



# Moving Forward, Faster Together: How do we accelerate implementation and effectiveness?

Lara Fowler, Penn State  
Leah Palm-Forster, U. of Delaware  
STAC Quarterly Meeting, September 12, 2023

# Reasons for discussion: 2025 & beyond



State and federal leaders acknowledged during a meeting of the Chesapeake Executive Council on Oct. 11, 2022, that the Bay cleanup effort will likely fall short of goals for its 2025 deadline.

Will Parson/Chesapeake Bay Program

Chesapeake leaders pledge to step up progress toward 2025 goals but admit they won't meet them

Whitney Pipkin, Bay Journal, Oct. 13, 2022

[https://www.bayjournal.com/news/policy/chesapeake-leaders-pledge-to-step-up-progress-toward-2025-goals-but-admit-they-won-t/article\\_e2c0b134-4b23-11ed-b489-078054143990.html](https://www.bayjournal.com/news/policy/chesapeake-leaders-pledge-to-step-up-progress-toward-2025-goals-but-admit-they-won-t/article_e2c0b134-4b23-11ed-b489-078054143990.html)

# STAC Report: Comprehensive Evaluation of System Response (CESR)

## Key findings:

- First, achieving pollutant reduction and water quality improvements is proving more challenging than expected.
- Second, the Bay system faces permanent and ongoing changes in land use, climate change, population growth, and economic development that will challenge notions of restoration based on recreating historical conditions.
- **Third, opportunities to meet these challenges exist but efforts require changes and new approaches to implementation, planning, and decision-making.**

→ **Funding necessary but insufficient; new implementation tools and strategies needed, along with institutional innovation**

# Chesapeake Governance Study

## Findings:

- “Water quality governance in the Chesapeake watershed has been partially effective in terms of goal attainment.”
- Numerous challenges, and also opportunities, particularly related to addressing co-benefits (particularly stormwater/flooding + local water quality)
- “What is clear is that the CBP has helped to improve water quality in the Bay and the rest of the watershed, but that it will need to improve its own institutional design in order to continue to reduce loading in spite of increasing costs and environmental amplifiers.”

<https://www.chesapeake.org/stac/wp-content/uploads/2023/06/2021-Interviews-Report-FINAL.pdf>

# STAC workshop: Overcoming the Hurdle to BMP Implementation

## Some recommendations:

- Streamline programs
- Reinforce trusted relationship between ag professionals and farmers
- Support scalable pay-for-performance incentives for farmers and service providers
- Share local success stories
- Facilitate peer learning exchange
- Synthesize social science knowledge and share insights that can be applied
- Strategies need to be **flexible and adaptable**

→ **Test strategies based on these recommendation via [pilots/sandboxing](#)**

# STAC workshop: Is targeting the answer?

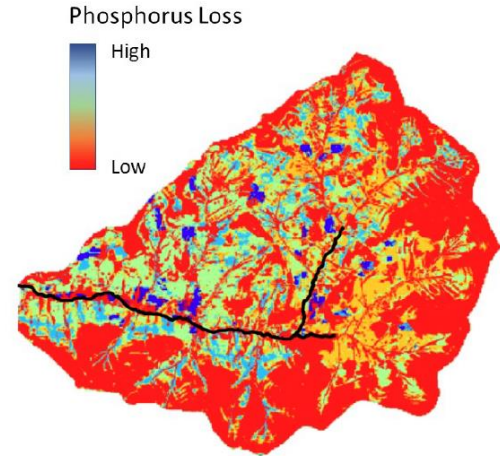
**Issue:** Less than 20% of the land generates more 50-90% of NPS pollution

**Solution:** Targeting BMPs to high impact areas is more cost-effective.

## Workshop Recommendations:

- Develop and support small testbed watersheds to pilot and test targeting incentive designs and assessment of outcomes
- Support development and testing of nonfinancial approaches to
  - increase participation
  - improve land manager identification of NPS hotspots

→ **test behavioral “nudges”, communication strategies, and feedback on NPS management performance via pilots/sandboxing**



