Presentation to 3rd African Coffee Sustainability Forum

Impact Evaluation of TechnoServe's Rwanda Coffee Agronomy Program & the "Monitoring Effect"

February 13, 2013

Agenda

1. Background & Study Objectives

2. Yield Impact Estimates

3. Adoption of Best Practices

4. The "Monitoring" Effect

What is the TechnoServe Agronomy Training program?

- TechnoServe's East Africa Coffee Initiative was started in 2008, with funding from the Bill and Melinda Gates foundation

- The Rwanda Coffee Agronomy Program is a two year training program, designed to help farmers adopt a number of best-practices that - in theory - should result in more sustainable coffee farming and higher yields

- Farmers are trained monthly in the first year and once every 2 months in the second year, in small groups of about 30 by TechnoServe-trained "farmer trainers" - in batches of about 7,500 farmers each year (called Cohorts)

- To date over **20,000 farmers** have completed the program, with 8,500 farmers currently either in year 1 or 2 of the program

What is the TechnoServe training curriculum?

The training curriculum is structured around known sustainable coffee-farming practices that improve the productivity of coffee trees and reduce their cyclicality. The 11 best practices that the program monitors and focuses on can be grouped into 4 inter-related categories:

1. **Maintaining the plot**, through mulching, weeding, and ensuring there is sufficient shade for the coffee trees;

2. **Caring for the coffee trees**, by pruning them regularly and rejuvenating every 6-7 years;

3. **Providing the right inputs mix**, in particular through composting and better nutritional practices; and lastly,

4. **Using sustainable farming methods**, by limiting soil erosion, making safe use of pesticides and finally keeping detailed records to better manage farming activities.

The objectives of today's presentation…

KEY FINDINGS

1. Agronomy Training - if done properly - works in Rwanda!
2. It has led to significant increases in yields and best practice adoption
3. TechnoServe's M&E system is impressive (870,000 datapoints on attendance only!) and illustrates the benefit of extensive data collection
4. The structure of the agronomy training has been very effective in achieving results (small groups of 30 managed by a focal farmer)
5. Monitoring can lead to a remarkable impact in attendance rates and subsequent increase in yields and best practice adoption rates

The objectives of the study on TechnoServe's Agronomy Training program…

KEY OBJECTIVES

- Test the robustness of current impact estimates
- Provide new insights on yield impact and best practice adoption
- Independently verify data collection methods with the objective of identifying inherent biases in the M&E approach

RESEARCH TOOLS:

1. Internal validity checks
2. Field Spot-checks
3. Specific strategies to overcome identified biases
4. Semi-structured Interviews and Focus Groups

Before we begin, some interesting facts….

DID YOU KNOW?

- ✓ **Did you know that enthusiasm for training tends to decrease over time?**
- ✓ Did you know that female registered farmers consistently have higher attendance rates than male farmers?
- ✓ Did you know that training group size matters a lot? The larger the training group, the lower attendance is on average.
- ✓ Did you know that adopters of best practices are much more satisfied with the program than non-adopters?

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What data did we use? How does TechnoServe's M&E system work?

SAMPLE	**Entire "Population"**	**~1000 farmers/cohort**	**~300 farmers/cohort**
DATA COLLECTED	**Attendance Data**	**Best Practice Data**	**Yield Data**
FREQUENCY	*Monthly*	*Bi-annually*	*Annually*
METHODOLOGY	✓ Data collected by farmer trainers at every monthly training session	✓ Data collected from a select sample of registered farmers on adoption rates of 11 best practices	✓ Yield data collected by providing scales, training and a calendar to randomly selected group of farmers in each cohort

