TILAPIA Hatchery and Grow-out

Is TILAPIA farming profitable?

<table>
<thead>
<tr>
<th>Costs-and-returns</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total variable cost per cropping (PhP)</td>
<td>2,742,000</td>
</tr>
<tr>
<td>Total fixed cost per cropping (PhP)</td>
<td>531,813</td>
</tr>
<tr>
<td>Net income per year (PhP)</td>
<td>335,562</td>
</tr>
<tr>
<td>Internal rate of return (%)</td>
<td>108</td>
</tr>
<tr>
<td>Return-on-investment (%)</td>
<td>129</td>
</tr>
<tr>
<td>Payback period (years)</td>
<td>0.72</td>
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</tbody>
</table>

Technical information for a 5-hectare tilapia grow-out pond

- Project duration (years): 5
- Area (ha): 5
- Stocking density (per m²): 7
- Total stocks per crop: 350,000
- Croppings per year: 2
- Average weight at harvest (kg): 0.250
- Feed conversion ratio: 1.8
- Survival rate (%): 75
- Recovery at harvest (pieces): 262,500
- Total weight at harvest (kg): 65,625
- Farm gate price (PhP/kg): 55
- Gross sales (PhP): 3,609,375

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AEM 22 Pag-aalaga ng Tilapya RV Eguia, MRR Eguia (2007)
A 55-page manual detailing the culture and grow-out of tilapia until its harvest. This manual also includes a list of government agencies in the Philippines involved in tilapia research and development.

AEM 23 Pagpapaanak ng Tilapya RV Eguia, MRR Eguia (2007)
A 52-page revised edition of the 1996 manual, discusses the spawning of tilapia in concrete tank hatcheries, hapa hatcheries in ponds and lakes and the hatchery operations of tilapia.

AEM 36 Tilapia Farming in Cages and Ponds RV Eguia, MRR Eguia (2004)
A 40-page manual describes the farming practices for tilapia in cages, pens, ponds, and tanks. Also details selection of quality seedstock, maintenance of stock (feeding, water management), and harvesting. A list of institutions working on tilapia R&D is included.


AEM 51 Modyular na pag-aalaga ng tilapya sa mga kulungang lambat R Eguia, MRR Eguia, ND Salayo (2011) An extension manual detailing traditional cage culture method, concept of modular cage culture, economic feasibility of modular cage culture, and post harvest processing.

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Why TILAPIA?

Tilapia is known as the “aquatic chicken.” It has become a global staple fish and protein source because it grows fast and breeds easily in captivity. An easy fish to culture, it is tolerant to a wide range of salinity and temperature levels. Moreover, farming tilapia requires minimal inputs.

How to breed and culture TILAPIA?

Hatchery in netcages
- Install 3 x 10 x 0.75 m fine-meshed netcages in ponds or 3 x 10 x 1.5 m fine-meshed netcages in lakes
- Stock four (3 females and 1 male) or five (4 females and 1 male) tilapia breeders (3-4 month old, minimum 100 g) per square meter
- Feed breeders at 3% of total biomass with tilapia feeds containing 40% protein
- Check for the presence of fry three weeks after stocking the breeders
- Collect fry and transfer to nursery netcages
- Place breeders in separate holding facilities and continue feeding them high-protein tilapia feeds for the next breeding cycle

Grow-out in ponds
- Stock 1-2 fingerlings/m² for extensive systems, 3-4 fingerlings/m² for semi-intensive systems, and 5-10 fingerlings/m² for intensive systems
- Feed fingerlings with tilapia feeds daily at 2-3% of the total fish biomass in semi-intensive systems and at 3-5% of the total fish biomass in intensive systems
- Intensive systems require good water management (water change as needed) apart from additional provisions like paddlewheel aerators
- Harvest fish when they reach the market size of 150-300 g (4-6 months)

Is TILAPIA seed production profitable?

Technical information for a small-scale netcage-based hatchery

| No. of broodstock (F=1,600; M=400) | 2,000 |
| Female broodstock that produces fry per cycle (%) | 80 |
| Fry production per female broodstock (pcs) | 200 |
| Production per cycle (pcs) | 256,000 |
| Number of cycles per month, 36 days | 2 |
| Productive months per year | 10 |
| Production per month (pcs) | 358,400 |
| Recovery after one month (%) | 70 |
| Production per year (pcs) | 3,584,000 |
| Farm gate fry selling price, size 22 (PhP/pc) | 0.45 |
| Gross sales | 1,612,800 |

Costs-and-returns (per year)

| Total variable cost (PhP) | 436,000 |
| Total fixed cost (PhP) | 450,000 |
| Net income per year (PhP) | 766,800 |
| Internal rate of return (%) | 146 |
| Return-on-investment (%) | 163 |
| Payback period (years) | 0.48 |

Female broodstock (Oreochromis niloticus) with eggs in its mouth

A fixed cage module

A fixed cage module

Female broodstock (Oreochromis niloticus) with eggs in its mouth