

Result Demonstration: A Method That Works

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A result demonstration shows potential adopters how a practice, variety, or technology works. It is one of the most effective educational tools for transferring research-based technologies and practices to agricultural producers and the public. No method influences adoption decisions by a target audience as much as the result demonstration.

Everett M. Rogers, a pioneer in adoption-diffusion principles, identified five factors that affect an individual's decision to adopt or reject an innovation: relative advantage, compatibility, complexity, trialability, and observability (Fig. 1).

As the Texas A&M AgriLife Extension Service works to help Texans address emerging issues, we can increase our effectiveness and the rate of client adoption by conducting applied research trials and disseminating their results.

Result demonstrations were the foundation of Cooperative Extension. In 1902, Seaman A. Knapp and Walter C. Porter began conducting result demonstrations near Terrell, Texas, to show local farmers how to reduce boll weevil damage on cotton. The adoption of production practices and changes in producer behavior as a result of these demonstrations was instrumental in the passage of legislation (Smith-Lever Act of 1914) that authorized Cooperative Extension as a part of the Land-Grant Colleges and United States Department of Agriculture.

A person's adoption of new technologies, best practices, and behavior changes can usually be traced to one or more of these five factors. Think through these influences, and discuss them when trying to convince clients to consider a new behavior, best practice, or technology.

Remember that these factors are not absolutes; instead, they are the *perceptions* about innovation that your clients have developed. If you can successfully **increase or improve** clients' perceptions of an innovation's relative advantage, compatibility, observability, and trialability and **decrease the clients' perception** that an innovation is very complex, you will **increase the rate of adoption** of that innovation by your target audience.

RELATIVE ADVANTAGE



The degree to which a person perceives that an innovation is better than the idea or practice it replaces. Although relative advantage is associated with economic profitability, economics is not the only consideration in determining relative advantage.

The result demonstration enables producers to quickly compare the trial's results with those currently in their operations. When the product or technology being tested outperforms the one that the producers use, they can see the relative advantage.

COMPATIBILITY



The degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. Each innovation must be compatible with the client's values, ideas, and needs.

COMPLEXITY



The degree to which a person perceives that an innovation is difficult to understand and use. Result demonstrations also show how complex an innovation may be to implement.

Because the innovation is conducted on a producer's land—typically with access, security, and visibility—producers can see the progress of the demonstration from start to finish. As a result, they can more readily decide whether the work is too complicated for their operations.

TRIALABILITY



The degree to which an innovation may be experimented with on a limited basis. For example, a producer provides a small-acreage area in which to test a new seed variety. If the variety performs well in the trial, the producer may increase the planting on the farm during the next growing season.

OBSERVABILITY



The degree to which the results of an innovation are visible to others. By using the demonstration as an example, producers would be able to see the success of the crop during crop tours as well as driving by. Producers are more likely to adopt the practice after having "observed" the trial during a tour.

Figure 1. The adoption-diffusion principles identified by Everett Rogers, former communication theorist and strategist

How to establish an effective result demonstration

AgriLife Extension result demonstrations focus on solving problems and addressing issues facing producers. The process for establishing and conducting an effective result demonstration can be organized into five steps (Fig. 2). Each step is crucial to maximizing the demonstration's effectiveness:

Step 1. When identifying the problem, first **analyze the current situation**. Collect information that will help you accurately describe the issues facing local producers, and develop the result demonstrations to address those issues.

This analysis should include:

- Discussions with AgriLife Extension specialists
- Consultation with program area committees or task forces
- Interviews with consultants
- Reviews of historical production data
- Historical economic returns and commodity market reports
- Formal and informal surveys
- Interviews with producers
- Field observations

Step 2. As you **make plans to address the issues**, solicit advice from the program area committee about the needs, goals, and suitable cooperators for the demonstration. Involve the appropriate AgriLife Extension specialist in planning the result demonstration.

In this stage, you will choose an appropriate cooperator and location for the trial. Ask the program committee for help in making the selection:

- Is the potential cooperator enthusiastic about AgriLife Extension's educational mission in general and specifically about establishing this result demonstration project?
- Does the potential cooperator have a reputation for credibility?
- Is the potential cooperator considered a leader?



