Chesapeake Bay Program
Water Quality Goal Implementation Team
August 24, 2020

Report on Multi-Functional Buffer Workshop (2018)

Establishment of multifunctional riparian buffers: How do we accelerate the path to 95,000+ acres with the greatest economic, social, and environmental impact?

Presenters:

Lara Fowler, STAC member, Penn State (lbf10@psu.edu)

Steph Herbstritt, Penn State (smh412@psu.edu)

The Bay is making progress but is still behind in meeting buffer goals: 900 miles/year of new riparian forest buffers until at least 70% of riparian areas in watershed is forested.

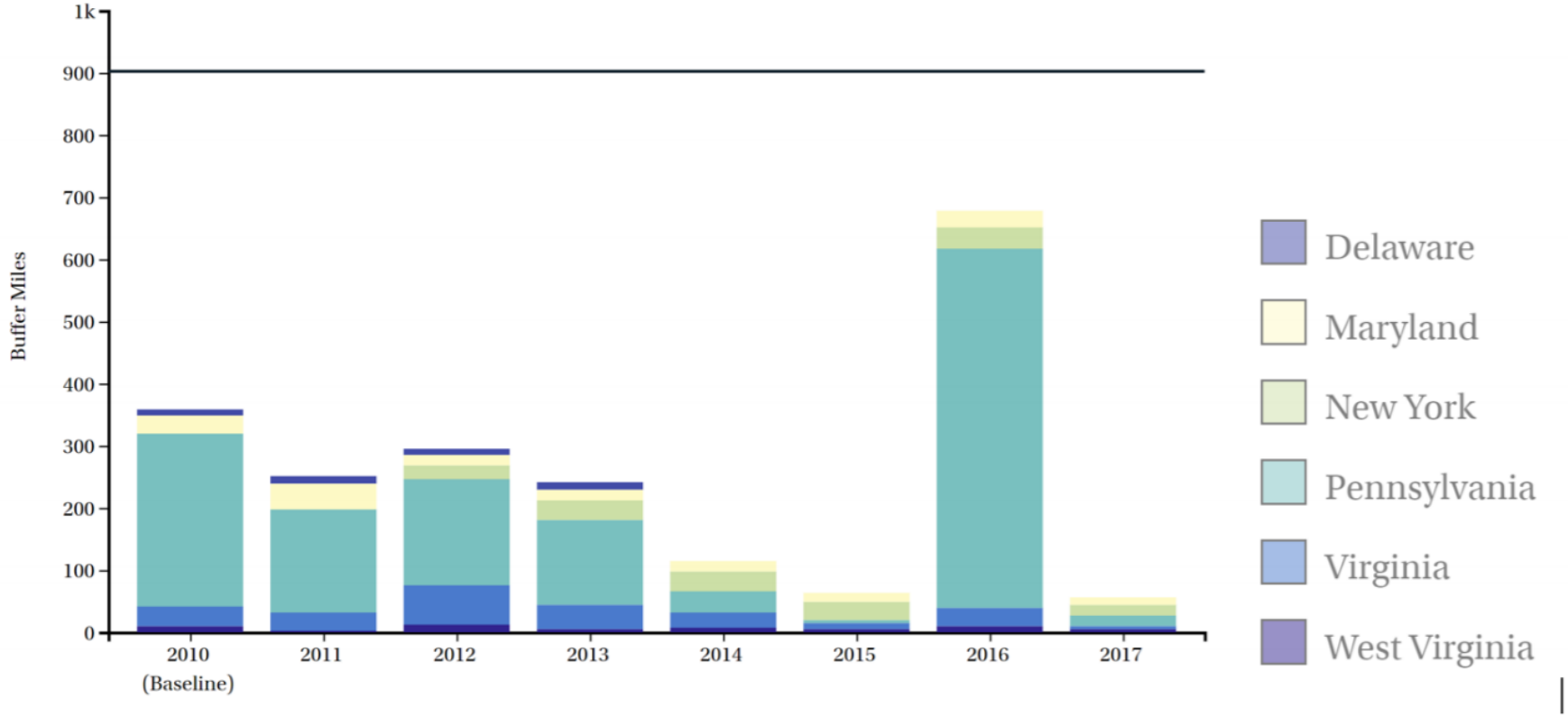
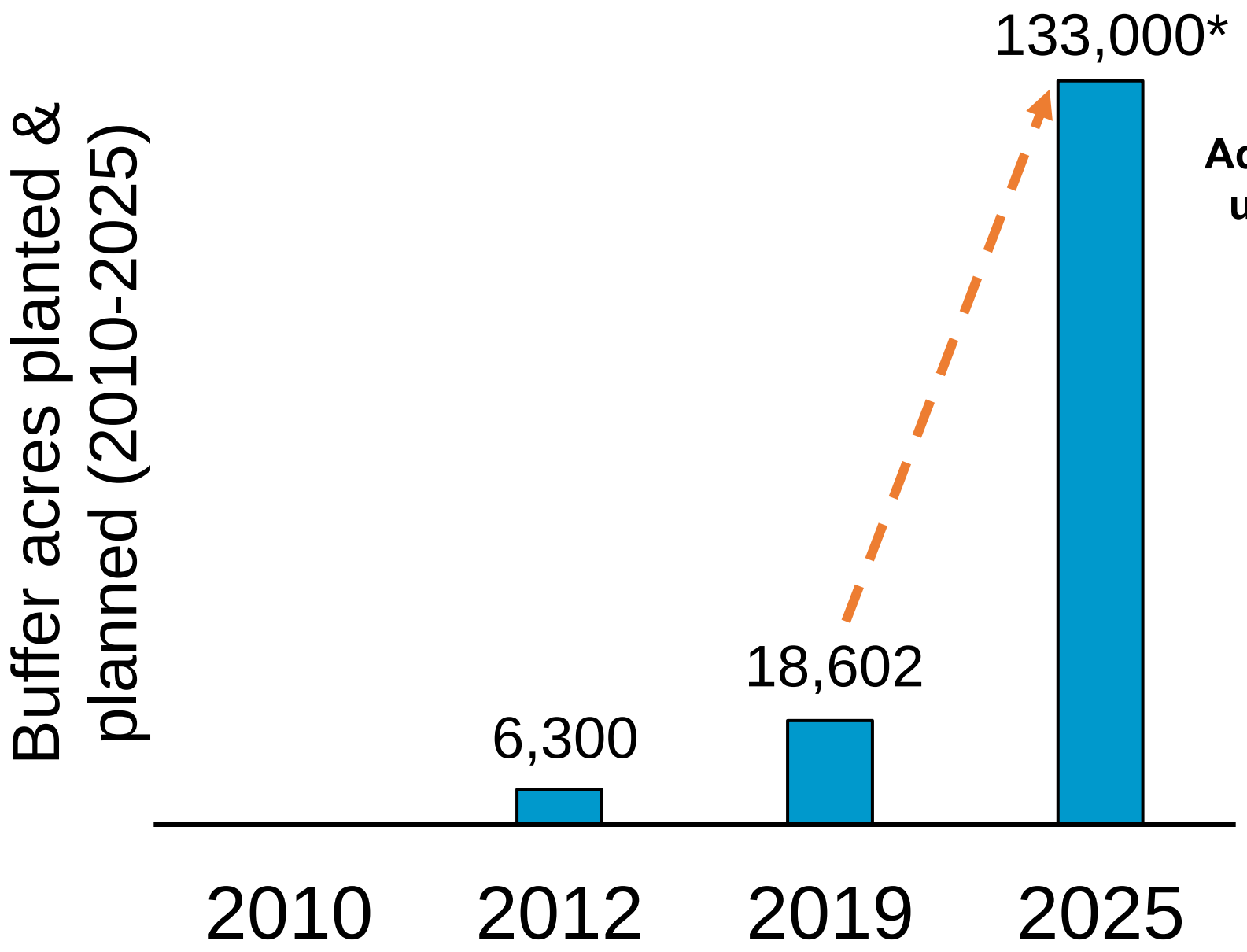


Figure 1. Miles of Riparian Forest Buffers planted in the Chesapeake Bay Watershed, 2010-2017 (Chesapeake Progress 2018) *Note the spike in 2016 is not due to new plantings in 2016 but rather historically planted buffers being reported in 2016.*

https://www.chesapeakeprogress.com/abundant-life/forest-buffers

Pennsylvania in particular is behind in buffers goals.