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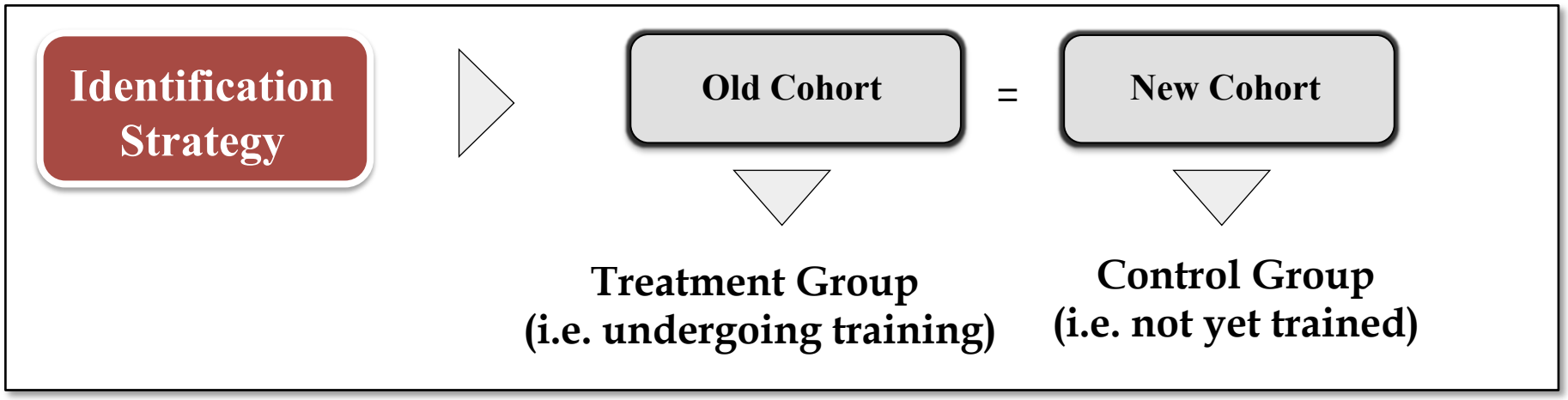
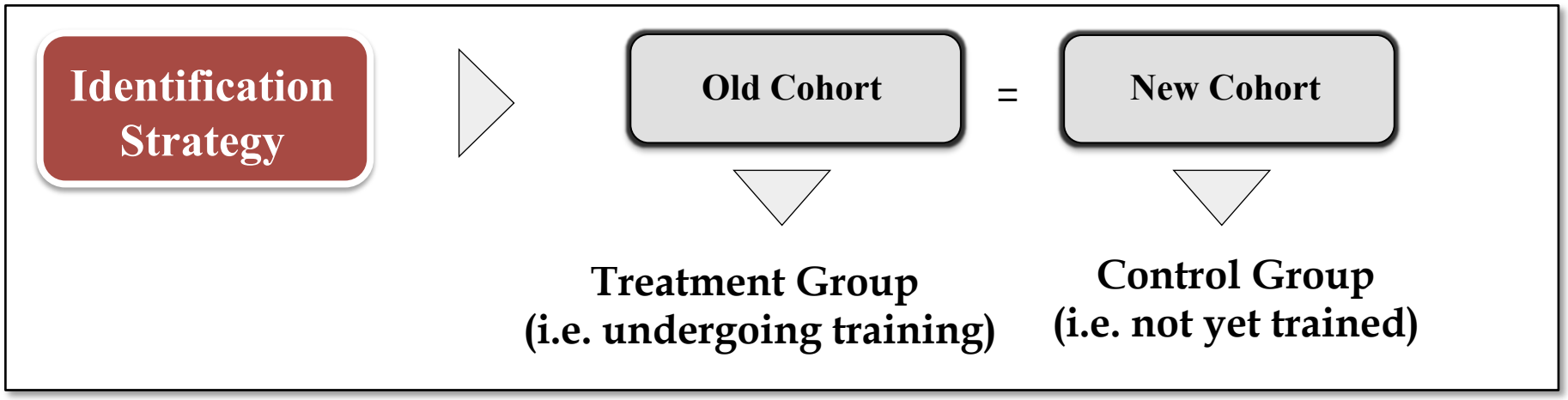
How would we typically measure impact on coffee yields?



But there are constraints/biases to this approach….

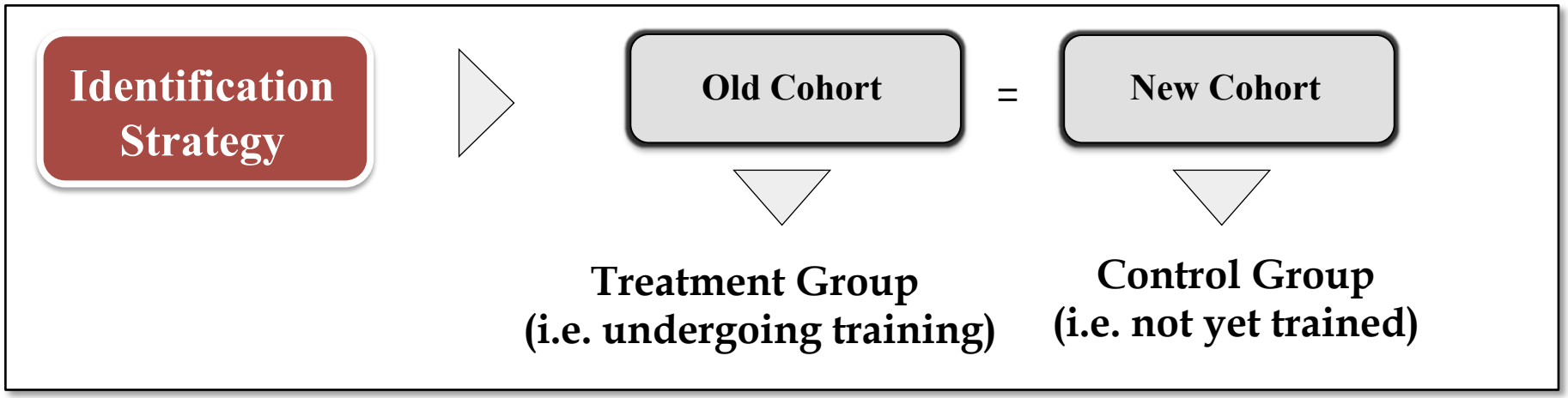


BUT

THREATS TO INTERNAL VALIDITY

1. Selection bias
2. Reporting bias
3. Monitoring effect
4. Missing observations in time

…so we proposed an alternative strategy that attempts to overcome some of these biases.