# PA in the Balance (2016, 2019, 2022)

## Opportunity to manage both productive agriculture & healthy watersheds

### Key messages:

1. Embrace a culture of stewardship
2. Employ effective targeting
3. Integrate Soil Health, Manure Management, and Riparian Ecosystem Stewardship into Water Quality Strategies
4. Support Community Based Approaches
5. Recognize and Support a Three Pronged Approach (education and outreach; technical assistance; and enforcement)
6. Revisit and Retool Conservation Incentive Programs
7. Collaboratively Seek New Funding Opportunities

# Behavioral insights can support better programs and policies



- The structure of the decision-making environment matters and can influence decisions in predictable ways.
  - Successful examples in health, education, finance, poverty alleviation and charitable giving.
- ... and energy and water conservation too.

## Here's how you compare to neighbors



**!** You're using more than your neighbors.

**8%** more electricity than average neighbors

Aug 21, 2015 - Sep 20, 2015

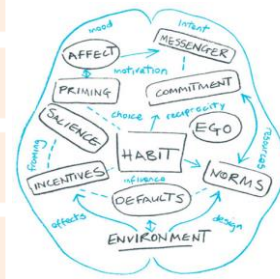
This is based on 87 similar homes within approx. 4 miles. Efficient neighbors are the 20% who use the least amount of electricity. See back for details.

- How can we improve decision-making environments for agri-environmental programs?



# AgE (Agri-Environmental) MINDSPACE

<b>M</b>	<b>Messenger</b>	We are heavily influenced by who communicates information to us
<b>I</b>	<b>Incentives</b>	Our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses
<b>N</b>	<b>Norms</b>	We are strongly influenced by what others do
<b>D</b>	<b>Defaults</b>	We “go with the flow” of pre-set options
<b>S</b>	<b>Salience</b>	Our attention is drawn to what is novel and seems relevant to us
<b>P</b>	<b>Priming</b>	Our acts are often influenced by sub-conscious cues
<b>A</b>	<b>Affect</b>	Our emotional associations can powerfully shape our actions
<b>C</b>	<b>Committment</b>	We seek to be consistent with our public promises and reciprocate acts
<b>E</b>	<b>Ego</b>	We act in ways that make us feel better about ourselves



<sup>1</sup> The MINDSPACE framework was developed by Paul H. Dolan and his coauthors and published in the Journal of Economic Psychology in 2012 (Vol. 33).



## Ag-E MINDSPACE

Use this framework to strengthen your agri-environmental program with behavioral insights.

### Background

In our budget-constrained world, we're always looking for ways to make our voluntary programs more cost-effective. How can we design programs so that farmers and landowners want to participate and take actions to improve our environment?

Providing economic incentives is one way that we can make these programs attractive, but other factors matter too (and sometimes matter more). Behavioral scientists have identified simple, low-cost program modifications, frequently called "nudges," that can improve program outcomes based on behavioral insights.

We highlight the insights that are relevant to agri-environmental programs using the MINDSPACE framework, which was developed by behavioral scientists.<sup>1</sup>

### What is Ag-E MINDSPACE?

Ag-E MINDSPACE describes nine categories of nudges that are relevant for agri-environmental (Ag-E) programs: Messengers, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitment, and Ego. Figure 1 describes the behavior associated with each of these categories.

FIGURE 1

<b>M</b>	<b>Messenger</b>	We are heavily influenced by who communicates information to us
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### Application Ideas

Below we've outlined some ways that you can put these insights to work for your program.

**Messengers:** Work with influential members of the community to deliver information about your program, especially when the information may be new or controversial.

**Incentives:** Think carefully about how your incentives are structured and presented to participants. For example, research has shown that farmers prefer upfront payments even if they could earn more through payments in the future. See Behavioral Insights Brief no. 5 [Gains from Avoiding Losses](#) for another example of how you can frame your incentives for maximum impact.

**Norms:** Provide information about how other farmers and landowners are engaging in environmental stewardship. See Behavioral Insights Brief no. 2 [The Pull of Social Comparisons](#) for more information.

