

U.S. DEPARTMENT OF  
**ENERGY** | **LEEP**  
Lab-Embedded Entrepreneurship Program

INNOVATION  
CROSSROADS

OAK RIDGE NATIONAL LABORATORY

**g** BETA  
AGTECH



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Poop to Clean Water & Profit

March 10, 2023  
APEC Meeting

Dr. Bianca Bailey  
Founder & CEO

[www.agriwater.tech](http://www.agriwater.tech)

[bianca@agriwatertech](mailto:bianca@agriwatertech)



**Research Park**

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN



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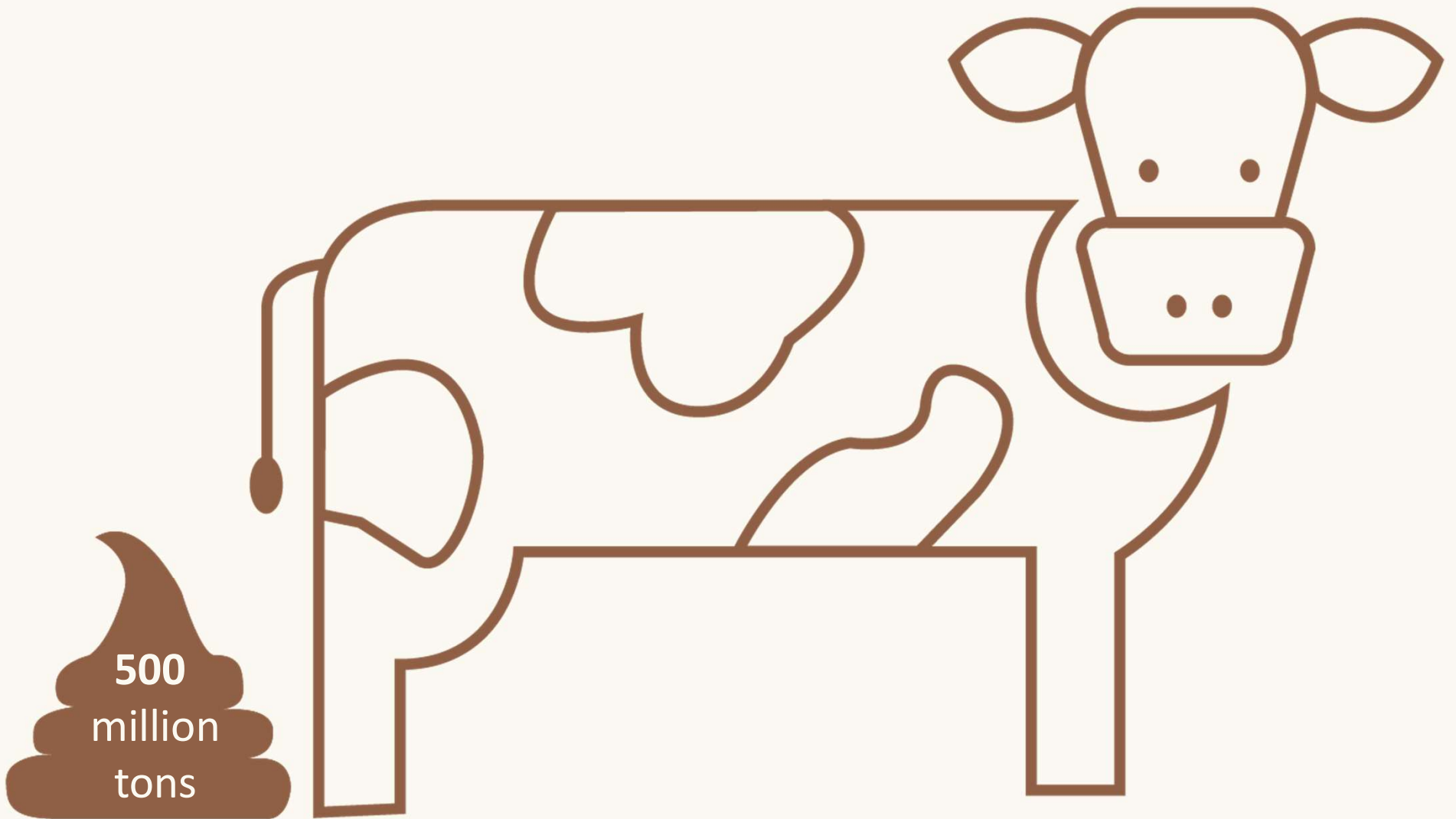
**Funds raised:  
\$0.5M**

