

# FACT SHEET

## BASIC GUIDANCE ON MANAGEMENT OF AFRICAN LUNGFISH IN UGANDA

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### Overview

The African lungfish (*Protopterus aethiopicus*) is an air-breathing native fish species that is valued and demanded in Uganda. It has a distinct flavor, and the consumer acceptance of this fish is increasing and widespread. However, its natural stocks are rapidly declining mainly due to overexploitation, environmental degradation, and the large-scale conversion of wetlands to agricultural land. Subsequently, some fish farmers have obtained wild-caught seed and stocked earthen ponds but usually produce low yields. Therefore, this fact sheet highlights important guidelines for lungfish farmers on how to improve their production based on results obtained from the Aquafish Innovation Lab studies conducted in Uganda.

### Lungfish seed



Figure 1. Sources of lungfish seed (eggs, larvae and fry)

### Post-hatch management

Lungfish larvae (0-1g) are well nursed in in-door aquaria tanks when stocked at 1g/L of aerated water. After the yolk sac has been absorbed in 5-6 days, larvae are weaned to live feed called **Moina** for 2-3 weeks. Nursery tanks/systems should be located in a well-light area so that larvae can easily eat the **Moina**. Provide some aeration to the nursery system since the air-breathing organs for lungfish larvae are not well developed.

### Post-larvae management

On the 20-21st day after hatching, fry (1-2g) are fed a combination of live feed (**Moina**) and a complete diet with 40% crude protein. The feeding rate for dry formulated feed is 8% body weight per day. Feed once per day in the first week until fry learn to respond to artificial feeds. Gradually feed twice per day at same rate when response to feed has intensified. Remove mortalities from each nursing tank every day, and allow 10% daily exchange rate of water per nursing tank.

### Post-fry management

Fry (5g) can be transferred to an out-door facility like a nursing pond which is well protected and covered with water hyacinth (*Eichornia crassipes*) mats. Cover the nursing pond with a net to protect the fish from predators like birds. Lungfish fingerlings like basking on top of floating plants at sunset. Fish are fed twice with dry feeds (37-40% crude proteins) for 5-6 weeks when they attain 7-10g of weight.

### Production of market size fish



Figure 2. Fingerlings for stocking

1. Transportation: fingerlings for stocking can be transported in a 1000-L tank at rate of 1g of fish per 2 Liter of fresh water without aeration. For long distances,  $\frac{3}{4}$  of water has to be changed every 1.5 hours to remove accumulated wastes during in the transporting container.

2. Out-door tank farming: At a stocking rate of 0.5 kg/ha without aeration, lungfish fingerlings (10-25g) can be stocked in concrete tanks (50 cm deep) that are partially covered with a water hyacinth (*Eichornia crassipes*) mat. Short pipes (2-3 ft) should be added to provide shelter against any external predators (especially birds). At least 30% water exchange should be allowed every month.

Lungfish will grow well if stocked together with mixed-sex tilapia at ratio of two lungfish to one tilapia. Examples include *Tilapia Zilli* and Nile tilapia, which can easily produce young fish in tanks that can be fed by lungfish juveniles/adults. Supplementary dry formulated feeds (30% crude protein) can be provided *ad libitum* to the fish until lungfish reaches market size of 400-700g in seven months.

3. Harvesting: Once the market has been identified drain the tank and manually harvest the fish using a scoop net. Usually survival rates of up to 94% can be achieved in well-constructed tank, which has a layer of clay/loamy soil at the base.

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Figure 3. Harvesting lungfish raised in tanks

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