***Phase 3 WIP Goal**

Add 35’ forest buffer on 25% unbuffered farmland & 35’ grass buffer on 15% unbuffered farmland

~133,000 acres

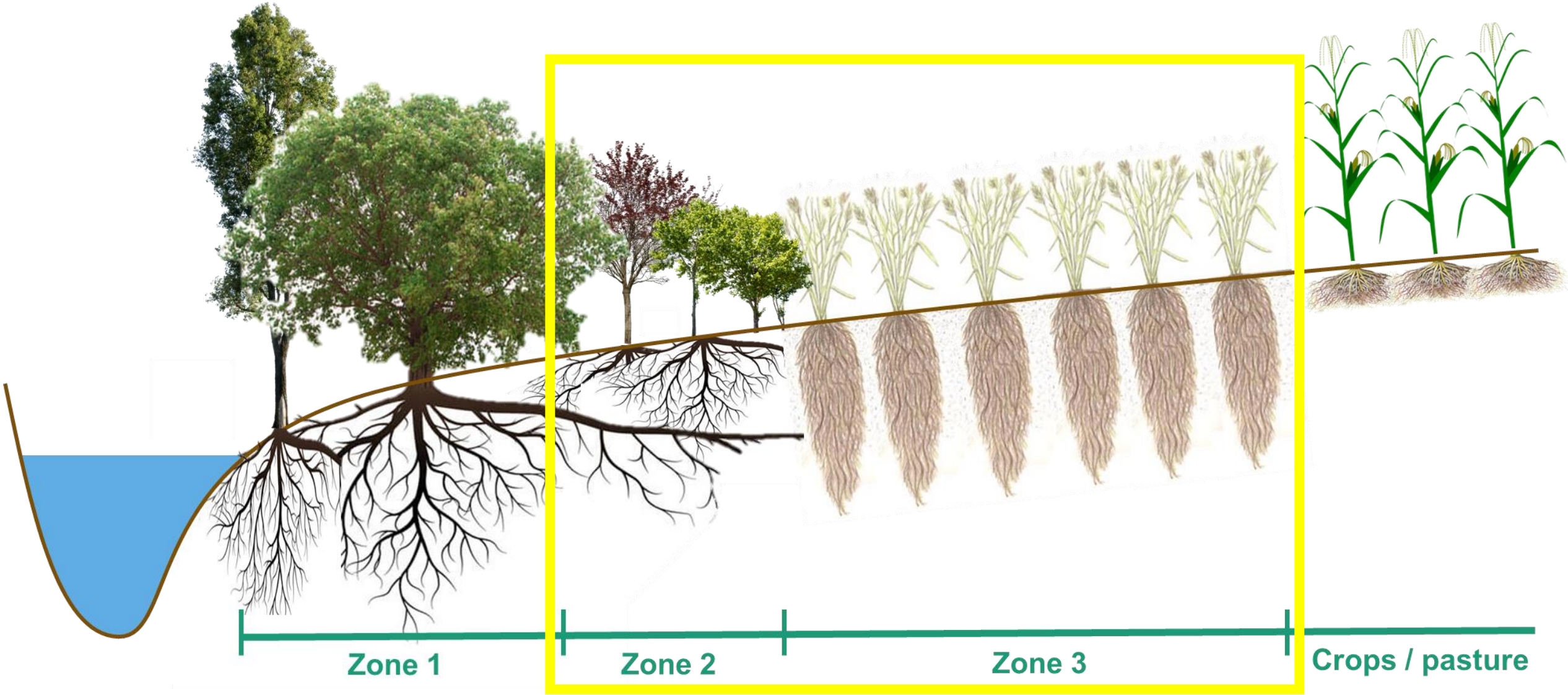
(83K forest, 50K grass)

PA DCNR piloted a concept for “multifunctional buffers” to help meet buffer goals.

Purpose: **To help Pennsylvania meet the goal** of installing an additional 95,000 acres of forested buffers by 2025.

Definition: **A riparian forest buffer that provides opportunities for harvesting** products such as nuts, berries, woody florals, forbs, and potentially woody biomass. Inputs such as fertilizer or manure would not be permitted, and harvesting would not be permitted in the first 15 feet of the buffer from the edge of the streambank. An overall minimum width of **35 feet is recommended**.

Rationale: Pennsylvania has led the nation for many years in establishing forested riparian buffers, but recently, **enrollments have declined.** Without additional tools beyond what is currently available, Pennsylvania is unlikely to meet its goal. **This program offers an additional way to meet the goal**.

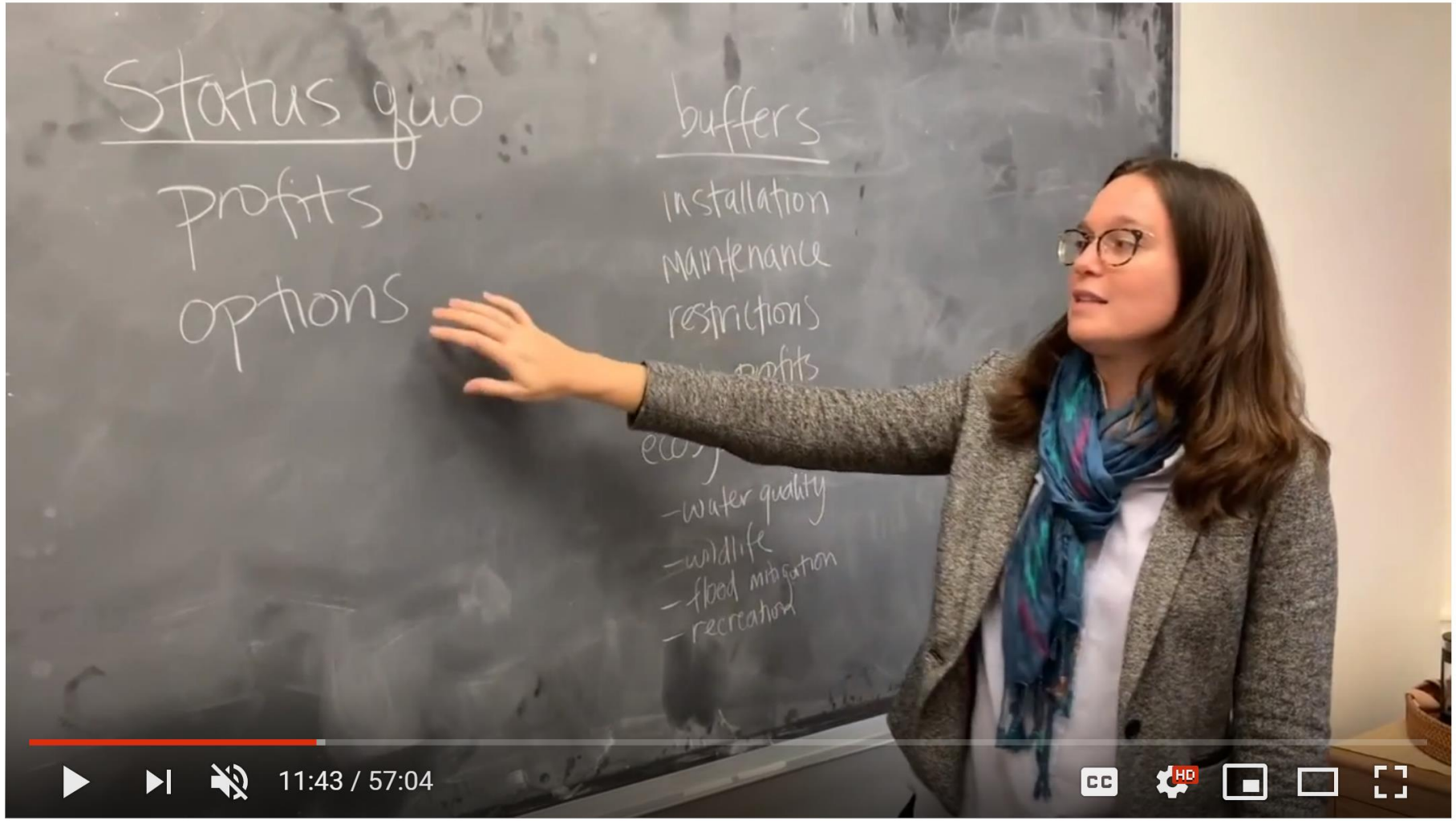

Zone 1
Zone 2
Zone 3
Crops / pasture

Overarching workshop goal: how do we **accelerate** implementation of buffers as a critical BMP?

- **Actionable** solutions to accelerate buffer plantings across the Bay with minimal government subsidies?

- Potential for “multi-functional” buffers to speed adoption?
  - Water quality benefits
  - Harvestable/diversified products
  - Flood resiliency
  - Aesthetics
  - Habitat
  - Reduced maintenance?
  - More

Pre-workshop webinar: what experiences have people had with multi-functional buffers?