**Partnered  
with leading  
Ag Support  
Networks**

**Valid Proof  
of Concept**







500  
million  
tons





Hog Lagoon: Sewage Storage

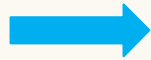


## Process Flow

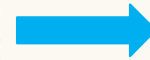
### Electrolysis Treatment for Animal Waste



Lagoon: Liquid Animal Poop



Electrolysis Baffled Reactor



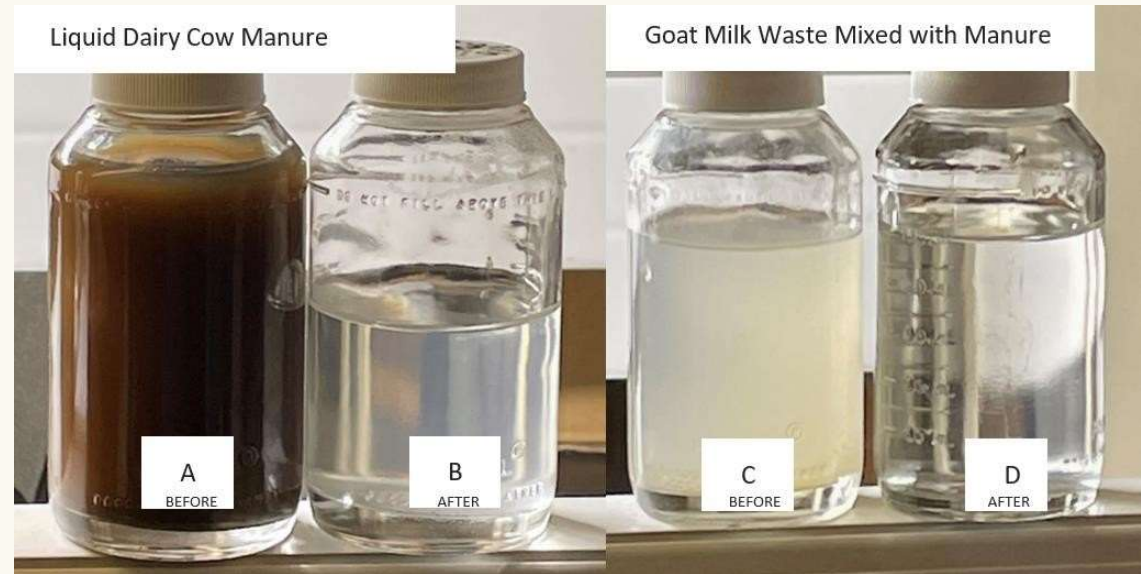
Irrigation, Barn Flush, Mist Water

#### Technology Specifications:

- Real-Time Data for Water Quality Sensors
- Flow Capacity: 1 Liter per min
- Electrical Consumption: <30 Watts
- Treated Waste: Dairy Cow Sewage, Goat Milk & Manure



Dr. Bailey uses her “super duper pooper scooper” to obtain samples of Dairy Cow Sewage from UT Dairy Farm.



