BLUE IS GREEN
BiG

HIGHLIGHTS

- **HIGH SCHOOL AQUAPONICS CURRICULUM**
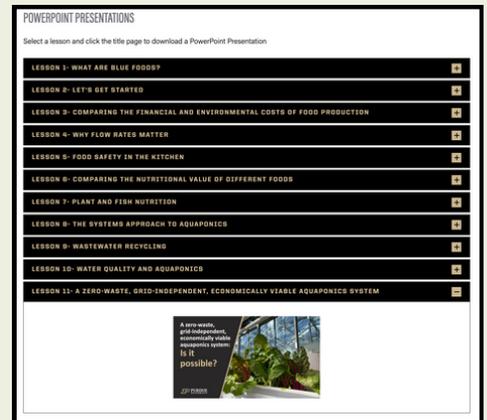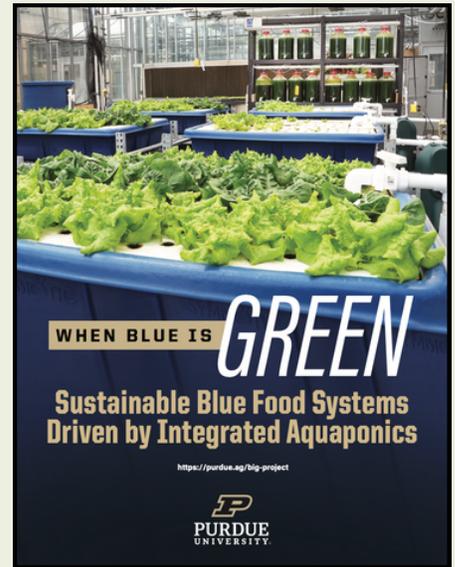- **AQUAPONICS ASSOCIATION CONFERENCE 2025**
- **NEW PUBLICATIONS**

About When Blue is Green (BiG)

The BiG project is a 5-year USDA-funded, Purdue-led research project focused on sustainable agricultural systems. Our goal is to increase local and regional production of nutritious, affordable seafood with a minimal environmental footprint, ultimately diversifying U.S. agricultural systems and dietary patterns.

BiG HIGH SCHOOL AQUAPONICS CURRICULUM

In August, we published our high school aquaponics curriculum! It includes not only detailed lesson plans but also worksheets and customizable PowerPoint presentations for each topic. Since its release, we've showcased the completed curriculum at the 2025 Indiana State Fair and the Aquaponics Association Conference at the University of Maryland. All of these materials are available for free on the BiG website under the "For Teachers" section via the Learning Resources tab.

WHEN BLUE IS *GREEN*

Sustainable Blue Food Systems Driven by Integrated Aquaponics

https://purdue.ag/big-project

PURDUE UNIVERSITY.

POWERPOINT PRESENTATIONS

Select a lesson and click the title page to download a PowerPoint Presentation

LESSON 1- WHAT ARE BLUE FOODS?

LESSON 2- LET'S GET STARTED

LESSON 3- COMPARING THE FINANCIAL AND ENVIRONMENTAL COSTS OF FOOD PRODUCTION

LESSON 4- WHY FLOW RATES MATTER

LESSON 5- FOOD SAFETY IN THE KITCHEN

LESSON 6- COMPARING THE NUTRITIONAL VALUE OF DIFFERENT FOODS

LESSON 7- PLANT AND FISH NUTRITION

LESSON 8- THE SYSTEMS APPROACH TO AQUAPONICS

LESSON 9- WASTEWATER RECYCLING

LESSON 10- WATER QUALITY AND AQUAPONICS

LESSON 11- A ZERO-WASTE, GRID-INDEPENDENT, ECONOMICALLY VIABLE AQUAPONICS SYSTEM

A zero-waste, grid-independent, economically viable aquaponics system: Is it possible?

