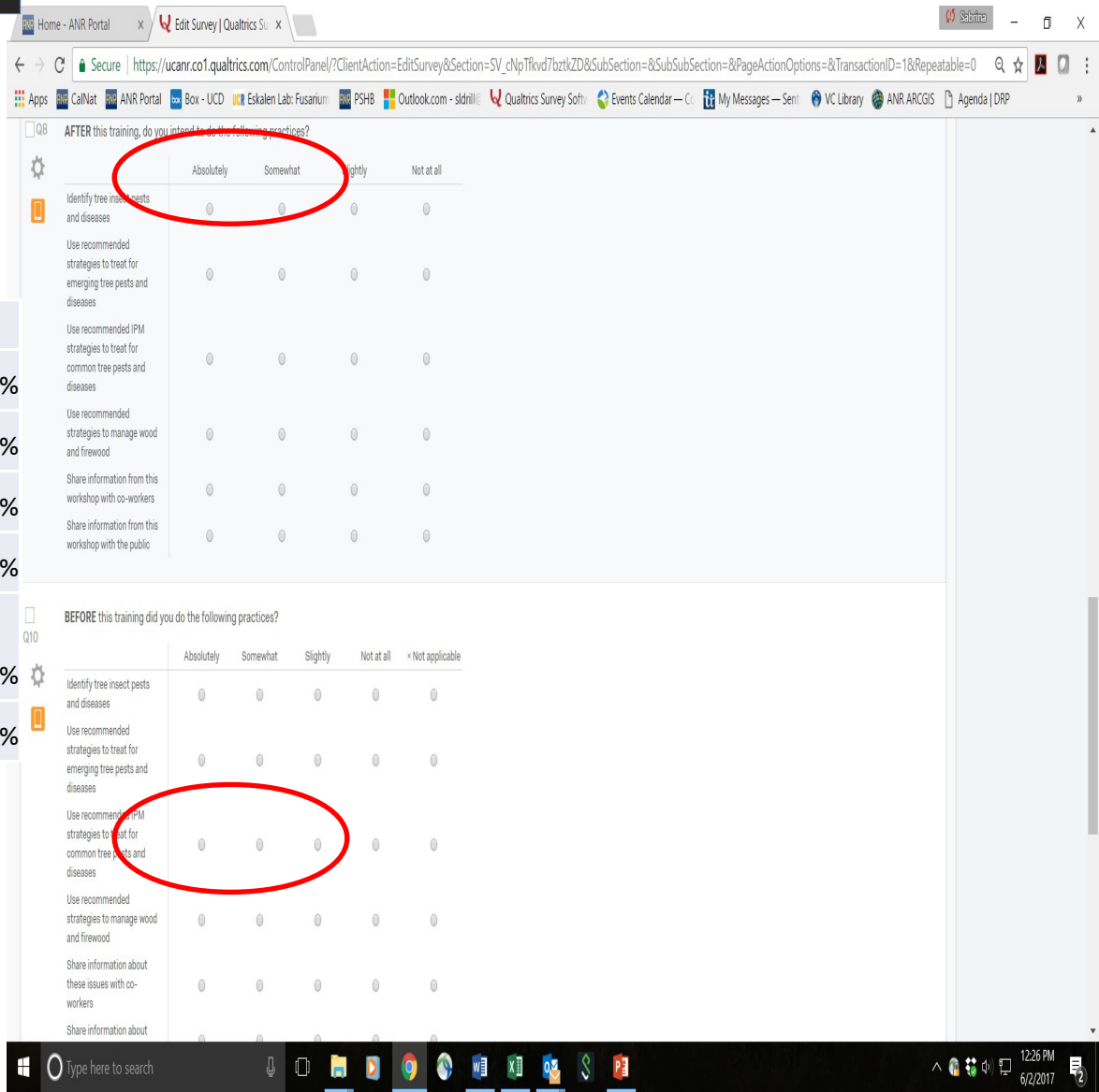
- Survey participants at end of activity only
- Measure self-reported learning gains AND changes in skills, attitudes, intent to adopt, etc.
- Comparison data allows for attribution of gains to the Extension activity
- Respondent bias