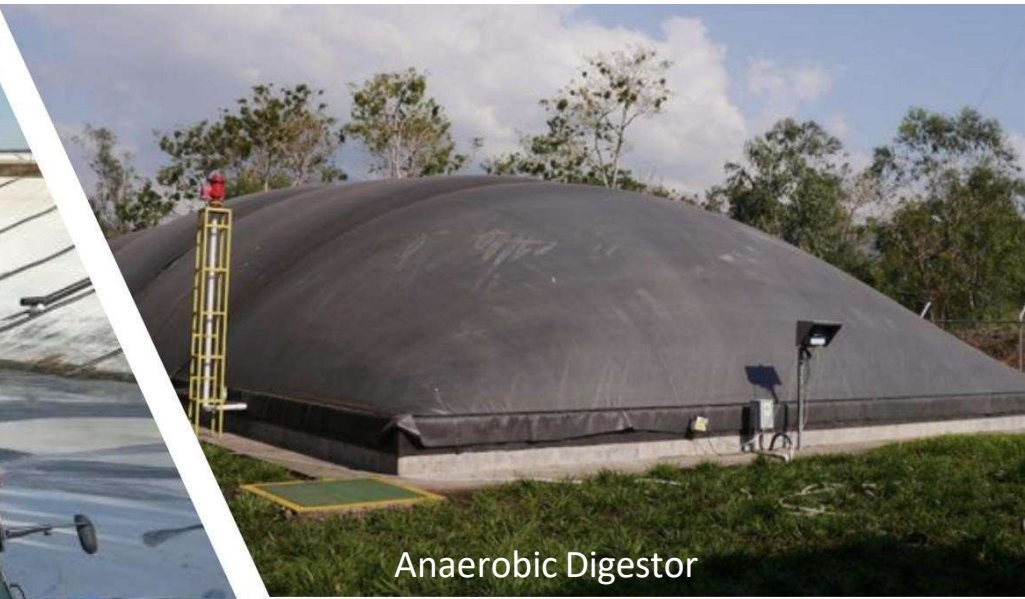
After Treatment





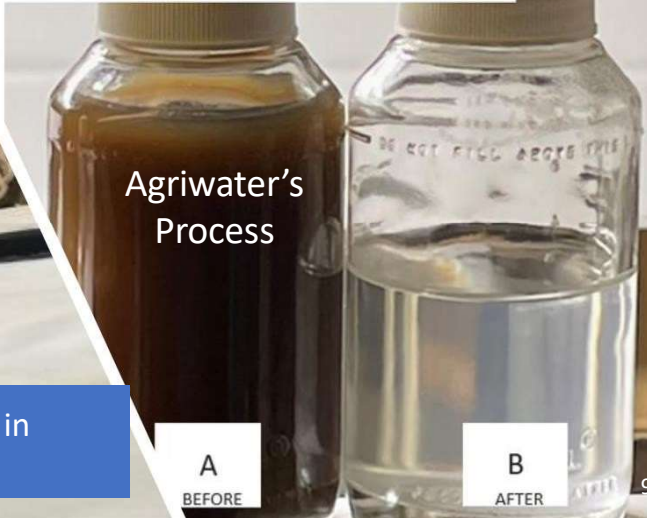
Lagoon Sewage Pit

Electrocoagulation has not been widely used in animal waste.