AVAILIBLE FOR FREE DOWNLOAD ON OUR WEBSITE!

https://ag.purdue.edu/department/foodsci/big-project/for-teachers.html

WORKSHEETS

Use the dropdown and click a PDF to download BiG lesson worksheets

WORKSHEET PDFS

ZERO WASTE.PDF

THE BIG SYSTEM.PDF

THE BIG SYSTEM, WITH DESCRIPTION.PDF

WASTE DISPOSAL.PDF

WATER QUALITY.PDF

STANDARDS.PDF

PLANT AND FISH NUTRITION.PDF

LET'S START, EQUIPMENT.PDF

COMPARE NUTRITIONAL.PDF

FLOW RATES.PDF

FOOD INVENTORY.PDF

AQUAPONICS ASSOCIATION CONFERENCE 2025

The BiG Project team traveled to College Park, MD, to attend the 2025 AQA Conference at the University of Maryland from September 15–17. We're already looking forward to next year!

VIRTUAL REALITY, FEED ASSESSMENT, AND MORE!

A few members of the BiG Project led educational sessions during the conference. We hosted an open discussion on the use of virtual reality in aquaponics and presented our feed assessment for Midwest producers to help inform and support other operations.
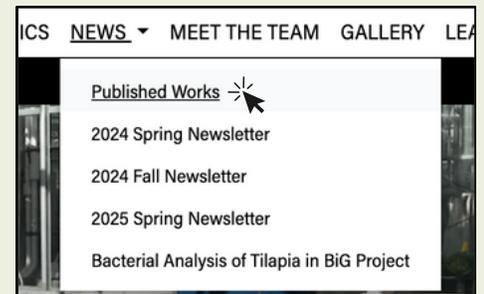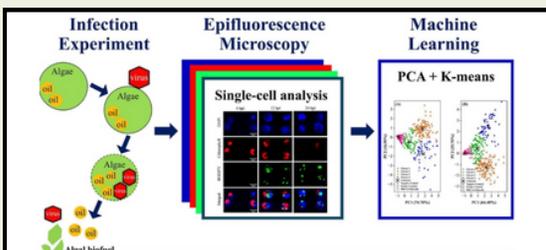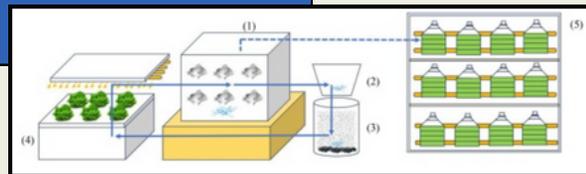
FOLLOW FOR MORE CONTENT!

CHECK OUT OUR NEW PUBLICATIONS!

Fish stocking density impacts nutritional composition of algae produced in a decoupled aquaponic system

Fish stocking density is a key factor in aquaponics, affecting nutrient availability, water quality, and overall system productivity. While research has focused on improving productivity, the potential inclusion of microalgae as an additional subsystem remains largely underexplored. Microalgae offer added benefits, including nutrient recovery, water quality improvement, and production of high-value biomass. This study evaluated the effects of varying tilapia (Oreochromis niloticus) stocking densities (10, 20, 30, and 40 kg m-3) on the production and nutritional composition of Chlorella vulgaris and lettuce (Lactuca sativa cv. Muir) in a partially decoupled aquaponics system…**Read more here!**

ICS **NEWS** ▾ MEET THE TEAM GALLERY LEA

- Published Works 👆
- 2024 Spring Newsletter
- 2024 Fall Newsletter
- 2025 Spring Newsletter
- Bacterial Analysis of Tilapia in BiG Project

VIEW ALL THE BiG PUBLICATIONS HERE!

Enhanced biomimetic algal lipid enrichment for improved biofuel production driven by non-stress viral lysis

Algae are promising renewable energy sources for biofuel production but remain cost-bottlenecked by lipid extraction. A low-energy solution could be provided by viral lysis by PBCV-1, a Chlorella-specific lytic virus that occurs widely in the natural environment. PBCV-1 can lyse host cells and release the intracellular lipids without using expensive sonication or chemicals. Although its capacity for disruption is documented, limited information is available on how it might rewire the host's lipidome before lysis. The objective of this study was to investigate triacylglycerol (TAG) accumulation profiles in Chlorella infected with PBCV-1. A high-resolution epifluorescence microscopy approach was employed to analyze over 4,000 cells across a full PBCV-1 lytic cycle to monitor TAG accumulation, chlorophyll fluorescence, and nuclear morphology…**Read more here!**