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%



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

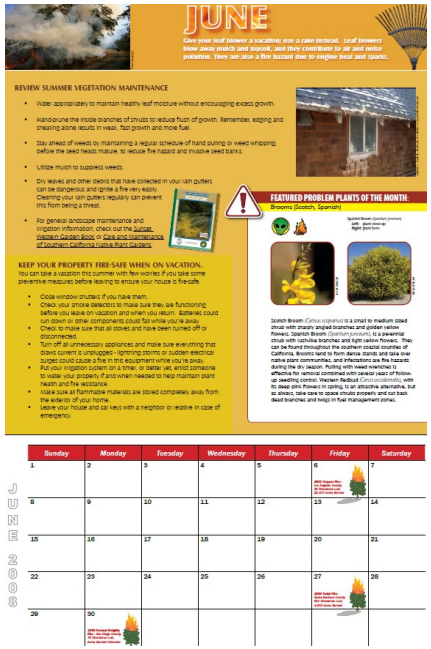
Downloadable at no cost, but asked for name, email, employer, city, and state to gather evaluation information

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

Follow-up survey sent as part of Extension product



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For questions or additional copies, please contact:

UCCE-LA
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.

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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

Watershed U. Evaulation | Watershed U. Evaulation | Edit Survey | Qualtrics Su | New Tab

Secure | https://ucanr.edu/survey/survey.cfm?surveynumber=2914

Apps | CalNat | ANR Portal | Box - UCD | Eskalen Lab: Fusarium | PSHB | Outlook.com - sldrill | Qualtrics Survey Soft | Events Calendar – C | My Messages – Sent | VC Library | ANR ARCGIS | Agenda | DRP

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 activites.

Type here to search

1:16 PM
6/2/2017

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

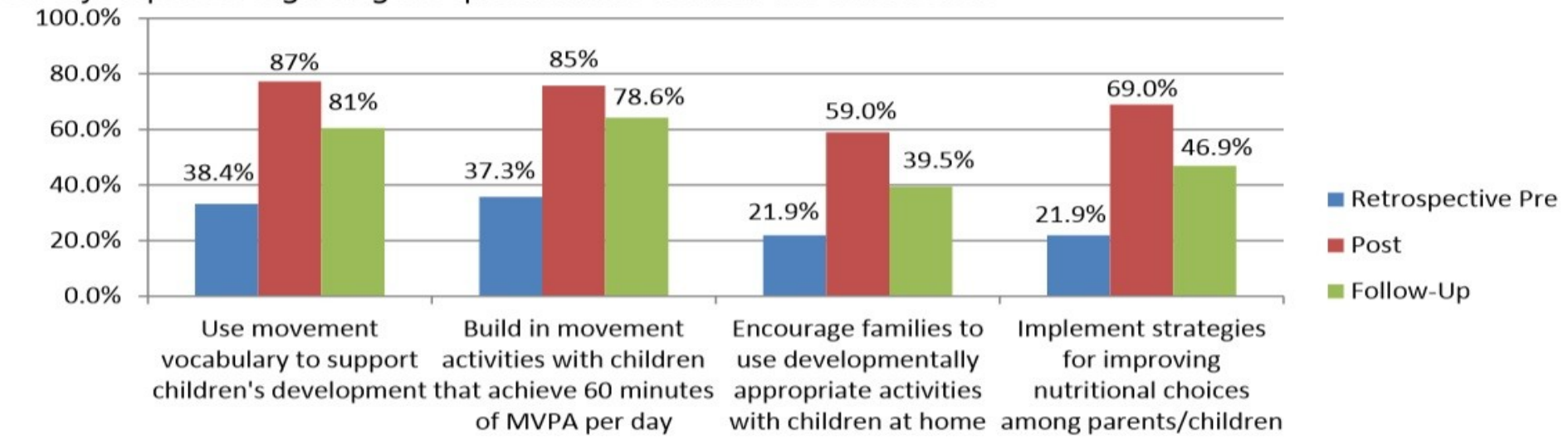
- AFTER the training, do you intend to do the following practices?
- BEFORE the training, did you do the following practices?
- [Several months later]: Do you do the following practices?

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)