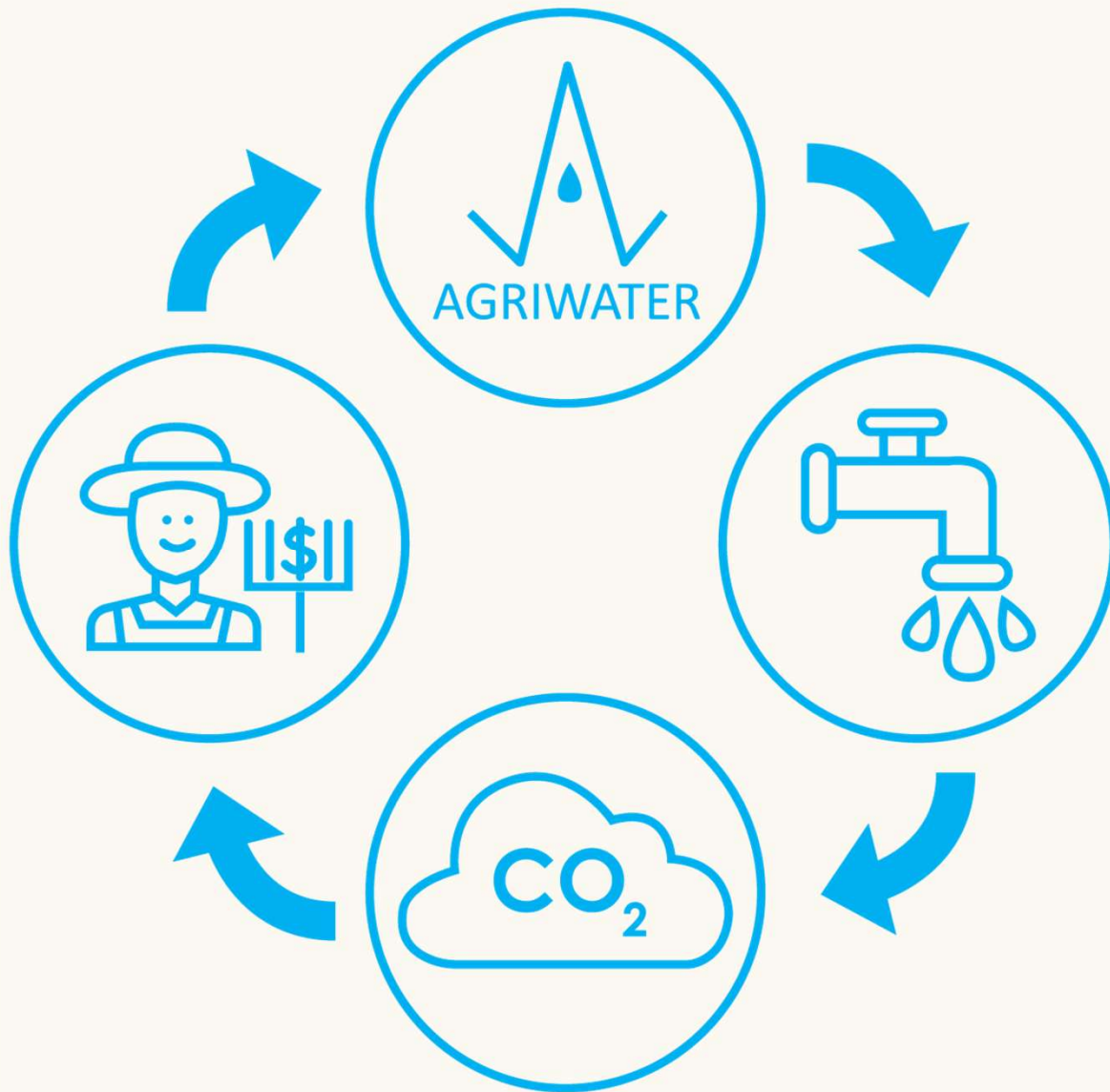
Anaerobic Digester

Liquid Dairy Cow Manure

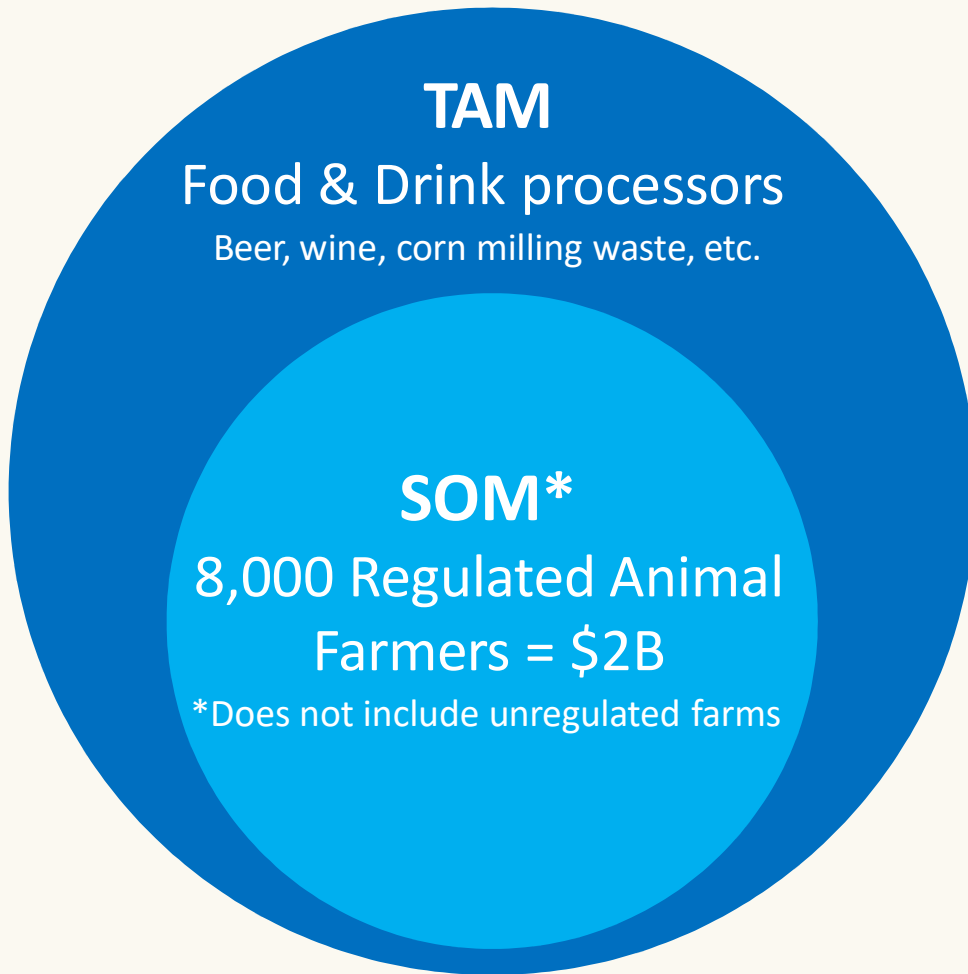


A  
BEFORE

B  
AFTER



- Modular water treatment
- Solar Powered System
- Cloud-based dashboard
- Leasing/Subscription Model
- \$/gallon of water treated
- Carbon Credits Analytics



> \$10B





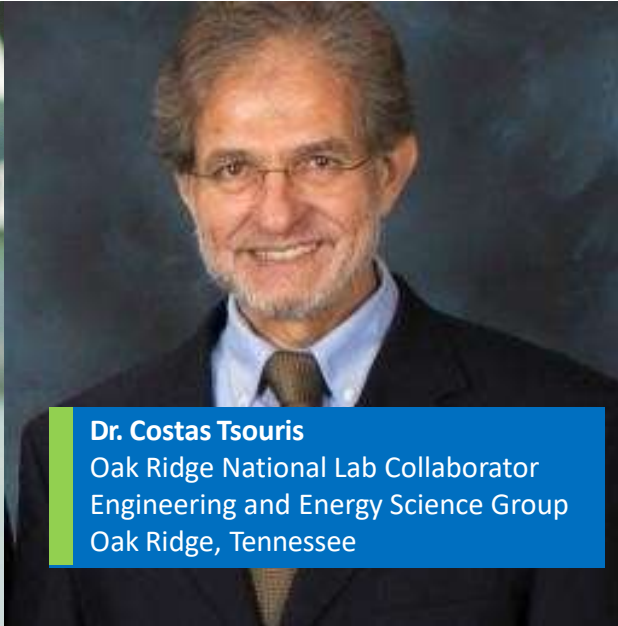


**Dr. Bianca Bailey**

Founder & CEO Agriwater  
Ag Tech & Water Treatment

- *Agricultural & Bio Engineering, PhD, UIUC\**
- *Environmental Engineering, MS, UIUC\**
- *Chemical Engineering, BS-Howard University*

*\*UIUC-University of Illinois-Urbana Champaign*



**Dr. Costas Tsouris**

Oak Ridge National Lab Collaborator  
Engineering and Energy Science Group  
Oak Ridge, Tennessee

Thank our Funders:



Lab-Embedded Entrepreneurship Program

**Angel Investor: Tommy Gibbons**



**Research Park**

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Agriwater is a company affiliate of  
Research Park





University of Illinois-Urbana Champaign



**ANIMAL SCIENCE**  
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<https://utdairy.tennessee.edu/>

Dear Dr. Bailey,

This letter is to express my strong support for your collaboration with the East Tennessee Research and Education Center – Little River Animal and Environmental Unit (ETREC-LRAEU) regarding manure and water management systems. The ETREC-LRAEU functions to provide support for research and teaching efforts as well as extensive studies that evaluate the interaction between animal agriculture and the environment. An upcoming focus of the Little River Animal and Environmental Unit is precision farming technologies including water and waste management strategies.

