

Catfish Culture



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Aquaculture



Essential Ingredients for Commercial Catfish Development

1. Suitable Land
2. Suitable Water
3. Money
4. Market
5. Management Time and Skills

Site Selection

Topography: flat

Soils: >15% clay content

Water Availability: 25 gpm/ac
(Evaporation – 2 gpm/ac)

Pond Construction

Pond Layout: 10-12 acres
Separate
3 X as long as wide
Wind orientation (P or P)
Shared levees

Drains: 8 – 10 inch diameter

Stand Pipes: External

Pond Construction

Levees: 3:1 slope internal, 2:1 outside
Cored
4 feet tall (hold 4 feet water)
1-2 feet freeboard
12-25 foot top width
All-weather tops (internal)

Pond Construction



Equipment needed

Dissolved Oxygen Meter

Most important piece of equipment on farm!

Many brands, models, features



Equipment needed

Dissolved Oxygen Meter

- Portable
- Reliable
- Durable
- Accurate



Equipment needed

Water Quality Test Kit

Different brands

Test for:

Hardness

Alkalinity

Salinity

pH

TAN

Nitrites

(DO)

(Temp.)



Equipment needed

Aerators – electric

Types – aspirators, fountain,
paddlewheels

Size – 2 hp/ac

Efficiency – SOTR

(lbs. O₂/hp/hr)



Equipment needed

Aerators – electric

Paddlewheels – Efficient
Standard

Manufacturers



Equipment needed

Aerators –PTO-(paddlewheel)

Emergency use

lbs. of O₂ per hr

1 per 4 ponds

Tractor – 30+ hp



Equipment needed

Aerators –PTO-(bankwasher)

Different designs

Emergency use

lbs. of O₂/hr

1 per 4 ponds

Tractor – 30+ hp



Equipment needed

Feed Cart

Capacity to use
PTO or powered
Chassis or truck mounted
Variable side discharge



Equipment needed

Feed Bins

30 day feed supply

Ease of filling bin/cart



Equipment Needed

Equipment needed

Harvest equipment

Seine net:

1.5 X width of pond

1.5 X depth of pond

correct mesh size

Seine storage



Equipment needed

Harvest equipment

Live car

Scale

Harvest basket

Dip nets

Shepherd's crooks

Hauling truck



Water Quality

<u>Parameter</u>	<u>Optimal</u>	<u>Tolerated</u>
Dissolved Oxygen	5-15 ppm	2 ppm – 300% sat.
Un-ionized Ammonia	0 ppm	0.05-2.0 ppm
Nitrite	0 ppm	10:1, Cl:NO ₃ conc
pH	6 – 9	5 – 10
Salinity	0.5 – 3 ppt	<0.1 – 8 ppt
Temperature	80 – 85°F	32 – 104°F
Alkalinity	20 – 400 ppm	<1 - >400 ppm
Hardness	20 – 400 ppm	<1 - >400 ppm

Stocking



5000-6000 fingerlings per acre

Feeding

1.5% – 5% Body Weight

1 – 2 X per day

FCR = 1.6 – 2.5



Harvesting

Pre-harvest Requirements

- Enough fish of harvest size (20,000 lbs – 2:1 FCR)
- Taste Test for Off-Flavor



Harvesting



Live Haul Capacity – 20,000 lbs.

Diseases

Viruses

Bacterial

Parasites

Toxins

Diseases

Viruses: Channel Catfish Virus

Bacterial

Parasites

Toxins

Diseases

Viruses

Bacterial: Enteric Septicemia of Catfish (ESC)

Aeromonas Hydrophila

Columnaris Flexibactor

Parasites

Toxins

Diseases

Viruses

Bacterial

Parasites: Protozoans

Proliferative Gill Disease (PGD)

Nematodes

Toxins

Diseases

Viruses

Bacterial

Parasites

Toxins:

Microcystis

Aphanizomenon

Euglena

Prymnesium

Visceral Toxicosis of Catfish (VTC)