**Defaults:** In your menu of stewardship options, make above-average environmental commitments the default. See Behavioral Insights Brief no. 1 [Power of Defaults](#) for more information.

**Salience:** Provide clear, concise, non-technical explanations in program materials and make the application process as simple as possible. See Behavioral Insights Brief no. 3 [The Costs of Complexity](#) for more information.

**Priming:** Reach out to people before you ask

for their participation. Show them the benefits of participation through influential images and words that may make them more receptive to the program.

**Affect:** Connect with landowners on an emotional level by describing positive impacts of environmental stewardship that they care about, like how their actions can create a better world for their children and grandchildren.

**Commitment:** Ask people to make a public commitment to participate in a program, especially if participation requires sustained actions over time.

**Ego:** Recognize farmers and landowners for their stewardship actions using awards, verification programs, and other public acknowledgments, including signs that can be displayed on their land. Check out the [Michigan Agriculture Environmental Assurance Program \(MAEAP\)](#), which is an example of a successful voluntary program that recognizes agricultural stewards.

### Testing Ideas

How much impact will these behavioral insights have in your program? This is an important question, and careful testing with randomized controlled trials will give you the answer. Using this approach, we can design evidence-based programs with greater levels of participation, participant satisfaction, and improved environmental outcomes. See Behavioral Insights Brief no. 6 [Test, Learn, Adapt](#) for more information.

### Where to Begin

Begin with CBEAR of course! Use the information below to contact us. You can also learn more by reading our recent article called "Behavioral and Experimental Agri-Environmental Research: Methodological Challenges, Literature Gaps, and Recommendations" which was published in *Environmental and Resource Economics* in 2019 (Volume 73, Issue 3)<sup>2</sup> You can find a copy of the paper [here](#).

<sup>1</sup> The MINDSPACE framework was developed by Paul H. Dolan and his coauthors and published in the *Journal of Economic Psychology* in 2012 (Vol. 33).  
<sup>2</sup> Lead author of this Brief: Leah H. Palm-Förster (leahp@udel.edu).

For references and more information about **Ag-E MINDSPACE (Behavioral Insights Brief no. 8)**, visit [centerbear.org/behavioral-insights](http://centerbear.org/behavioral-insights) or email CBEAR co-Directors, **Paul Ferraro (pferraro@ju.edu)** and **Kent Messer (messer@udel.edu)**.

Funded by USDA-NIFA, CBEAR is a consortium of major research universities that uses the most modern science and methods to improve agri-environmental programs.



## BEHAVIORAL SCIENCE AND THE SELLING OF CONSERVATION

### Farm Production and Conservation

FSA | NRCS | RMA | Business Center



# One example: Recognizing environmental stewards

**Commitment:** Ask people to make a public commitment to participate in a program, especially if participation requires sustained actions over time.

**Ego:** Recognize and praise people for their stewardship actions.

**Norms:** Highlight stewardship behavior to change social norms.



© Cape Gazette, Deny Howeth



## Conservation Farmers: Get the Recognition You Deserve

### Farm Stewardship Certification and Assessment Program (FSCAP)



#### FSCAP Certification Process

FSCAP works with local soil conservation district to evaluate farms. As part of this comprehensive review, the farm's nutrient management plan and soil conservation and water quality plan are reviewed.

- ✓ A site assessment and evaluation is conducted on all owned and leased property to ensure that no unaddressed environmental concerns exist.
- ✓ A typical FSCAP evaluation is completed within two to three hours.

#### Farmer Benefits

- ✓ FSCAP farmers receive the recognition they deserve for protecting the environment.
- ✓ FSCAP farms receive a three-year waiver from MDA nutrient management inspections.
- ✓ FSCAP farmers receive a handsome 30" x 24" metal sign to post on their property.
- ✓ FSCAP farmers receive recognition on the MASCD website and those selling directly to the public can add product and contact information.
- ✓ FSCAP farmers receive the *Stewardship Notebook*, which contains information about promising new conservation opportunities such as nutrient trading.
- ✓ FSCAP farmers may be eligible to earn income from nutrient trading by installing additional BMPs.