Link to webinar: https://www.youtube.com/watch?v=QqBH1dSuZBg&amp=&feature=youtube

Click here to view the webinar

2018 workshop: 50+ stakeholders, 2 intensive days of conversation

Link to workshop materials:
https://www.chesapeakebay.net/what/event/stac_workshop_multifunctional_riparian_buffers_day_1

Participants:

- Farmers/producers
- Industry
- Researchers
- Extension personnel, agricultural consultants
- Nonprofit organizations
- State agencies, government representatives

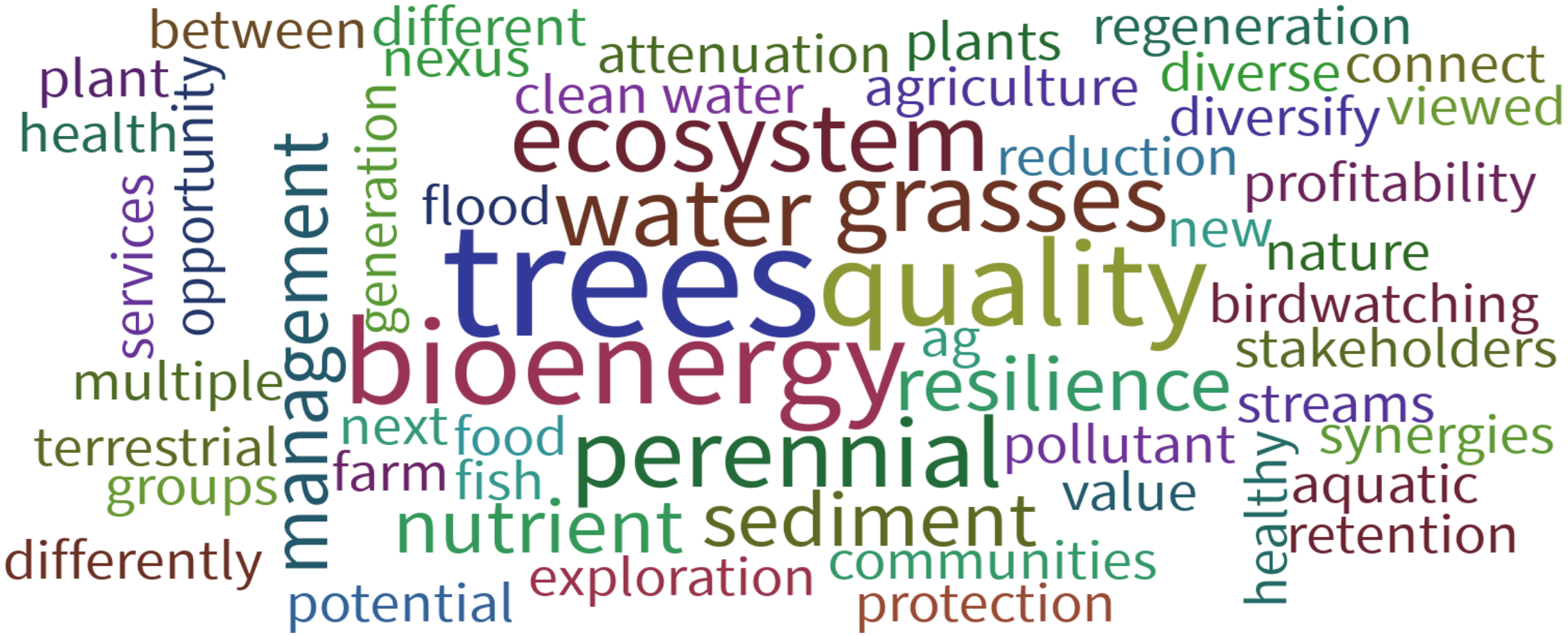
Day 1 Agenda:

- Ice breaker/word cloud
- 2 break out sessions: Barriers? Solutions? Implementation?
- Case study session: Examples?
- Summary/general discussion
- Workshop dinner

Day 2 Agenda:

- General discussion
- Rotating panel discussion
- Wrap up

Initial exercise: “What does a multi-functional buffer mean to you?”
Outcome: focus was more on conservation oriented approach.



Top words distilled from 100 pages of notes.
Outcome = somewhat different focus (farmers, markets, funding)

Largest problem?

Lack of legacy of successful multifunctional buffers to look to.

Best solution?

A legacy of **successful** multifunctional buffers that can be copied and **scaled** to Bay goals.

Other problems?

Maintenance

Maintenance

Maintenance

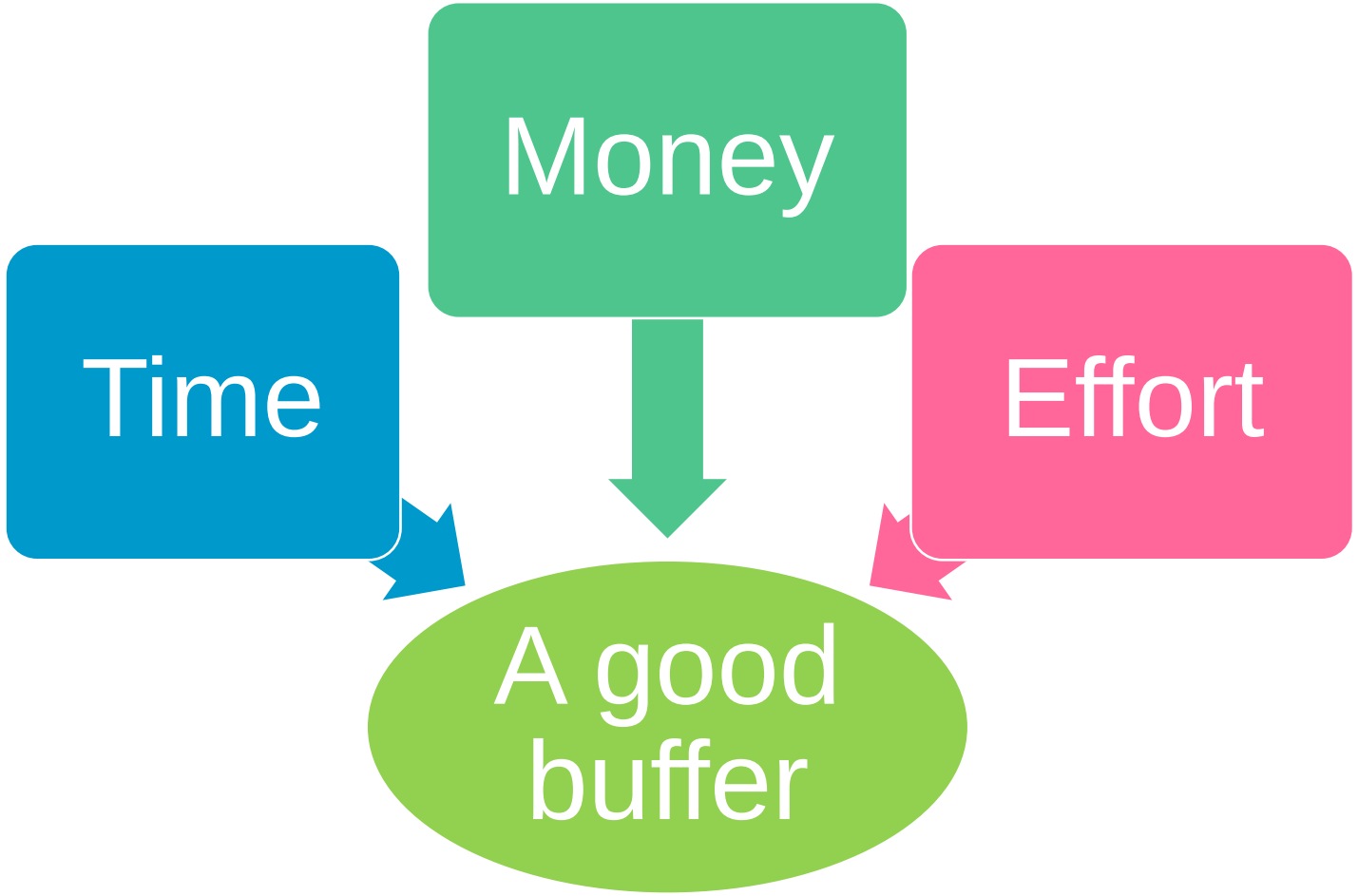
Solutions?