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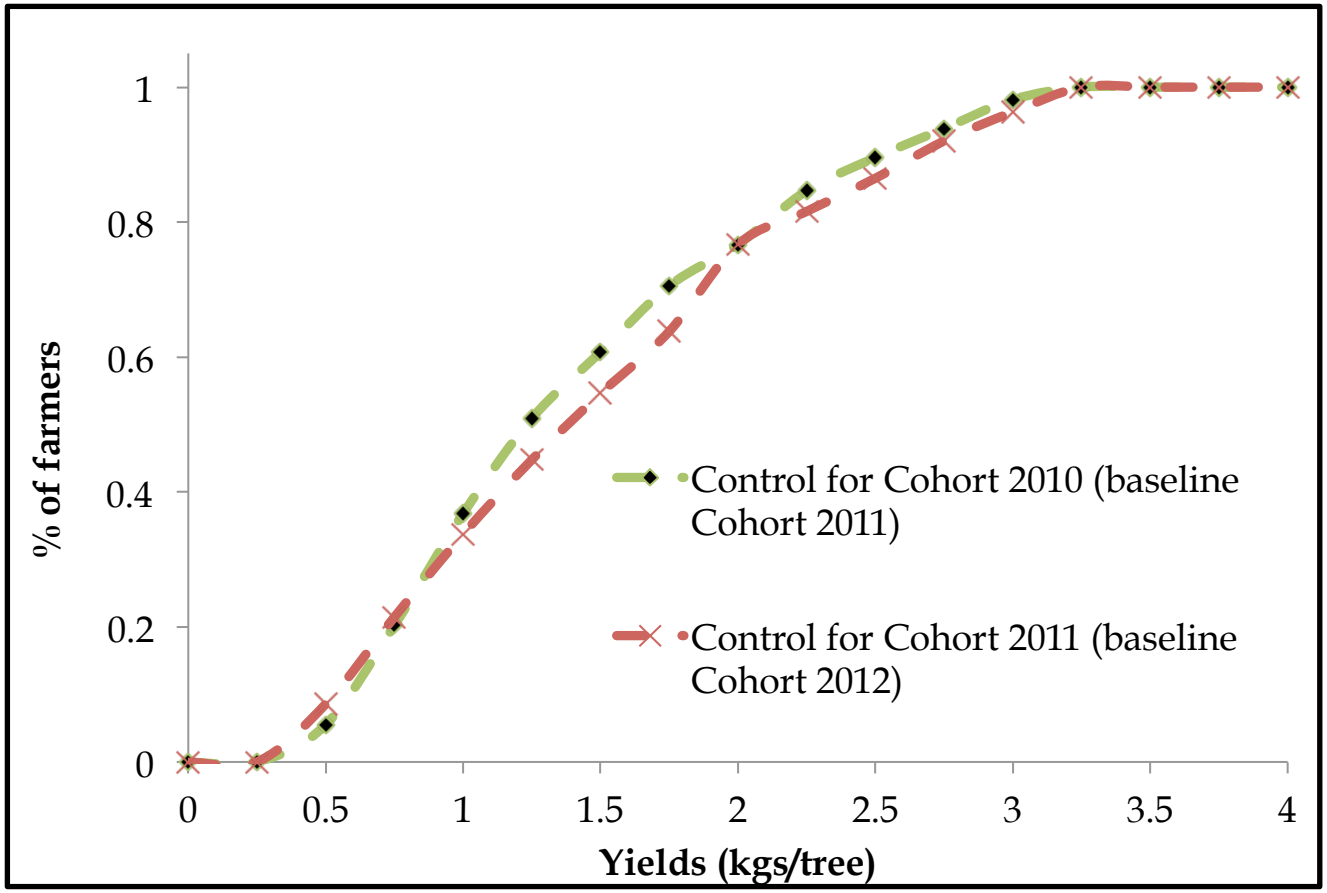
Alternative Strategy

Based on the new strategy we find strong evidence of a positive impact of the training program on coffee yields…