We strongly encourage and support research focusing on economical solutions to improve waste management and welcome the collaborations with Agriwater outlined in our previous meetings. This joint work will not only improve our waste management systems at the LRAEU, but will offer valuable insight to improve waste management systems for growers across the state. As a Research and Education Center, this proposal aligns with both of our missions.

I appreciate the opportunity to express my support for the proposed work and my interest in the outcomes of this proposal. Should you have any questions, please feel free to contact me.

Thank you,



**Research Park**  
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN



**2022-Present Progress:**

- Built a working lab-scale continuous-flow water system
- Integrated multi-probe water quality sensors into lab-scale demo
- Building an ecosystem in Knoxville for Agriwater to be successful
- Cornell University-AgCorp Regional Customer Discovery



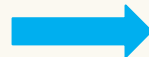


**Accomplished:**

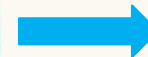
- Built lab-scale continuous-flow water system
- Integrated multi-probe water quality sensors
- Building an ecosystem in Champaign/Knoxville
- Cornell University-AgCorp Regional Customer Discovery



Lagoon: Liquid Animal Poop



Electrolysis Baffled Reactor



Irrigation, Barn Flush, Mist Water

**Needs/Asks:**

- Redesign reactor
- Low-energy metal electrodes
- Hydrogen fuel cell expert
- Waste recovery drying
- Process Engineer to Scale
- Techno-economic analysis

Agriwater's  
Illinois Ecosystem

Agriwater's  
Tennessee Ecosystem

Partners & Collaborators



Illinois Sustainable  
Technology Center

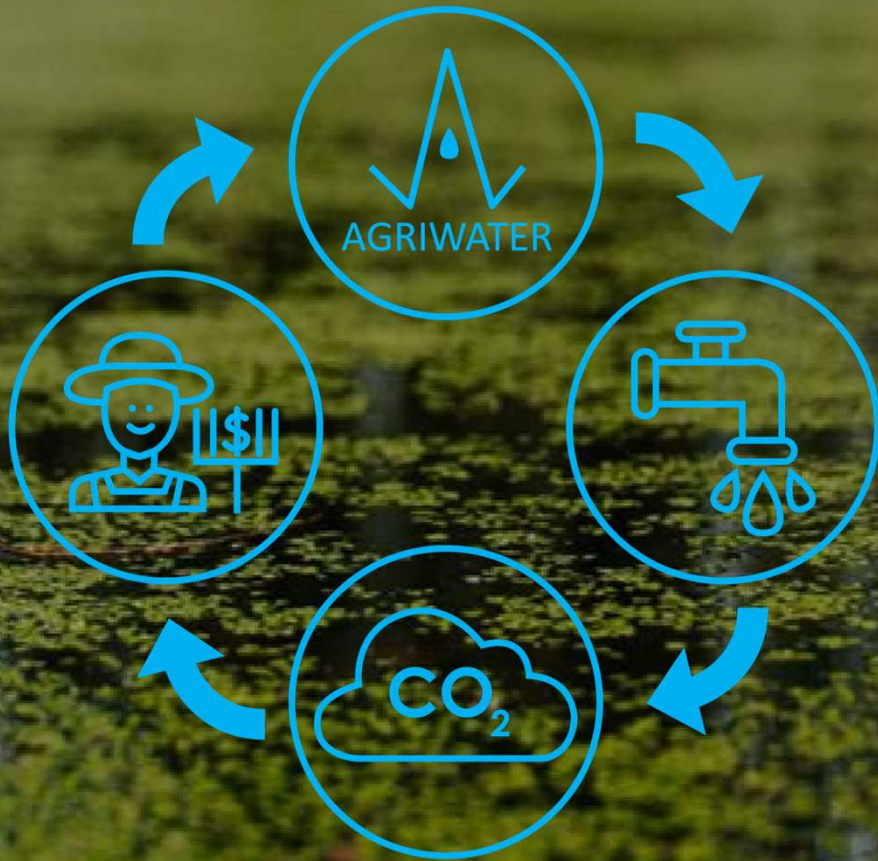
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Potential Early Adopters





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**Founder & CEO**  
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