

**Paul C. and Edna H. Warner Endowment Fund for Sustainable Agriculture
Interdisciplinary Grant Program for On-Farm Research**

Report Form

Project Title: Production of yellow perch for local markets in North-East Ohio using intensive culture system

Summary (Describe your project, its objectives and results in one or two sentences)

The current project sought to evaluate the use of a novel culture system for yellow perch larvae/juveniles which could be adapted to any commercial tank and would provide an ideal environment to rear fish with the use of indoor cultured zooplankton to avoid dependence on weather and pond production. We provided farmer with embryos and/or hatchlings of yellow perch produced in Columbus OSU aquaculture lab and successfully transported them to Pleasant Valley Fisheries, Andover, OH.

What was done? (One paragraph describing the goals, experiments and how they were performed)

This proposed project was scheduled to begin in the first week of April due to natural reproduction cycle of yellow perch in the North-East Ohio. However, decision on funding was communicated to us on April 27th. We had to adopt an alternative protocol for the study because natural yellow perch spawning in ponds was already completed by April 15. Instead of relying on yellow perch hatchlings from the farmer's ponds we proceeded to spawn our broodstock fish at OSU Aquaculture Laboratory. Between April 28th and May 4th, we spawned 14 females and incubated fertilized eggs to advanced embryonic stages. A second batch of 9 females were also spawned between May 8th and May 11th. An estimated 1.2 and 0.8 million of embryos and/or newly hatched larvae were delivered to Pleasant Valley Fisheries from the first and second batches of spawning, respectively. A static rotifer culture system, inoculum, and food for rotifers were provided to the farmer.

What were the results? (One paragraph on the outcome of the experiments, what was learned from them)

Perch hatched and swim-up larvae were observed by the farmer, indicating that conditions for inflation were suitable. However, the quantity of live food produced in the preliminary rotifer set up was not sufficient to support the number of yellow perch larvae. The source of water from the farmer's pond, used for maintaining flow through indoor tanks, was devoid of appropriate natural zooplankton due to the passage of Spring bloom. Only several hundred of juveniles survived to the end of the live food feeding period, primarily due to cannibalism. The farmer was also provided with rainbow trout fingerlings (n= 200) as this species is much easier to be reared with formulated (commercial) diets from inception of exogenous feeding.

How have the results contributed or will they contribute to sustainable agriculture? (One paragraph on how will farmers use this research information and what difference will it make on their farm?)

We conclude that planning and infrastructure preparation of this type of study has to be completed before expected date of larval fish arrival. We successfully stocked embryos/larvae in the facilities available in Pleasant Valley Fisheries and initial fish behavior was encouraging. However, initiation of rotifer (zooplankton) culture has to be completed in March/early April. Close monitoring of zooplankton carried out with pond water has to be recorded on the daily basis and screened against predatory species (copepods).

We have developed an upgraded proposal, based on the experiences learned while working with Pleasant Valley Fisheries on this project, and submitted a similar multistate project to Saltonstall-Kennedy 2022 NOAA program. If funded (decision to be made in Spring 2022), we will return to this farm in Spring 2023, to implement fixes to live food production, regular monitoring of water quality, presence of pond zooplankton, and examine the filter-sprayer recirculating setups described in the project proposal of this grant.