Figure 2. Steps in conducting an effective result demonstration

Also formulate a plan to disseminate the results. Conduct trials at sites that are accessible to the producers who need the information that the trials will generate. If possible, choose a site that the public can view and access. If public access is not possible, consider distributing the results via technology and news media (see Step 5).

Step 3. Establish and manage the trials. This step may involve planting the seed or initiating the desired or investigated treatment with the cooperator. To produce sound data that AgriLife Extension can use in educational

Applied research and demonstration (AR&D) work is an important educational method when used in an in-depth program.

We can use this one method, which can lead to other effective methods, to be more efficient with our time and efforts.

The AR&D can lend itself to all sorts of media—such as radio, Facebook, YouTube, field tours, and presentations at major commodity conferences.

If you do the work, put the work to work.

—Kerry Siders, Extension Agent—IPM
Hockley, Cochran, and Lamb Counties

efforts, include three or more replications of each treatment to assess the generalizability of the trials.

These trials can:

- Investigate theories or demonstrate proven production practices or technology
- Assess probable solutions
- Confirm AgriLife Extension recommendations
- Provide data that will be the basis for future AgriLife Extension recommendations

To effectively launch and manage a result demonstration/applied research trial, establish procedures for:

- Result demonstration design
- Observation and data collection
- Recordkeeping
- Data analysis and evaluation

Step 4. Evaluating the trial is an ongoing process that begins when the trial kicks off and continues throughout the project.

At the start of the program, take accurate notes about the trial, and clearly mark the plots.

During the project, monitor the progress often, write accurate field notes, interview the cooperators to get their observations, and consult with AgriLife Extension subject-matter specialists about notable observations.

When the trial is harvested or completed, again compile accurate records, evaluate and analyze the data using statistical analysis if appropriate, and develop a general interpretation of the data. You can use all of the results to plan future demonstrations and make recommendations to producers.

Even if the result demonstration does not produce the results you expected, it is still important to evaluate it because agents, specialists, and producers can learn important lessons from such failures.

Step 5. The final step is recommendation and diffusion. Result demonstrations are of limited value if you implement the trial, collect the data, and then send a report only to the specialists, AgriLife Extension administrators, and the cooperator. The trial's impact will be minimal unless you distribute the results widely to clientele and

AgriLife Extension educators as an integral component of a comprehensive AgriLife Extension educational strategy.

You can distribute the research-based data from your demonstration to clientele in a variety of educational settings (Fig. 3). For example, you might use a trial or series of trials as the capstone of an AgriLife Extension educational program. You could use the trial as a source of data and teaching points for field days, result demonstration/applied research reports, educational newsletters, short courses, and workshops.

One county's success story

Faced with depressed commodity prices and increasing production costs, Nueces County growers in 2016 needed to determine whether emerging technologies would be feasible for their cropping systems. The producers needed reliable information on how to maintain profitability, protect long-term sustainability, reduce weed resistance to herbicides, manage emerging insects, and resolve fertility issues. They also wanted to investigate alternative strategies for tillage, marketing, and risk management.

In 2016, the Nueces County Agriculture and Natural Resource Committee and the Row Crops Task Force identified issues associated with local cropping systems,



Figure 3. Educational strategies that can increase the impact of result demonstration efforts by Extension educators

particularly in weed, insect, and fertility management. That year, the county had 362,586 acres in cropland.

In 2017, an AgriLife Extension program in Nueces County used result demonstrations to increase the profitability and sustainability of cropping systems locally. To gather information from producers, educate them about best management practices, and disseminate the trial results, AgriLife Extension personnel held several activities:

- Symposium on field crops
- Result demonstrations and applied research
- Crop tour showcasing the research and demonstrations
- Turn-row meeting on cotton defoliation
- Training on tillage and weed management
- Campaign to encourage soil testing
- Workshop on marketing and crop risk management
- Publication of weekly news articles
- Distribution of bimonthly newsletters

Figure 4 reports the percentages of the producers who reported intentions to adopt some or all of the 12 recommended practices:

1. Applying residual herbicides
2. Using herbicide-tolerant traits to manage problematic weeds

3. Managing weeds based on AgriLife Extension recommendations
4. Using multiple herbicides with different modes of action to manage weeds
5. Adopting recommended insect management practices
6. Increasing the use of crop budgeting tools
7. Using recommended disease management practices
8. Incorporating herbicide plant-back restrictions into crop rotation plans
9. Adopting new varieties sooner, based on variety testing
10. Increasing the use of crop insurance choices in marketing strategies
11. Making more use of forward contracting or storage alternatives
12. Increasingly using options to create price floors and ceilings

During selected events a post-evaluation survey was used to determine the programmatic results of this educational effort. The 179 producers who completed evaluations reported estimated gains valued at **\$2.6 million—more than \$13 per acre.**

The producers managed 198,377 acres, which comprised 55 percent of the cropland in Nueces County.