DISTRIBUTION OF YIELD DATA BEFORE THE TRAINNG

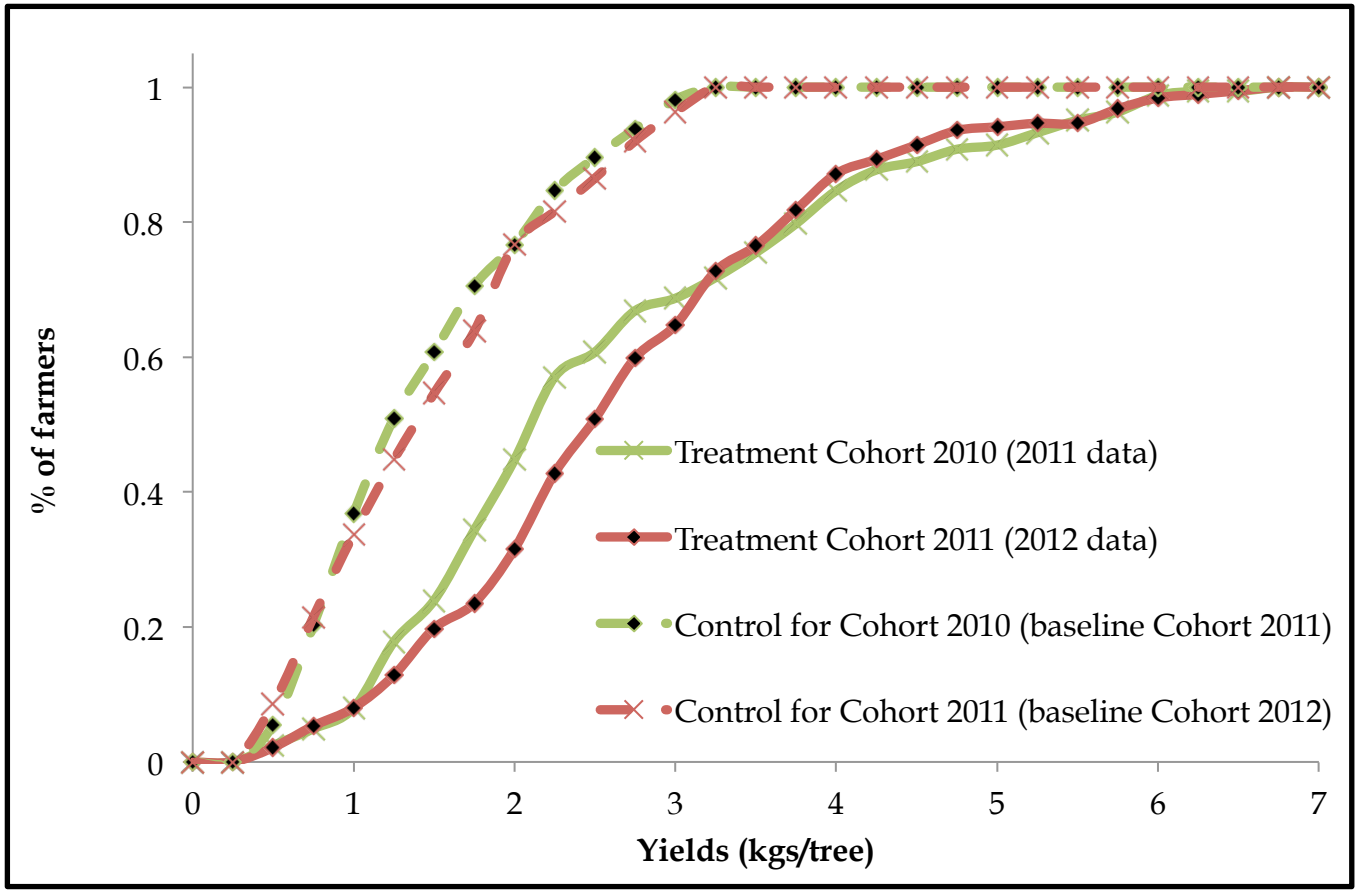


1 year of training → **increase in yields of 57.5% for Cohort 2010**

1 year of training → **increase in yields of 75.5% for Cohort 2011!!**

After 1 year of training, the curve had clearly shifted to the right for both Cohorts, leading to significant gains in yield levels

DISTRIBUTION OF YIELD DATA BEFORE AND AFTER TRAINING



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1 year of training → **increase in yields of 75.5% for Cohort 2011!!**

Results at the cooperative level are also remarkably consistent. In all cases the change after one year of training is positive

BEFORE- AND AFTER- TRAINING YIELDS ESTIMATES

Cooperative	Cohort	Before Training	After Training	Change
Cafeki	2010	1.65	2.55	55.0%
Gisaka	2010	1.49	2.61	74.8%
Giseke	2010	1.29	3.36	**161.3%**
Gisuma	2010	2.12	2.90	36.8%
Musha	2010	1.59	3.20	**100.8%**
Mwezi	2010	1.73	2.27	31.8%
Karama	2011	1.61	2.94	82.6%
Kinyaga	2011	1.67	3.21	92.1%
Koakagi	2011	2.03	2.56	26.4%
Matyazo	2011	1.55	2.42	56.1%
Nasho	2011	1.26	3.13	**148.1%**
Shara	2011	1.86	3.33	79.5%
Vunga	2011	1.77	2.46	38.6%

What are the main lessons from the yield estimates?

KEY TAKE-AWAYS

1. Structured agronomy training programs can have a large impact on farmer performance.
2. TechnoServe is currently the only organization in Rwanda to collect detailed data on coffee yields at the farmer level across more than 25 cooperatives
3. It is not always necessary to have an experimental setup to find interesting results but you do need good M&E systems

QUESTIONS TO CONSIDER

➔ Can we replicate TechnoServe's training program nationally?