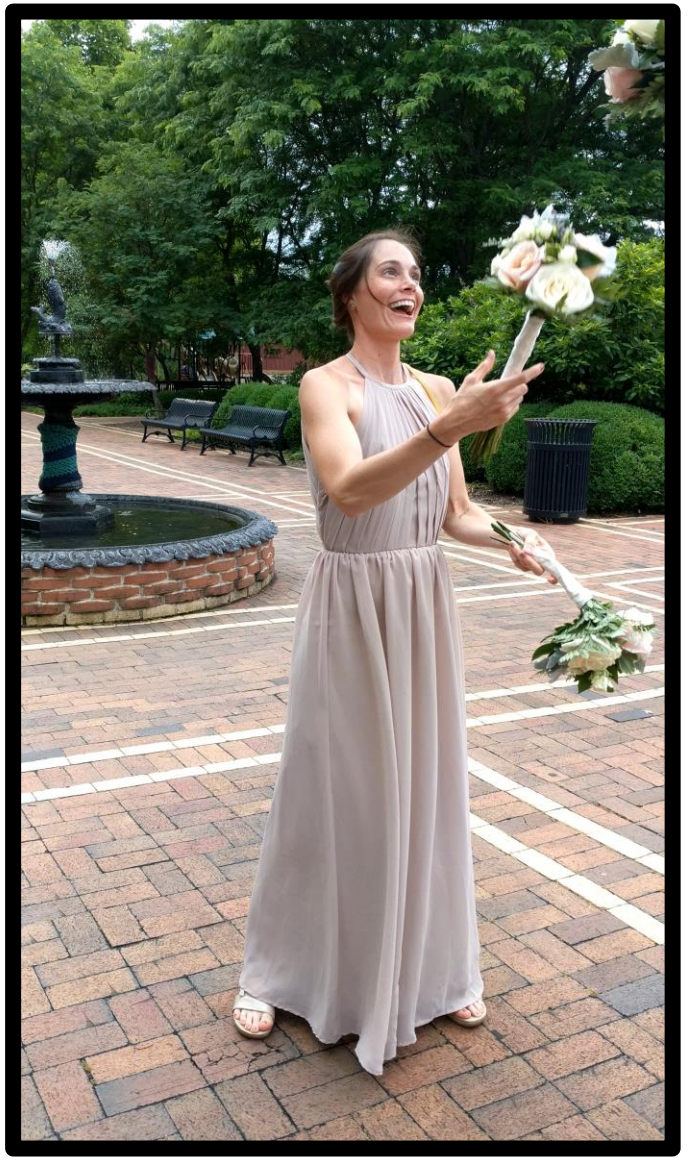
Legacy of well-maintained buffers?

Low-maintenance buffers?

Better programs and assistance for maintenance?

One workshop participant noted that “a good buffer is like a pet”… but this is also a lot to juggle.





Important finding: multi-functional buffers key part of the solution; working together = critical

- Multi-functional approach allows for local & Bay goals
- Economics are key– need viable farms
  - diversifying crops/outputs
  - protecting against loss (flood)
- # of practical considerations
  - Needs of landowner (farm, urban)
  - **Buffer as part of larger system** (uplands also critical)
  - One size does not fit all: niche crops, biomass production, conventional ag
  - Local markets, options for outputs
  - Maintenance, operation

Overall findings/needs?

Click here to view the full report

1. Pursue scalable solutions!

FEATURED

Stream Buffers Make Financial Sense

Philip Gruber Nov 30, 2018 Updated Nov 30, 2018

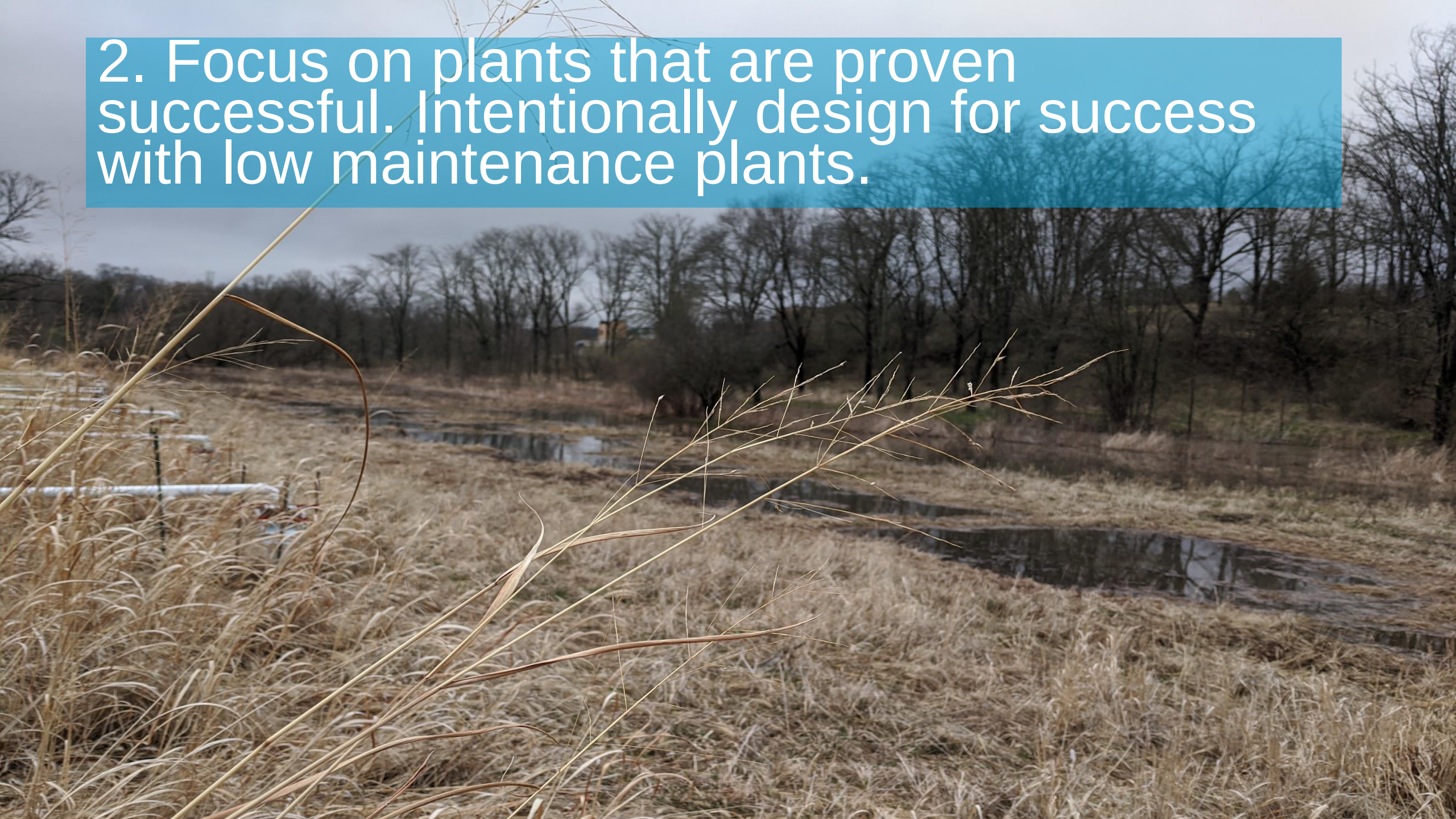
Mill Creek flows through a riparian buffer on the Mahlon Stoltzfus farm in New Holland, Pennsylvania. Trees and shrubs along stream banks prevent erosion and shade the water.

Photo by Philip Gruber

Lancaster Farming
THE FARMER'S CHOICE

Article about workshop published in Lancaster Farming (2018)

https://www.lancasterfarming.com/farm_life/conservation/stream-buffers-make-financial-sense/article_1c024bbe-db50-5971-9926-541fcb9b075d.html



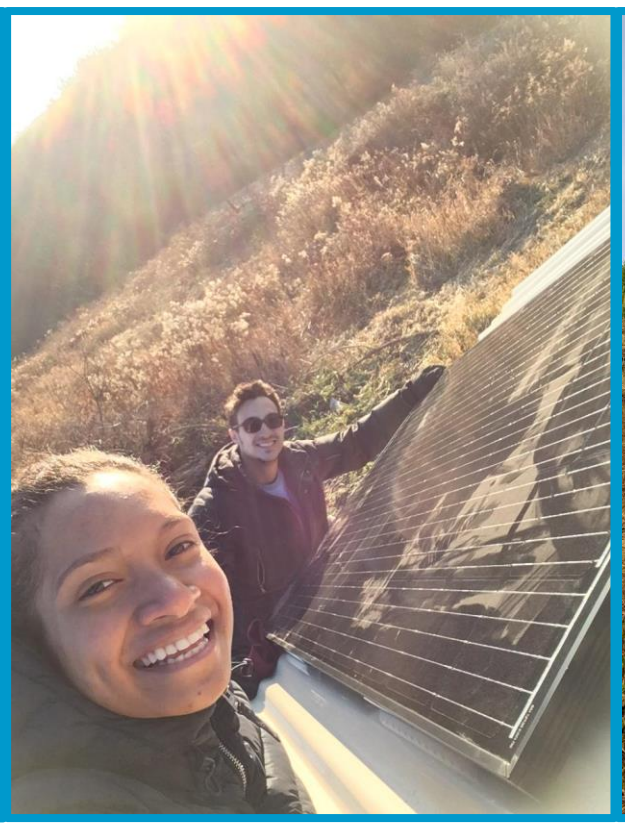
2. Focus on plants that are proven successful. Intentionally design for success with low maintenance plants.