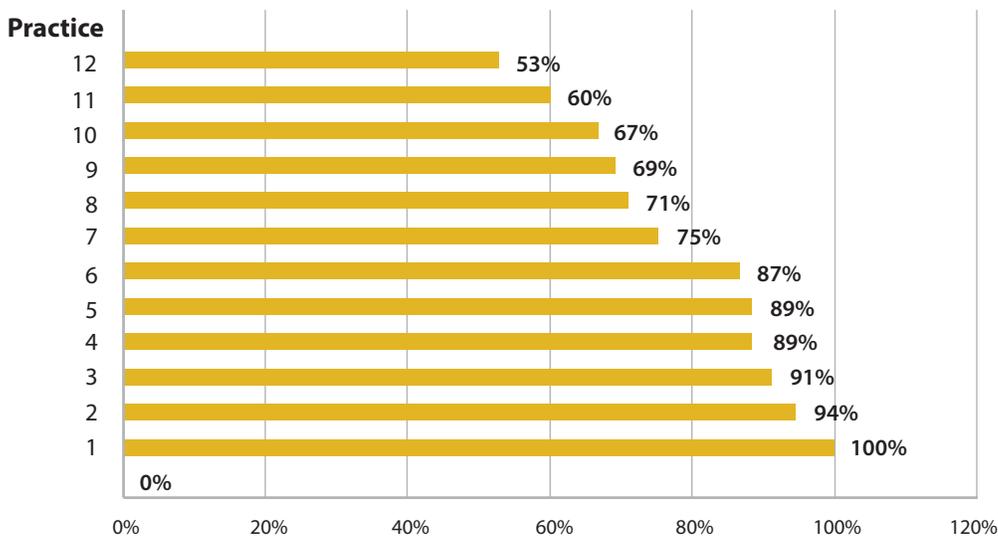


Figure 4. Percentage of Nueces County producers expressing intent to adopt selected best management practices

Conclusion

The Texas A&M AgriLife Extension Service aims to accurately identify the issues facing our clientele, prioritize those issues, and develop educational programs that improve social, economic, and/or environmental conditions in Texas.

In today's complex, rapidly changing environment, no other educational delivery method offers adoption and diffusion strategies to the degree of result demonstrations. These demonstrations are a useful tool to help educate producers on how to improve their agricultural operations.

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Checklist for Developing an Effective Result Demonstration

Questions to Consider

Notes

STEP ONE.

Identify the issues.



- ▶ What issues are producers facing?
- ▶ What advice have you received from program area committees, specialists, and consultants about the issues the producers are encountering?

STEP TWO.

Plan the result demonstration to address the issues.



- ▶ Is an appropriate specialist involved in designing the demonstration project?
- ▶ Is experimental design used?
- ▶ Is the potential cooperator enthusiastic about AgriLife Extension's educational mission in general and specifically about establishing this particular result demonstration?
- ▶ Does the potential cooperator have a reputation for credibility?
- ▶ Is the potential cooperator considered a leader?
- ▶ Is the proposed location accessible to the producers/public? Does it need to be?

STEP THREE.

Establish and manage the result demonstration.



- ▶ Did you develop a protocol?
- ▶ Does the protocol include strategies to observe and collect data, keep records, and analyze the data?
- ▶ Is the demonstration replicated, if appropriate?

STEP FOUR.

Evaluate the results of the demonstration.



- ▶ Did you use the established protocol to monitor and collect data?
- ▶ Did you share the information with the appropriate specialist to help ensure that the results are correct?

STEP FIVE.

Share the data, publish the findings, and draw recommendations from the demonstration.



- ▶ Did you develop a strategy to report the results with local producers?
- ▶ Did you share the information with the program area committee?
- ▶ Was the information incorporated or used as the capstone of educational programs conducted?