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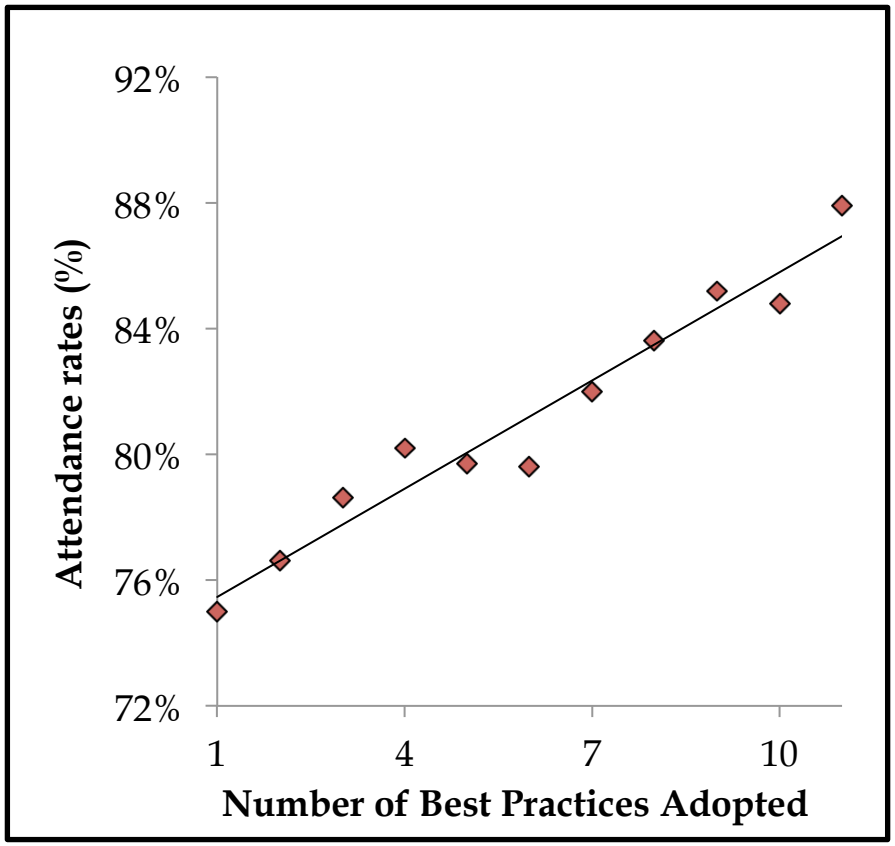
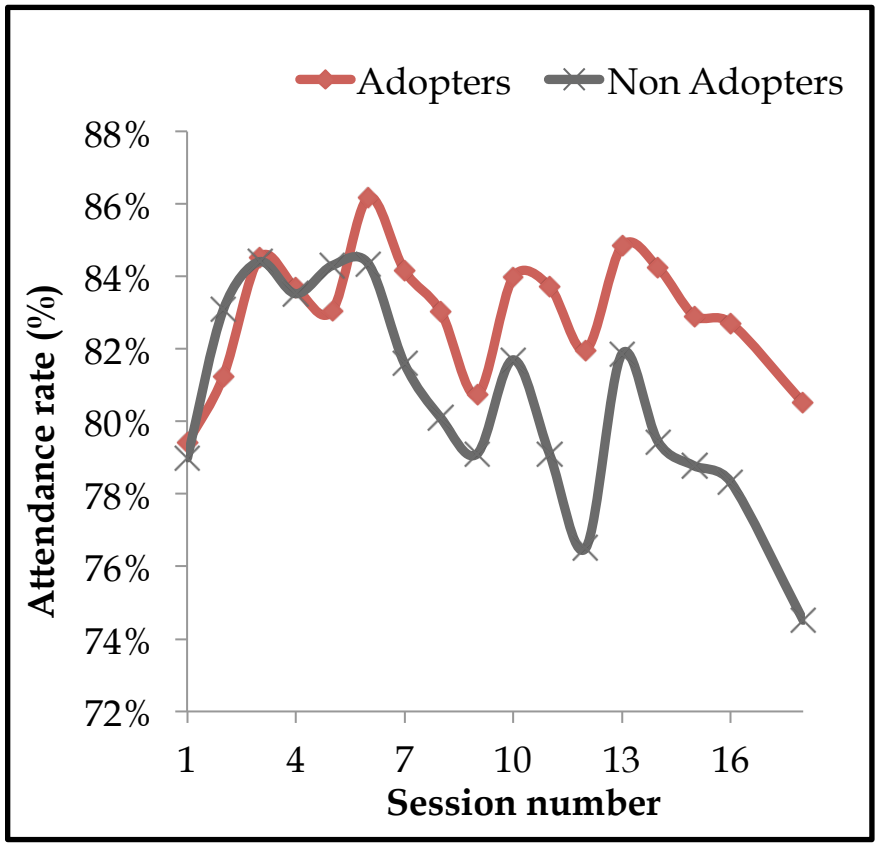
The higher a farmer's attendance rate, the more likely he/she will adopt best practices

AVERAGE ATTENDANE RATE BY NUMBER OF BEST PRACTICES ADOPTED (COHORT 2010)

