Recent Advances in Freshwater Prawn Culture in the U.S.

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http://www.msstate.edu/dept/crec/nre.html

MSU-Coastal Research & Extension Center

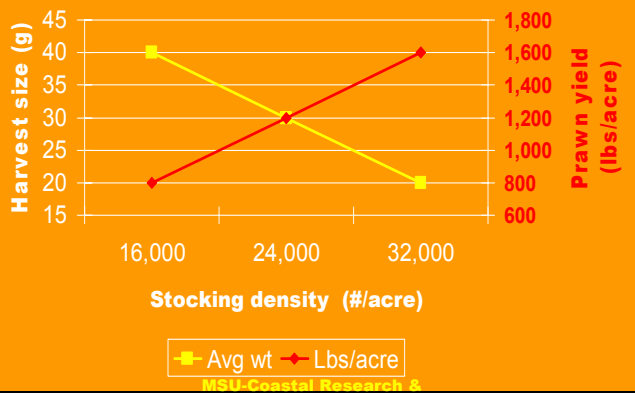
OVERVIEW

- Use of substrates
- Higher stocking densities
- Phase feeding
- Use of graded juveniles
- Pond design and construction
- Pond preparation and management
- Harvesting and processing
- Marketing

FWP Research and Extension

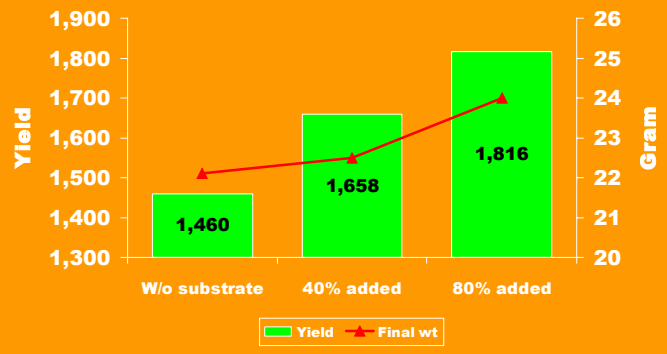
- **Aquaculture Research Center, Kentucky State University (KSU-ARC) http://www.ksuaquaculture.org/**
- **National Warmwater Aquaculture Center, Mississippi State University (MSU-NWAC) http://www.msstate.edu/dept/tcnwac/**
- **Coastal Research and Extension Center, Mississippi State University (MSU-CREC) http://www.msstate.edu/dept/crec/crec.html**
- **University of Tennessee Extension Service (UTES) http://www.utextension.utk.edu/aquafish/**

Effects of Higher Stocking Densities on Harvest Size and Yield at KSU-ARC

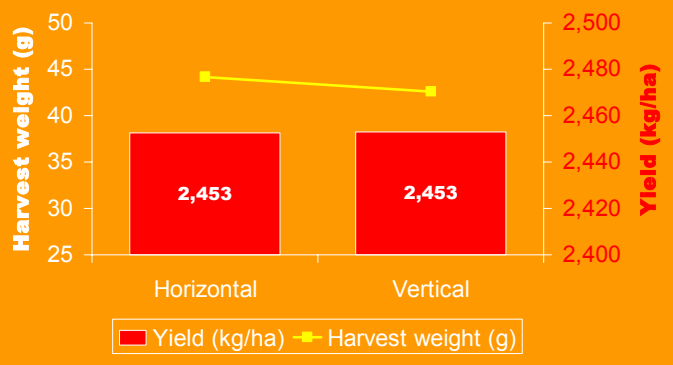


Artificial Substrate Experiments at MSU and KSU

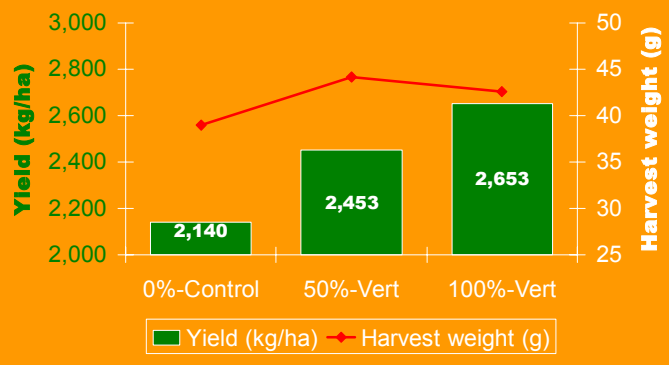
Effects of Added Substrate on Yield and Harvest Size at KSU-ARC (1998)



Effects of Substrate Orientation on Yield and Harvest Size at KSU-ARC (1999)

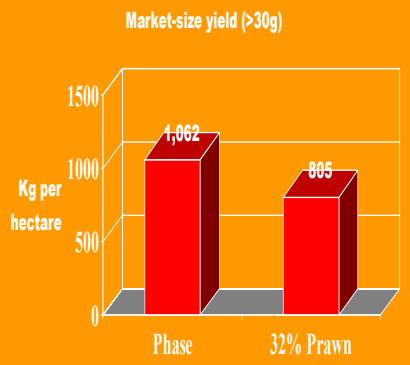


Effects of Added Substrate on Yield and Harvest Size at KSU-ARC (1999)