Your Farm Name Here  
**Certified Agricultural  
Conservation Steward**

Sponsored by the Washington County Soil Conservation District



Authorized by The Farm Stewardship Certification and Assessment Program in 2010

Maryland Association of  
Soil Conservation Districts

## What are other ways to tap into these insights?

# How do we build our capacity across the Bay watershed?

What is working?

What do we need to do more of?

Can we cooperate across the region to accelerate action?



# Pilots: *Trial, Record, Share, Refine, Repeat!*

- **Challenge:** Despite promising behavioral insights in other contexts, we need more (& robust!) evidence to understand applications of these strategies in the Chesapeake Bay.
  - How can we create more local action and momentum?
- **Opportunity:** There may be some low-hanging fruit – try or build on strategies that have worked in other settings.
- **Build partnerships** between program administrators & researchers - create learning communities/networks to share and synthesize results.

# What is “sandboxing”?

*(per CESR)*

*“Sandboxing is a **formalized way to test and evaluate** the efficacy of **new rules and programmatic approaches** to nonpoint source or water quality management **without disrupting** the operation of existing implementation efforts. Sandboxing also requires a commitment from management agencies to make larger programmatic changes if the sandboxed change demonstratively improves outcomes.”*

# Using Experiments to Inform Evidence-Based Programs & Policies

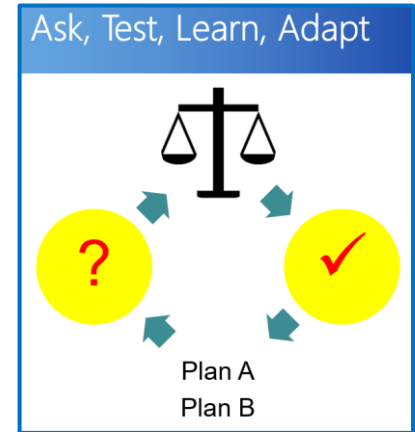
Simple observational designs (before-after, with-without) are generally insufficient to identify causality.

Economic experiments enable us to carefully measure changes in behavior and ultimately changes in the overall conditions.

Well-designed field experiments provide compelling evidence that is attractive to both policy-makers and the academic community.

Experiments often are referred to as the “gold standard” and the cornerstone of evidence-based policy

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# Different types of Economic Experiments

Experiment Type	Description
Laboratory experiment	Student participants, abstract framing, and imposed sets of rules.
Artefactual field experiment	Same as a laboratory experiment but with a subject pool from the target population.
Framed field experiment	Subject pool from the target population; field context is incorporated in the experiment
Enlisted field experiment	Same as a framed experiment except that the environment is one in which the participants would naturally undertake the tasks being observed.
Administrative field experiment	Same as enlisted experiment but systematically tests new ways of operating an ongoing program. Participants likely unaware of research participation.



*An example:*

# Buying Back Irrigation Water for Endangered Species Protection:

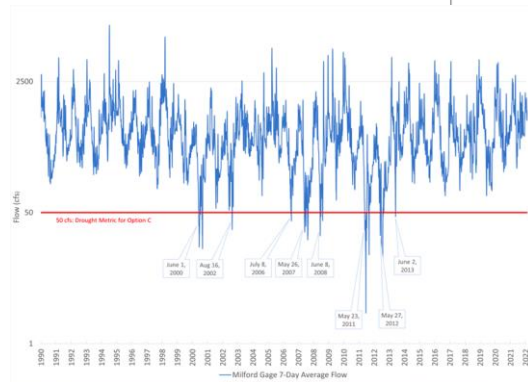
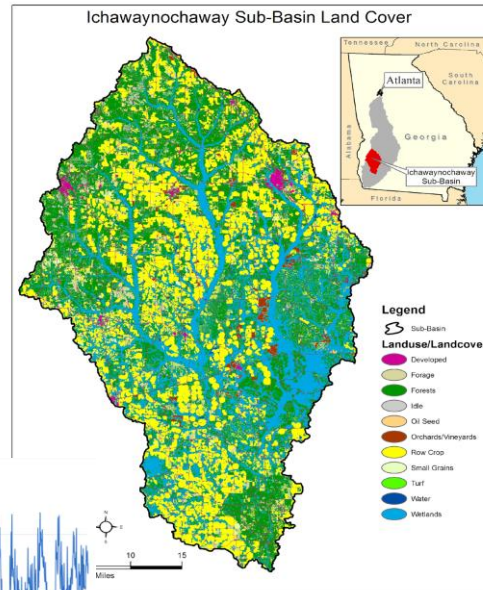
## Economic Experiments in the Lab and Field