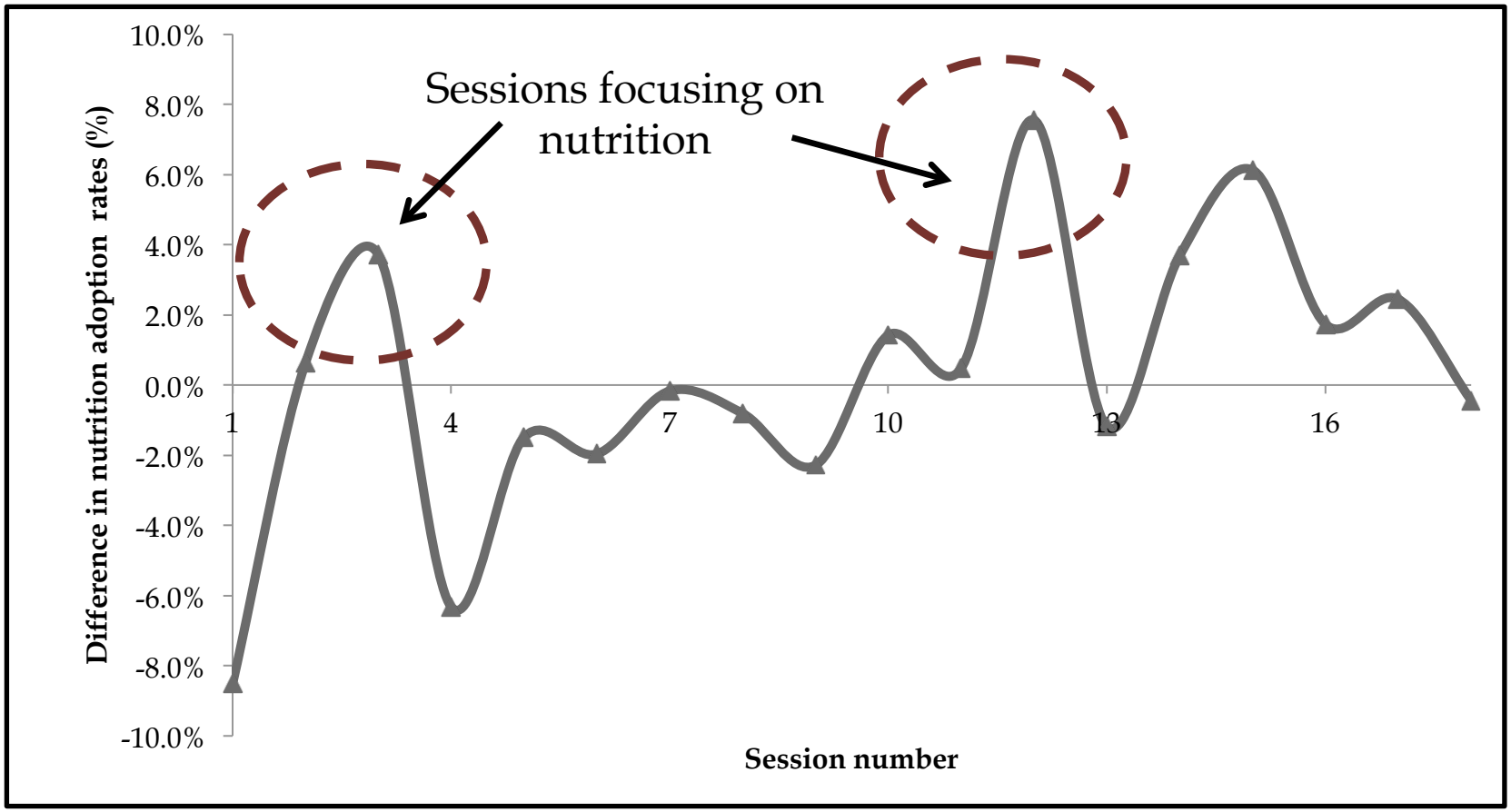


ATTENDANCE RATES OF ADOPTERS VS. NON-ADOPTERS (COHORT 2010)



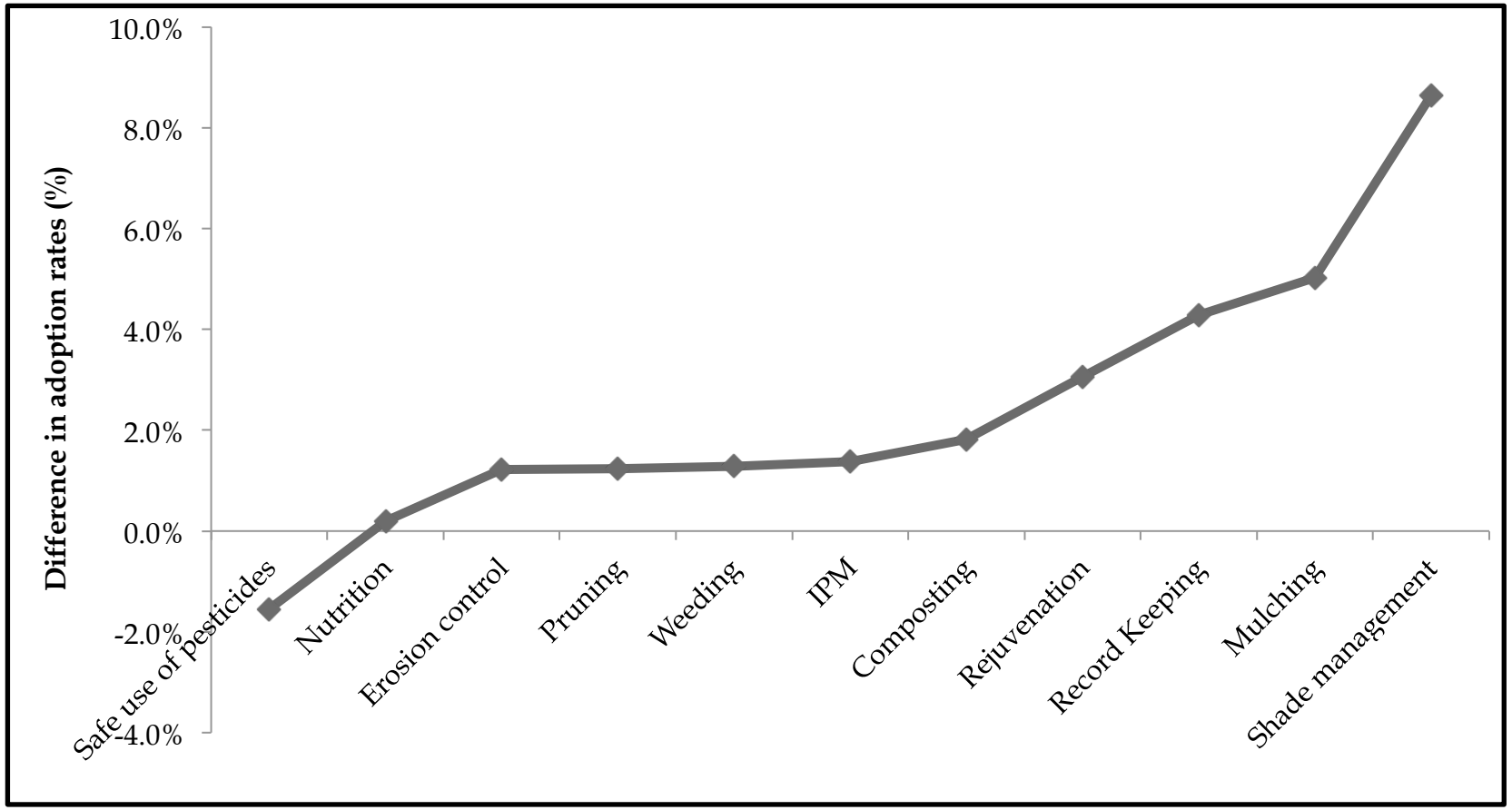
We find evidence of a clear link between adoption and attendance also at the level of individual best practices ….