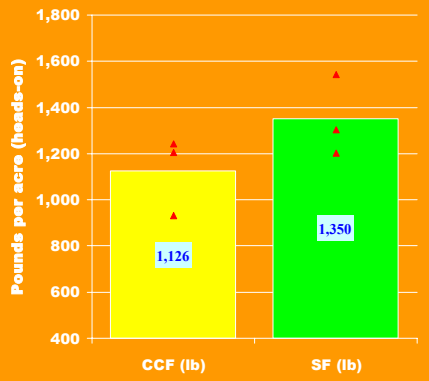
Phase Feeding Experiments at KSU-ARC (2001)

- Phase feeding (Control)- Distillers grain for the first four weeks, a 32% protein prawn diet for weeks 5 12, and the 40% protein penaeid diet for weeks 13- 18.
- The 32% protein prawn diet throughout the production season



Feed Experiments at MSU-CAU (2001)

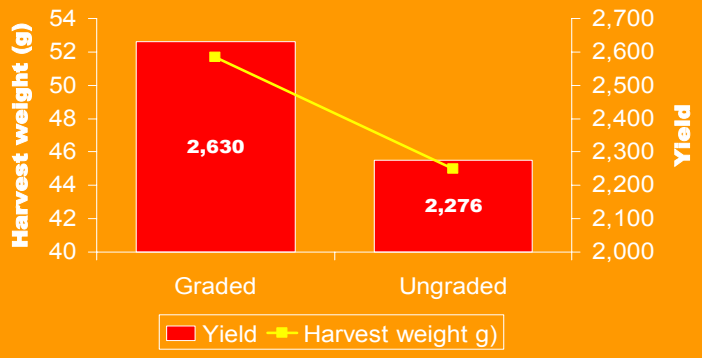
- Channel Catfish Feed
  - pelletized
  - sinking
  - 32% protein
- Shrimp Feed
  - pelletized
  - sinking
  - 35% protein



Graded Juveniles Experiments at MSU and KSU

- **Price ranges:**
  - Post larva (0.01 g)
    - $25-$40 per 1,000
  - 30-day juveniles (0.08 g)
    - $45-65 per 1,000
  - 60-day juveniles (0.25 g)
    - $60-$75 per 1,000
- **Air freight for PL's only:**
  - At cost + $5 per 1,000
- **Grading and delivery costs of juveniles**

Use of Graded Juveniles in Experiments at KSU-ARC (2000)



Design and Construction of FWP Ponds (MS & KY)

- Experimental ponds at MSU & KSU
  - 0.10, 0.25 water acre
- Commercial ponds
  - 1 water acre ponds in KY
  - 2, 3 water acres ponds in MS
  - 5, 9 water acres catfish ponds in MS
- Adequately sloped, 4 inch per 100 ft
- 14 16 inch drain pipe & slightly deepened area
- Catch basins or harvest sumps

Experimental FWP Pond Preparation at MSU-CAU (2001)

- Drained ponds in Oct. 2000
- Checked soil pH and applied lime in Feb. 2001 at 2,400 kg/ha
- Flooded ponds and applied rotenone in May 2001 at 900 ml/pond
- Installed 1 HP electric aerator in each pond
- Stocked ponds in June 2001

Experimental FWP Pond Management at MSU-CAU (2001)

- Pond aeration running all the time
- Pond DO's and water temperature were checked daily
- Emergency aeration was added to ponds with critical DO level
- Nitrite, salinity and pH were checked bi-weekly

FWP Harvesting and Processing at MSU-CAU (2001)

- Drained ponds, screened drain pipes and pumps
- Picked up prawns, harvest sumps
- Prawns were washed, weighed in baskets
- Prawns loaded into totes with crushed ice
- Prawns delivered to processing plant

FWP Marketing

- **Selling Live FWP**
  - Cost of production
  - Cost of harvesting
  - Cost of live-hauling or shipping
  - Hauling or shipping risks
  - Marketing permit
  - Limited market information
- **Niche versus wholesale commodity markets**
- **Selling Fresh or Frozen FWP**
  - Cost of production
  - Cost of harvesting
  - Costs of chilling or processing, packing and shipping
  - Price risks
  - Limited market information

CONSTRAINTS FACING THE PWP INDUSTRY IN THE USA

- **Lack of local nurseries**
  - Less than half a dozen nurseries nationwide
  - High price for nursed juveniles
  - Stress during transport to distant sites
  - Need for on site nursery facilities
- **Low survival in grow-out**
  - Exp com grow out yield gap
  - Relatively low production
- **Insufficient processing, transporting & marketing infrastructure**
  - Except in traditional shrimping areas
  - High transport mortality of live FWP