3. Normalize multi-functional buffers through demonstrations on successful, well operated farms.

4. Create strong, stable partnerships across the Bay that include linking farmers to private and industry funding opportunities.

- Business models that work (advertising, tech support)
- Loan programs

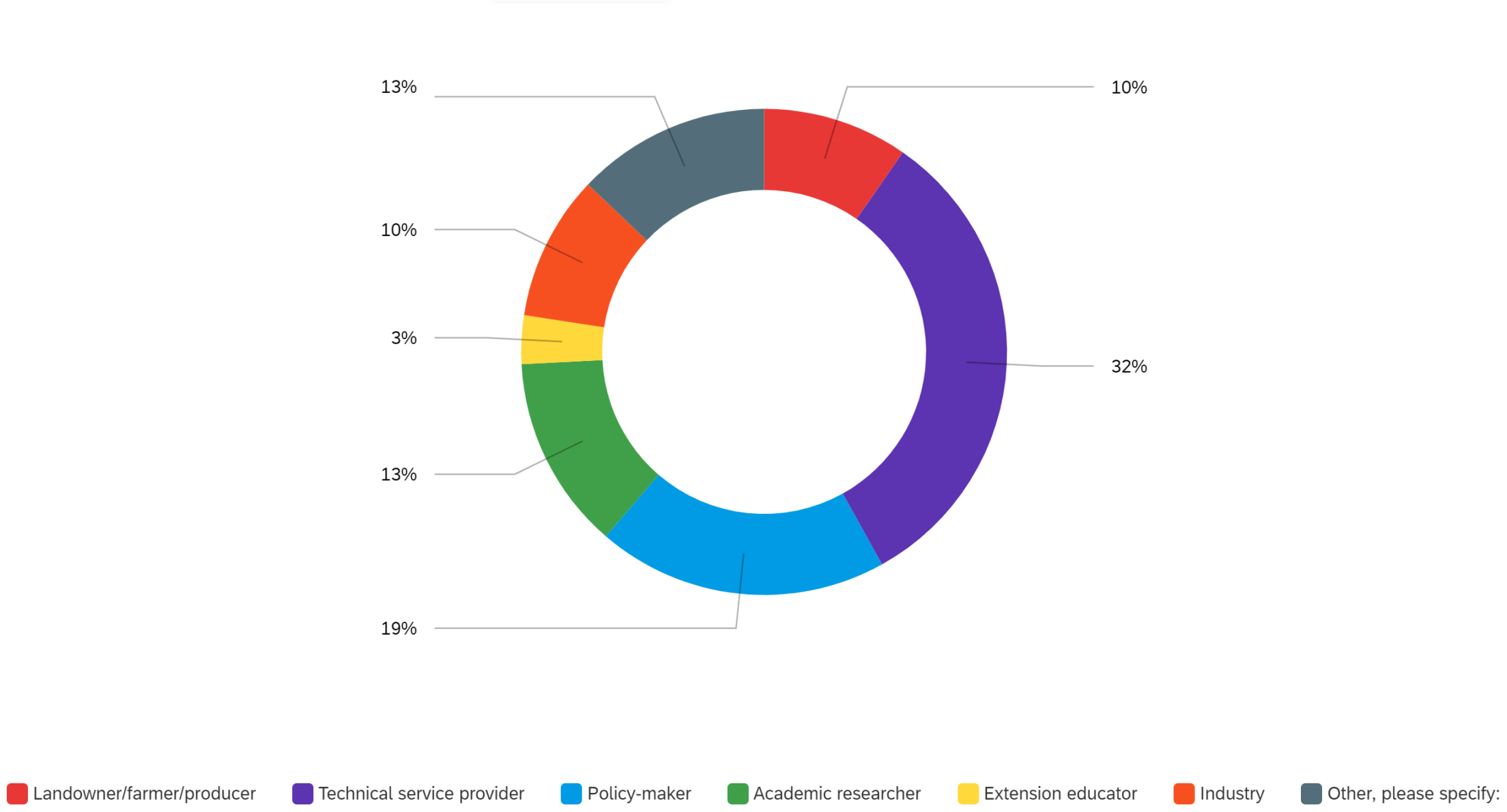





5. Engage students (primary, secondary, university) and young professionals in buffer planting and **maintenance**. Create support programs that incentivize students and young professionals to plant and maintain buffers in their communities.

What’s happened since the workshop?

Post-workshop survey sent out summer 2020 to find out.



information.

2020 Riparian Forest Buffer Webinar Series

A number of sessions that were planned for the 2020 Riparian Forest Buffer Summit (which had to be canceled for safety related to COVID-19) were presented as webinars that are available at the Clean Water Academy website.

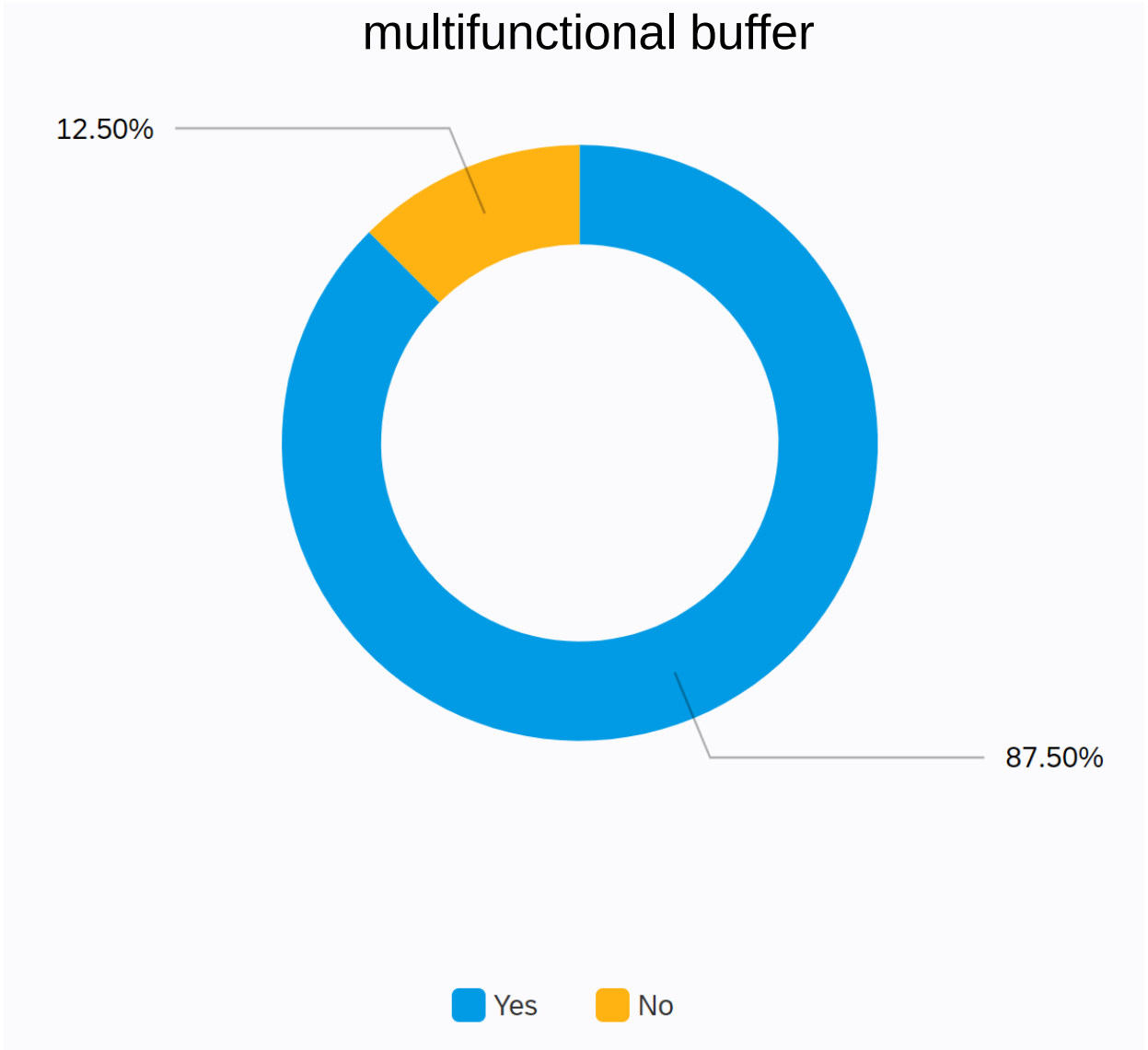
Topics include:

- Ecology of Streams and Riparian Forests
- Do Hellbenders, Freshwater Mussels, and Native Brook Trout Matter?
- Riparian Forest Buffers for Pollinators and Wildlife
- The Pittsburgh Redbud Project: An Urban Riparian Buffer

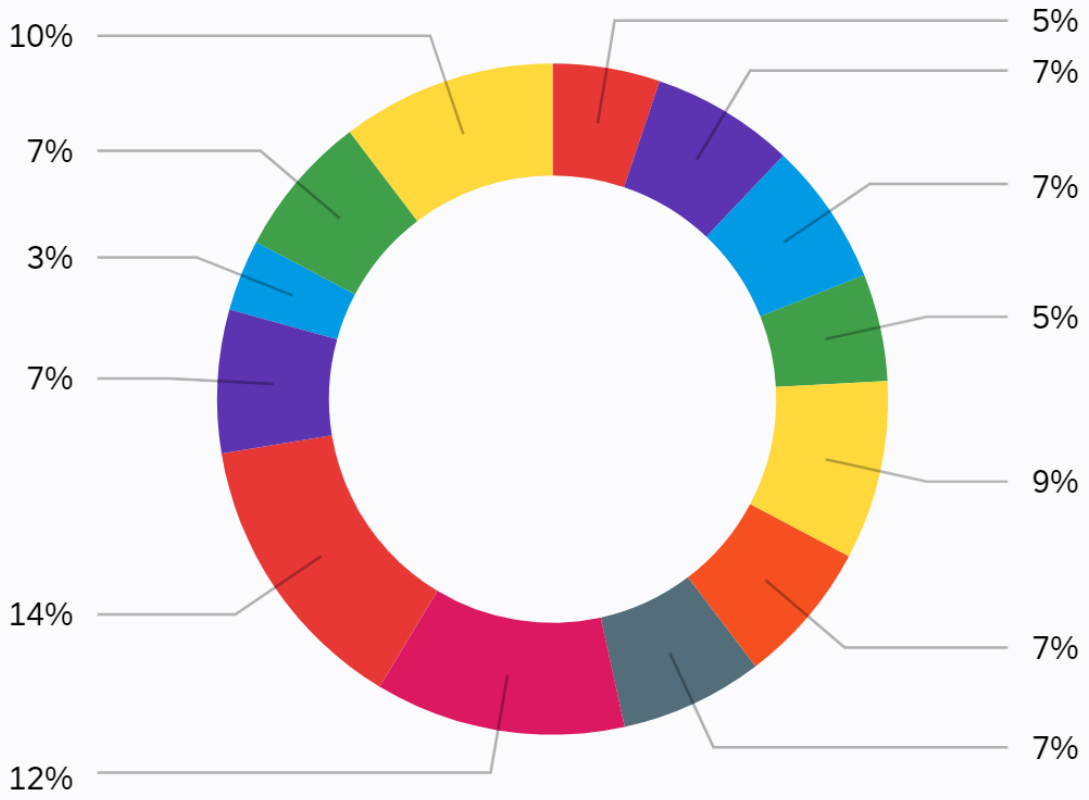
KEYSTONE TEN MILLION TREES PARTNERSHIP

PHOTO CREDIT: © NIKKI DAVIS

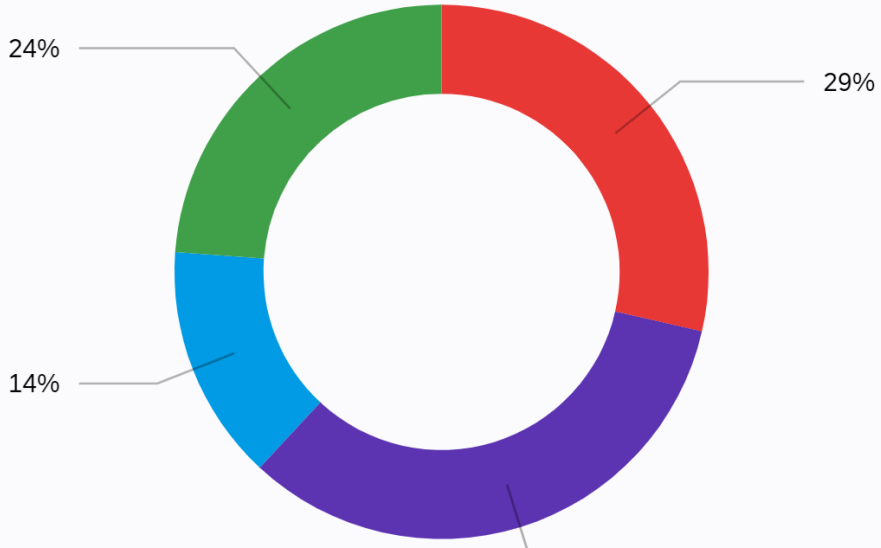
87% have been involved in efforts to establish a multifunctional buffer