(Source: University of Georgia)



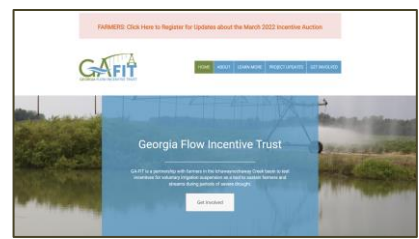
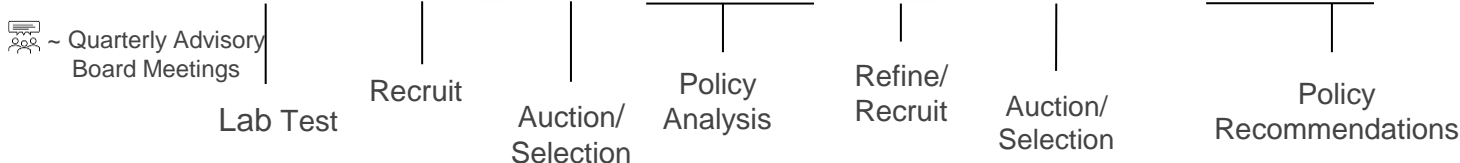
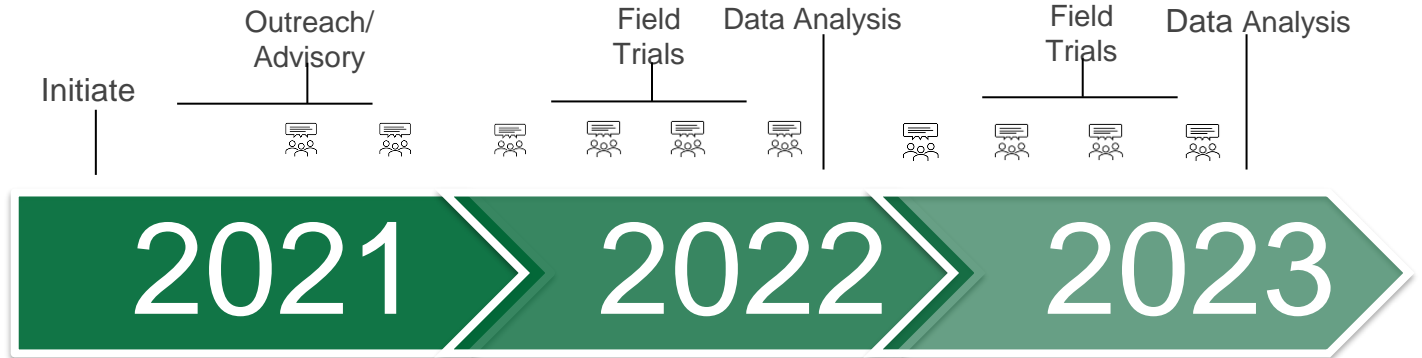
(Source: The Georgia Sun)



Xie (UGA), Messer (UD), Palm-Forster (UD), and Michael (UD) with Mark Masters (Albany State) and Kristen Rowles (Policy Works LLC)