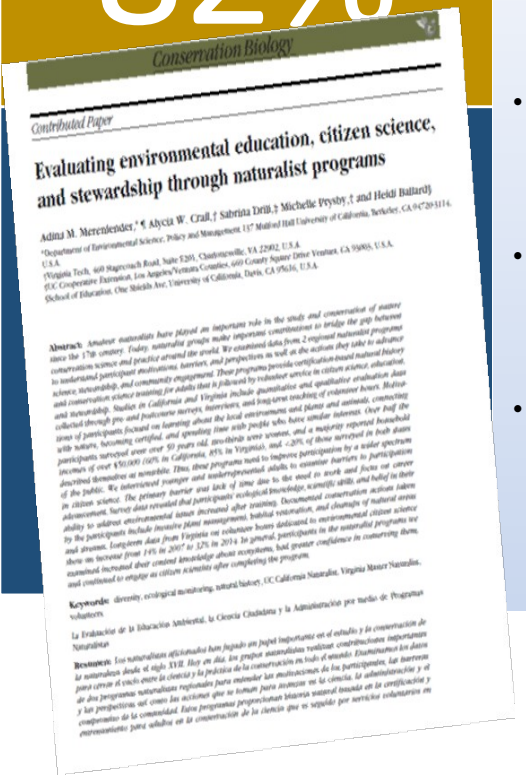
Mixed Methods

Mt. Diablo Region

2017 California Naturalist Course Scorecard

Overall Satisfaction: (satisfied + very satisfied)

82%


Conservation Biology

Contributed Paper

Evaluating environmental education, citizen science, and stewardship through naturalist programs

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Abstract: Amateur naturalists have played an important role in the study and conservation of nature since the 17th century. Today, naturalist groups make important contributions to bridge the gap between conservation science and practice around the world. We examined data from 2 regional naturalist programs to understand participant motivations, barriers, and perspectives as well as the actions they take to advance science, stewardship, and community engagement. These programs provide certification-based natural history and conservation science training for adults that is followed by volunteer service in citizen science, education, and stewardship. Studies in California and Virginia include quantitative and qualitative evaluation data collected through pre- and postcourse surveys, interviews, and long-term tracking of volunteer hours. Motivations of participants focused on learning about the local environments and plants and animals, connecting with nature, becoming certified, and spending time with people who have similar interests. Over half the participants surveyed were over 50 years old, two-thirds were women, and a majority reported household incomes of over $50,000 (60% in California, 85% in Virginia), and <20% of those surveyed in both states described themselves as nonwhite. Thus, these programs need to improve participation by a wider spectrum of the public. We interviewed younger and underrepresented adults to examine barriers to participation in citizen science. The primary barrier was lack of time due to the need to work and focus on career advancement. Survey data revealed that participants' ecological knowledge, scientific skills, and belief in their ability to address environmental issues increased after training. Documented conservation actions taken by the participants include invasive plant management, habitat restoration, and cleanups of natural areas and streams. Long-term data from Virginia on volunteer hours dedicated to environmental citizen science show an increase from 14% in 2007 to 32% in 2014. In general, participants in the naturalist programs we examined increased their content knowledge about ecosystems, had greater confidence in conserving them, and continued to engage as citizen scientists after completing the program.

Keywords: diversity, ecological monitoring, natural history, UC California Naturalist, Virginia Master Naturalist, volunteers.

La Evaluación de la Educación Ambiental, la Ciencia Ciudadana y la Administración por medio de Programas Naturalistas

Resumen: Los naturalistas aficionados han jugado un papel importante en el estudio y la conservación de la naturaleza desde el siglo XVII. Hoy en día, los grupos naturalistas realizan contribuciones importantes para cerrar el vacío entre la ciencia y la práctica de la conservación en todo el mundo. Examinamos los datos de dos programas naturalistas regionales para entender las motivaciones de los participantes, las barreras y las perspectivas así como las acciones que se toman para avanzar en la ciencia, la administración y el compromiso de la comunidad. Estos programas proporcionan historia natural basada en la certificación y entrenamiento para adultos en la conservación de la ciencia que es seguido por servicios voluntarios en

Evaluation tools:

- **Retrospective survey**
- **Interviews with select groups**
- **Focus group with instructors**
- **VMS to record hours, activities, 2◦ contacts, acres**

Plan to Volunteer

100 %

(n=11)

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

General Stats:

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

University of California
Agriculture and Natural Resources
California Naturalist Program

Data Collection Plan Exercise

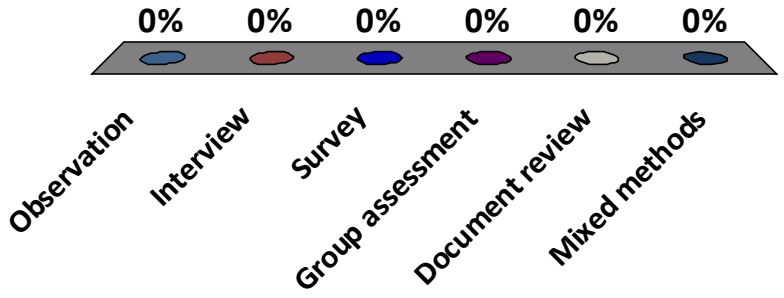
Step 4 Determine Sources of Information
Step 5 Choose Methods

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