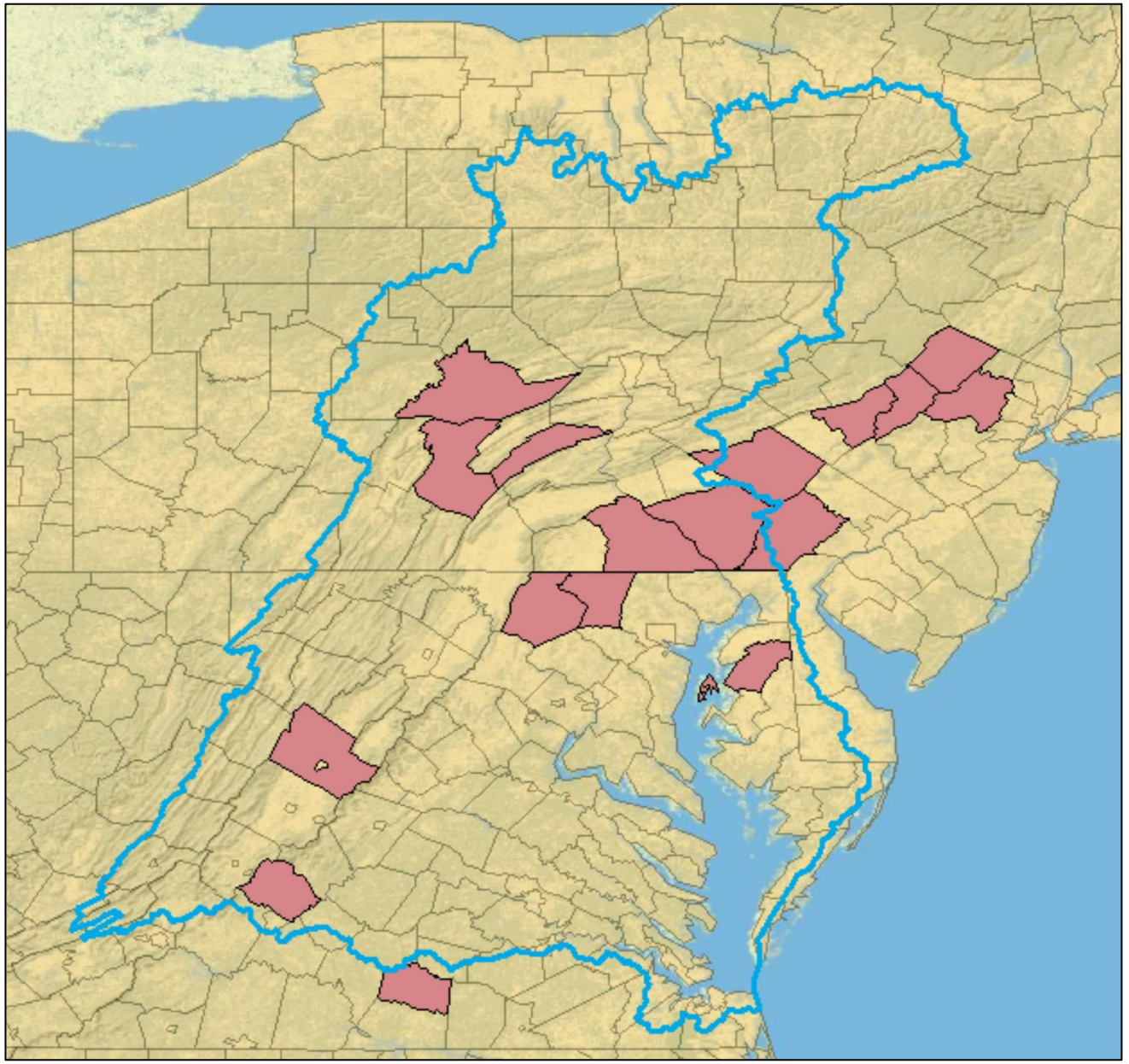


Stakeholders are planting a diverse list of multifunctional crops

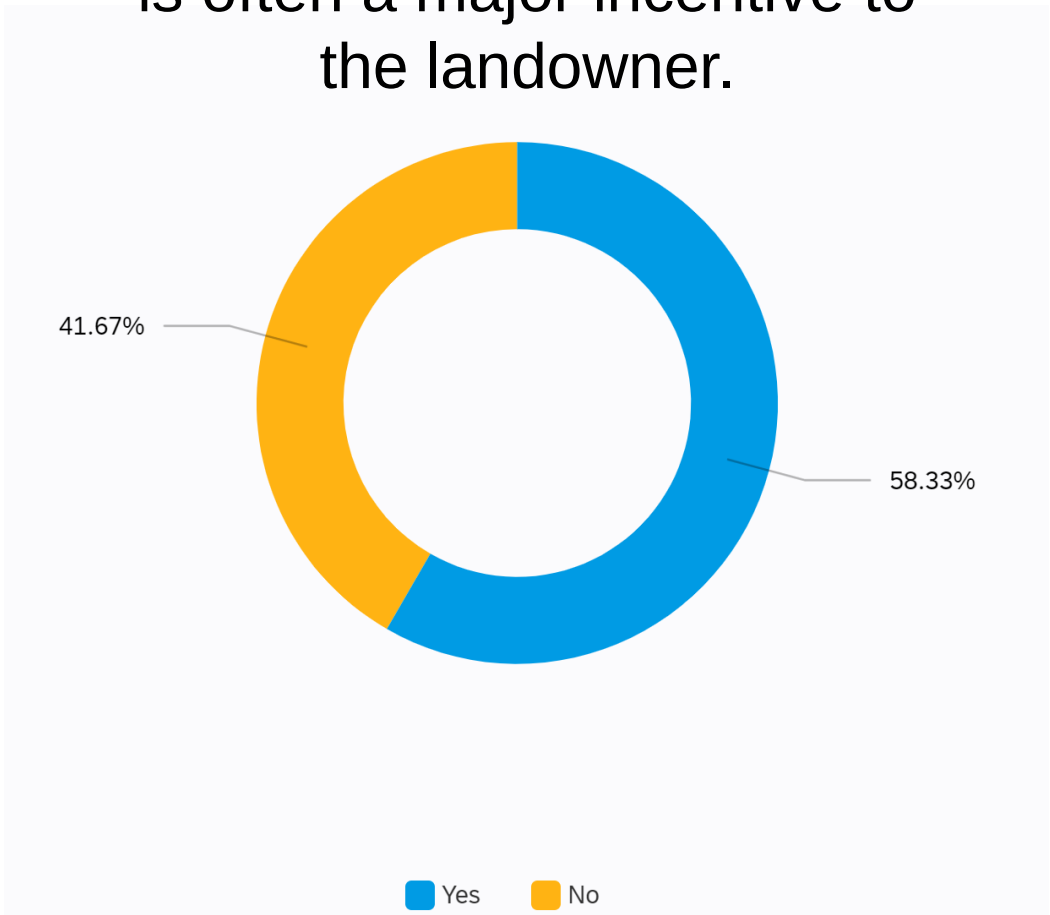


Majority of stakeholders have been involved in **less than 50 acres**; these are spread across counties and states within & outside of the Bay watershed

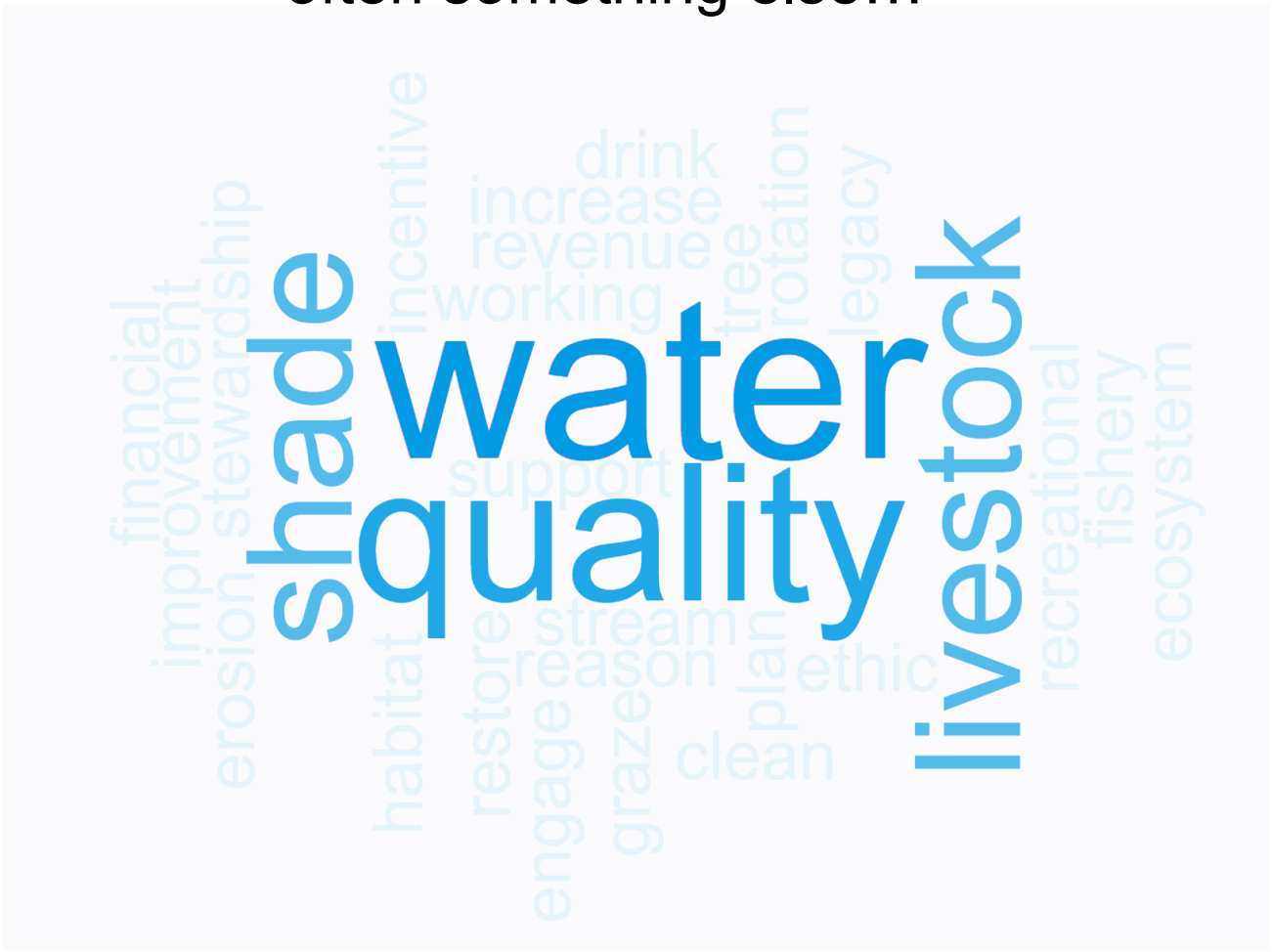




Stakeholders report the potential to earn revenue is often a major incentive to the landowner.