# Pilot Activities Schedule

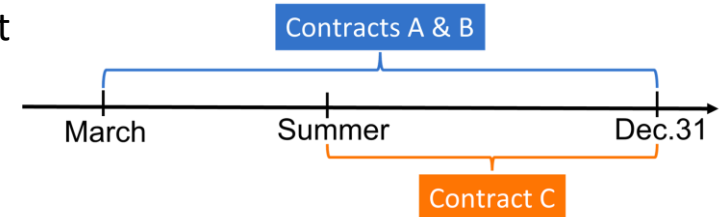


# We field tested three contract types:

	<b>Water use limits</b>	<b>Payments</b>
Contract A (Full)	No water use	Per acre payment if irrigation is suspended
Contract B (Partial)	Water use limited to 6 inches (per acre)	Per acre payment if irrigation is suspended
Contract C (Standby)	No water use if streamflow is below the trigger threshold (50 cfs)	(1) Standby payment of \$35 per acre (2) Per acre payment if irrigation is suspended

## Results:

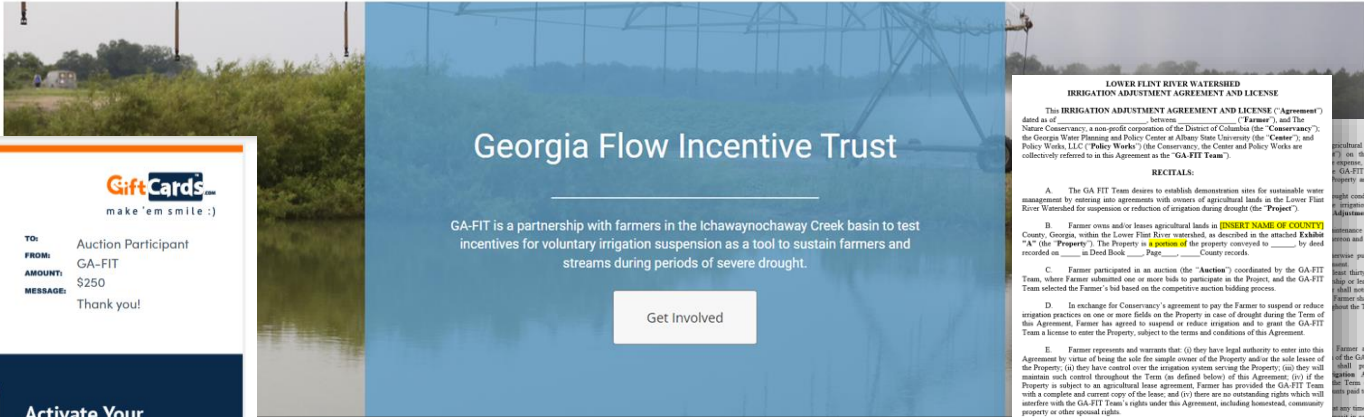
- Full irrigation suspension is more cost-effective in a drought
- Standby provides more flexibility
- Use streamflow (not acre) targets



FARMERS: Click Here to Register for Updates about the March 2022 Incentive Auction



- HOME
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- LEARN MORE
- PROJECT UPDATES
- GET INVOLVED



## Georgia Flow Incentive Trust

GA-FIT is a partnership with farmers in the Ichawaynochaway Creek basin to test incentives for voluntary irrigation suspension as a tool to sustain farmers and streams during periods of severe drought.

Get Involved

**GiftCards.com**  
make 'em smile :)

**TO:** Auction Participant  
**FROM:** GA-FIT  
**AMOUNT:** \$250  
**MESSAGE:** Thank you!

Reverse  
**GA-FIT**  
GEORGIA FLOW INCENTIVE TRUST  
4000 1234 5678 9010  
100100  
AUCTION PARTICIPANT  
**VISA**

**Activate Your Visa® Reward Card**  
Visit [GiftCards.com/rewardcard](https://www.giftcards.com/rewardcard)  
or call 1-855-253-7077 for activation.

**Earn As You Spend**  
• Use your Visa®

**LOWER FLINT RIVER WATERSHED IRRIGATION ADJUSTMENT AGREEMENT AND LICENSE**

This IRRIGATION ADJUSTMENT AGREEMENT AND LICENSE ("Agreement") dated as of \_\_\_\_\_ between \_\_\_\_\_ ("Farmer"), and The Nature Conservancy, a non-profit corporation of the District of Columbia (the "Conservancy"), the Georgia Water Planning and Policy Center at Albany State University (the "Center"), and Policy Works, LLC ("Policy Works") (the Conservancy, the Center and Policy Works are collectively referred to in this Agreement as the "GA-FIT Team").