Difference in Nutrition adoption rates between trained farmers and untrained farmers by session (Cohort 2010)



…but we find differences in the effect of the program on the adoption of different best practices

Difference in adoption rates of trained and untrained farmers (Cohort 2010)



What are the main lessons from the best practice adoption?

KEY TAKE-AWAYS

1. There is a clear link between the training program and the best practice adoption rates, which substantiates the argument that the training program has had an observed impact on yields

2. There also appears to be a clear link between attending a specific training session on a certain best practice and adopting the corresponding best practice

3. But there are differences in the effect of the program on the adoption of different best practices

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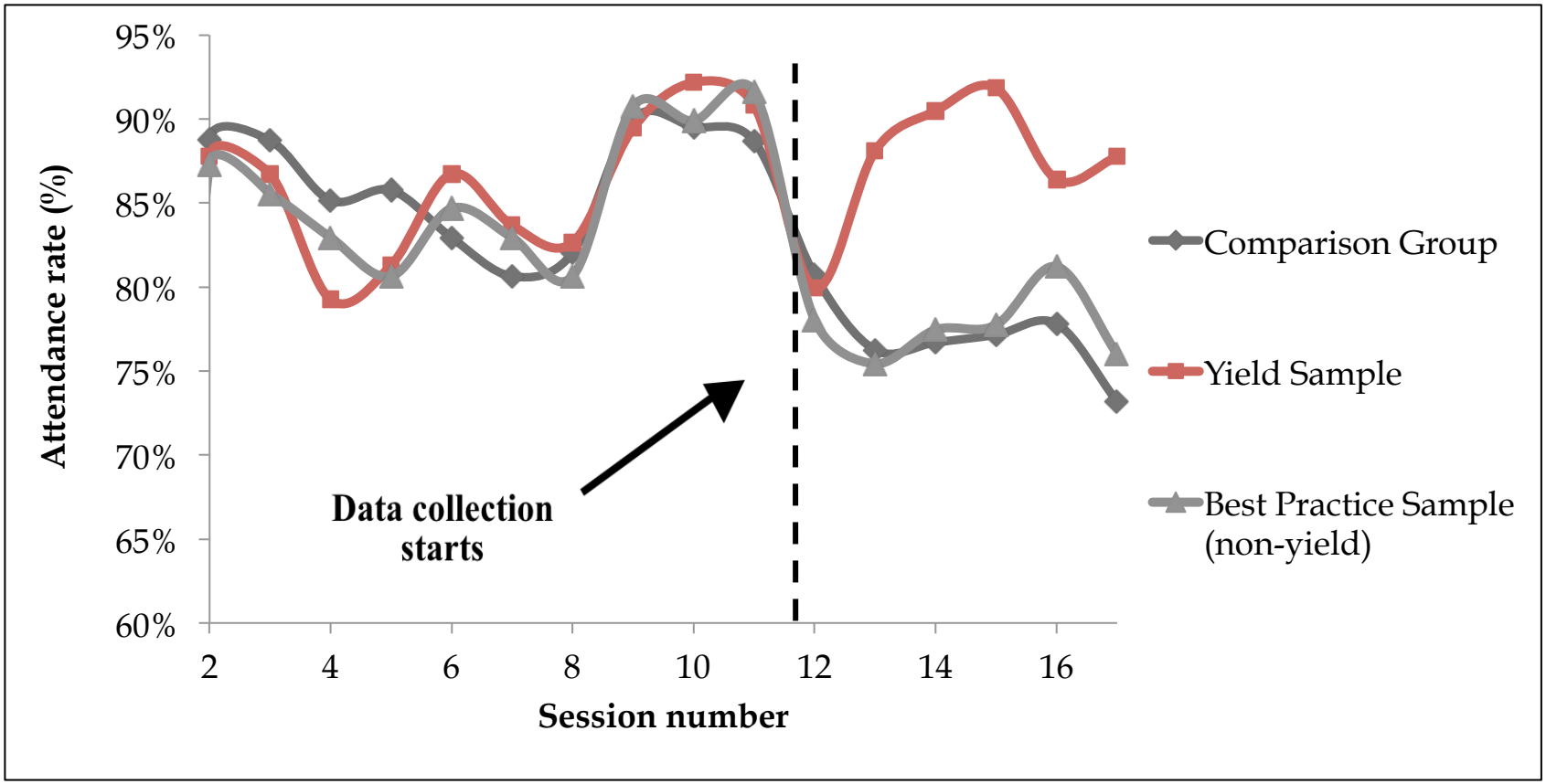
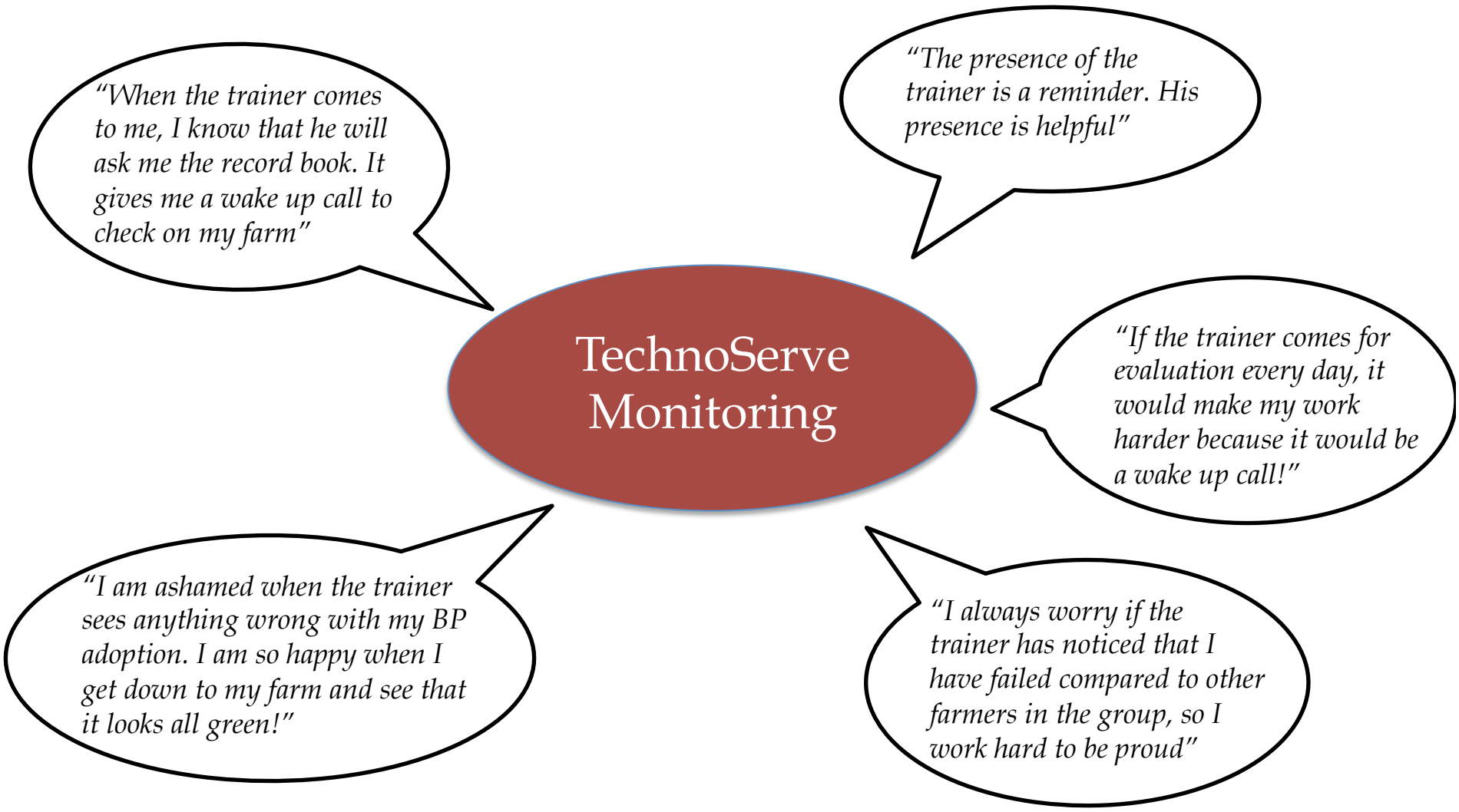
One of the most remarkable and unexpected findings was the impact of monitoring on farmer's behavior – bi-monthly monitoring led to a 12-15% attendance rate increase and 7% increase in best practice adoption!

Attendance rates in yield sample vs. comparison group and placebo



Some anecdotal evidence from our interviews in the field…



What are the main lessons from the "monitoring" effect?

KEY TAKE-AWAYS

1. TechnoServe's extensive and unique M&E system enabled us to test the impact of the M&E system itself on project beneficiaries

2. As soon as the data collection/monitoring efforts commence, there is a significant gap in attendance rates between farmers who are in the monitoring sample and those who are not

3. Regular, structured and agreed-upon-in-writing types of monitoring has a significant impact on on the way the farmers experience the project

QUESTIONS TO CONSIDER

- ➔ Is the impact of monitoring inherent to the Rwandan context?
- ➔ Can we create other mechanisms to provide the "illusion" of monitoring?

Laterite is a research consulting firm based in Kigali, Rwanda with a presence in Malawi and Burundi. We offer research services clustered around economic policy, social research and market research.

Thank you!

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