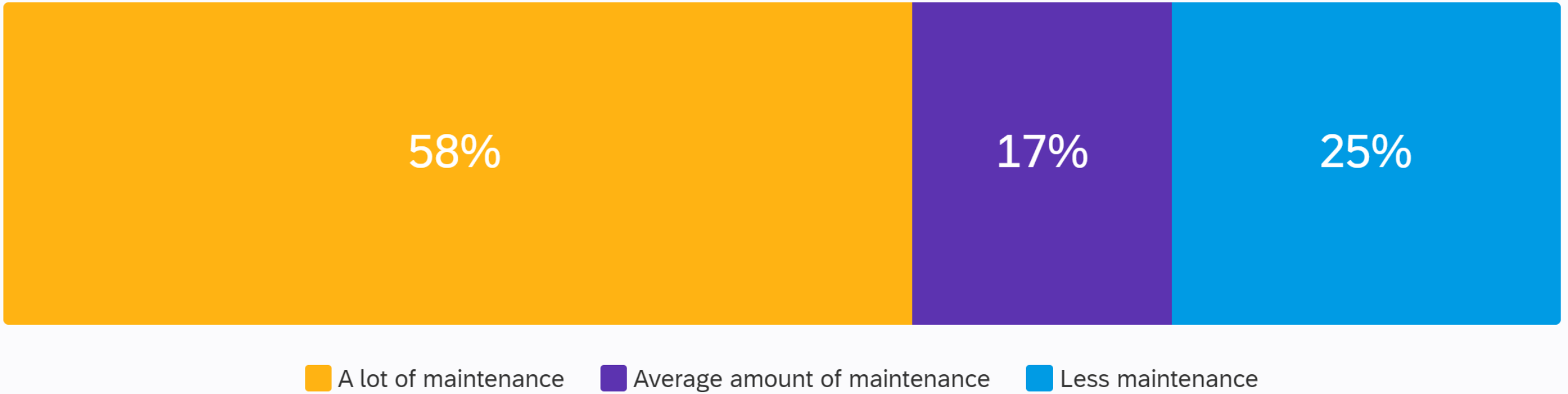


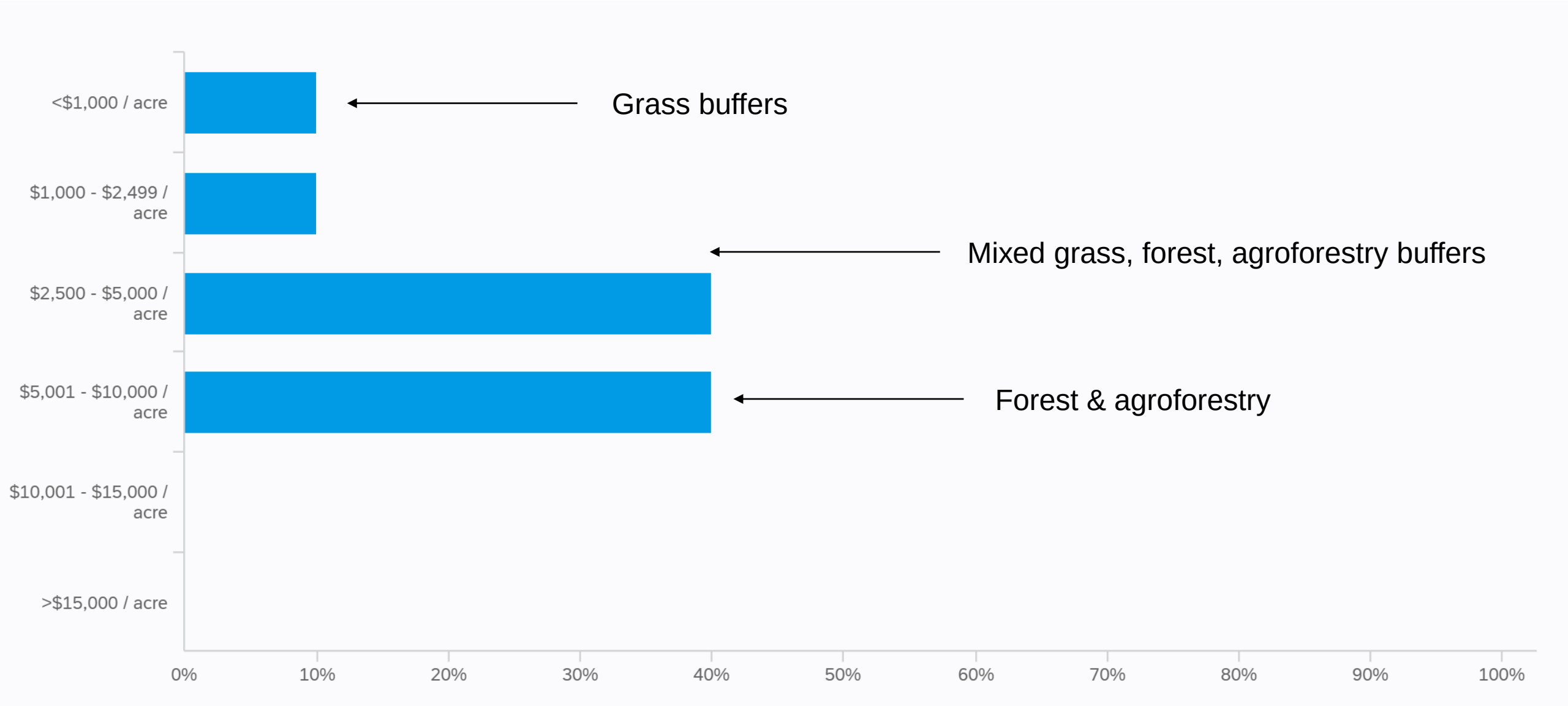
But the **most** important reason is often something else…



Maintenance is still a concern among many stakeholders.

How much maintenance do you anticipate for the multifunctional buffers?




<$1,000 / acre
$1,000 - $2,499 / acre
$2,500 - $5,000 / acre
$5,001 - $10,000 / acre
$10,001 - $15,000 / acre
>$15,000 / acre
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Grass buffers
Mixed grass, forest, agroforestry buffers
Forest & agroforestry

What's been challenging?

"Disconnect between the **scale of operation** required for low-value crops and the size of most farms' buffers"

Maintenance.

Labor for establishment, maintenance, future harvest, and **availability of markets**.

Limited markets.

Building markets, operating at scale.

keystonetreecrops.com/#statement

ASSOCIATION OF WARM SEASON GRASS PRODUCERS

SUMMER MEETING ONLINE

SARE ONE19-346

* PROMOTES THE PLANTING AND USE OF WARM-SEASON GRASSES
* WORKS TO MAXIMIZE THE PROFITABILITY OF THESE CROPS FOR LOCAL FARMERS
* ASSISTS IN EDUCATING GROWERS ON THE IMPLEMENTATION OF BEST PRACTICES FOR MANAGING AND HARVESTING THESE CROPS
* SUPPORTS AND ENCOURAGES ENTREPRENEURIAL ACTIVITY THAT FURTHER DEVELOPS THE USE OF WARM-SEASON GRASSES IN ALL AREAS OF AGRICULTURE

PRIMARY WARM SEASON GRASSES INCLUDE

SWITCHGRASS * BIG BLUE STEM * INDIAN GRASS * MISCANTHUS


35

Admin

Dec 4, 2019 • 1 min

ClearWater Conservancy plants one of the region's first multi-functional stream buffers in Warriors

STATE COLLEGE, Pa, NOVEMBER 20, 2019 – ClearWater Conservancy recently completed a unique stream buffer planting on a farm in Warriors...

37 views Write a comment

Monday, August 10, 2020

PENN STATE NEWS

Harnessing biomass, manure to fuel farms through multi-institutional project

Transdisciplinary research team aims to create new value chains on U.S. farms, with emphasis on the generation of renewable natural gas, improved rural economic outcomes and protection of the environment.

A new grant will allow C-CHANGE to develop profitable methods for transitioning lands usually devoted to annual crops to renewable energy production fueled by native grasses and forbs. **IMAGE: LISA SCHULTE MOORE**

C·CHANGE
science for a changing agriculture

C-CHANGE: Consortium for Cultivating Human and Naturally reGenerative Enterprises

Taking a break after a long day of planting perennial grasses along Spring Creek in Centre County are students, standing, from left, Michael Hile and Kyle Hillman. Front row, from left, are Enrique Peña, Kyra Sciaudone, Isamar Amador-Diaz and Laura Ranieri. They all worked in the lab of Tom Richard, professor of agricultural and biological engineering and director of the Institutes of Energy and the Environment at Penn State.
IMAGE: Penn State

What's working?

"Tremendous interest from **grass-based farmers** in **integrating trees** in their pastures."

"Easier conversations with farmers with buffer options."

"The idea of **aggregating a portfolio of buffers across multiple farms**, which can be managed separately, shows some promise for scaling."

"Using **sub-field economic analysis** to identify unprofitable annual cropland."

What's needed?

"It's become all the more apparent that to be successful, a multifunctional buffer needs to be **tied in with the farm as a whole**. It cannot be a disconnected portion that doesn't integrate into other operations."

"More contractors certified in putting these type of buffers [multifunctional] in."

"**Technical assistance**."

"Buffers are part of a **system** of conservation practices and are only one element to good land management. encourage the use of a system approach versus one practice."

"**Maintenance**." [Funds, technical expertise, crews]

"There needs to be a more **comprehensive supply chain** in the buffer world whereby funds are regularly available to all partners selling buffers."

"Flexible **funding**."

"**Funding** for alternatives to CREP."

"**Funding** for Propagate Ventures."

Questions? Discussion?

Lara Fowler; lbf10@psu.edu
Steph Herbstritt; smh412@psu.edu