**RECITALS:**

A. The GA-FIT Team desires to establish demonstration sites for sustainable water management by entering into agreements with owners of agricultural lands in the Lower Flint River Watershed for suspension or reduction of irrigation during drought (the "Project").

B. Farmer owns and/or leases agricultural lands in **INSERT NAME OF COUNTY** County, Georgia, within the Lower Flint River watershed, as described in the attached Exhibit "A" (the "Property"). The Property is a **parcel** of the property conveyed to \_\_\_\_\_ by deed recorded on \_\_\_\_\_ in Deed Book \_\_\_\_\_ Page \_\_\_\_\_ County records.

C. Farmer participated in an auction (the "Auction") coordinated by the GA-FIT Team, where Farmer submitted one or more bids to participate in the Project, and the GA-FIT Team selected the Farmer's bid based on the competitive auction bidding process.

D. In exchange for Conservancy's agreement to pay the Farmer to suspend or reduce irrigation practices on one or more fields on the Property in case of drought during the Term of this Agreement, Farmer has agreed to suspend or reduce irrigation and to grant the GA-FIT Team a license to enter the Property, subject to the terms and conditions of this Agreement.

E. Farmer represents and warrants that: (i) they have legal authority to enter into this Agreement by virtue of being the sole fee simple owner of the Property and/or the sole lessee of the Property; (ii) they have control over the irrigation systems serving the Property; (iii) they will maintain such control throughout the Term (as defined below) of this Agreement; (iv) if the Property is subject to an agricultural lease agreement, Farmer has provided the GA-FIT Team with a complete and correct copy of the lease; and (v) there are no outstanding rights which will interfere with the GA-FIT Team's rights under this Agreement, including but not limited to, easement, property or other special rights.

**NOW, THEREFORE**, in consideration of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (the "Irrigation Adjustment Deposit") paid by Conservancy to Farmer upon execution of this Agreement, and the foregoing recitals and the respective agreements set forth below, the receipt and sufficiency of which are hereby acknowledged, Farmer and the GA-FIT Team hereby agree as follows:

\_\_\_\_\_ of the Team.

3. **Term of Agreement.** The term of this Agreement (the "Term") will begin on the date this Agreement has been executed by both parties, and will expire \_\_\_\_\_ 2024.

\_\_\_\_\_  
Executive

Notice to the GA-FIT Team:

# Lancaster Clean Water Partners



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[Who We Are](#) ▾

[Get Involved](#) ▾

[Resources and Tools](#) ▾

[News](#) ▾



The majority of Lancaster County's 1,400 miles of streams are not healthy. Lancaster Clean Water Partners is bringing partner organizations together with a shared vision to ensure clean and clear local water by 2040.

The demand for clean water brings many different people to the table. We facilitate this collaborative effort with experts and community members to improve the health of our local streams to make Lancaster a better place to live and work.

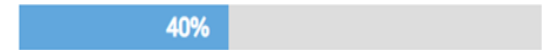
Unimpaired Lancaster streams



Farms with conservation plans



Streams buffered



## Pillars of Work



Mobilize Collaborative Partnerships



Deploy a countywide strategy for clean water



Acquire adequate, sustained funding



Share countywide progress

# New Ag Conservation Training Center- PA

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[This is Penn State](#) + [Academics](#) + [Admission](#) + [Tuition and Aid](#) [Research](#) [Athletics](#)

## New center to promote agricultural conservation in Pennsylvania

JUNE 7, 2023

By Alexandra McLaughlin



UNIVERSITY PARK, Pa. — As part of an ongoing effort to promote soil and water conservation on farms, Penn State's [College of Agricultural Sciences](#) has launched the [Center for Agricultural Conservation Assistance Training](#) in partnership with the Pennsylvania State Conservation Commission and the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS).

# Setting the stage for tomorrow: watershed management through inter-regional program comparison

Initial reactions/thoughts?

Invitation to think about this prior to tomorrow's discussion