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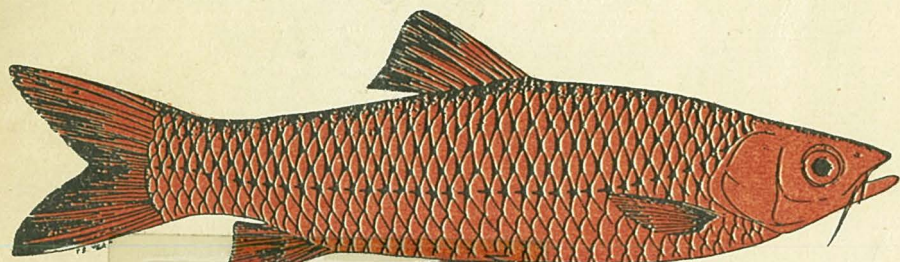


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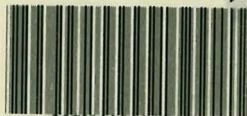
SAFIS Extension Manual Series No. 17. 1985

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CULTURE OF SULTAN FISH (*Leptobarbus hoevenii*)



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SAFIS Manual No.17

CULTURE OF SULTAN FISH

(Leptobarbus hoeveni)

The Secretariat
Southeast Asian Fisheries Development Center
February 1985

This manual is a translation of the Bahasa Malaysia text, *Menternak Ikan Jelawat* (Culture of *Leptobarbus hoeveni*), published by the Ministry of Agriculture, Fisheries Division, as Malaysian Fisheries Series No. 16 in 1981.

The English translation was prepared for the SAFIS project by Mr. Nik Ab. Wahab bin Mat Diah, Aquaculture Fisheries Officer, Fisheries Division, Kuala Lumpur, Malaysia.

CULTURE OF SULTAN FISH
(*LEPTOBARBUS HOEVENII*)

Introduction

Sultan fish (*Leptobarbus hoevenii*) is a freshwater fish which is very similar in appearance to grass carp (*Ctenopharyngodon idellus*). The main difference between the two is that the ventral and tail fins of the sultan fish are reddish in colour. However, there are also other freshwater fish species which resemble the sultan fish. However, with some scientific knowledge, and experience, the sultan fish can easily be distinguished.

At present, production of this fish is mainly from capture fisheries in rivers cultured fish in ponds under the MAJUIKAN* (Fisheries Development Authority of Malaysia) project at Puchong. Only a few farmers are involved in culturing the fish.

On account of the following factors, the Fisheries Division of the Ministry of Agriculture of Malaysia is taking the initiative to promote and introduce the fish to farmers because of the following reasons:

* Presently known as LKIM (Lembaga Kemajuan Ikan Malaysia, Fisheries Development Authority of Malaysia)

(a) Indigenous species

Sultan fish belongs to an indigenous species which breeds naturally in Malaysia. It can be found in several rivers such as the Pahang and Muar rivers. There can be no doubt therefore that the fish is well adapted to survive in local conditions.

(b) High market value

The fish fetches a high price in the Malaysian market. In 1981, the retail and wholesale prices were M\$24.80 and M\$16.50 per kilogram respectively. Sultan fish is supplied mainly to restaurants. It appears that demand for the fish exceeds supply, which is limited.

(c) Availability of feed

Sultan fish are omnivorous, and plenty of food is available locally for feeding them.

(d) High survival rate

The fish are hardy and active, and their survival rate is estimated between 95-96 per cent. They can move fast which makes it difficult for predators to catch them. They are also resistant to disease.

(e) Fish seed supply

Normally sultan fish spawn only in a natural environment, especially in the stream of their origin. However, the Malaysian Agricultural Research and Development Institute

(MARDI) was able to produce seed by induced spawning techniques and research is still on-going. For culture purposes, seed can be imported from Indonesia or Thailand.

CULTURE METHOD

Pond Requirements

The pond requirements are the same as for other species of freshwater fish. The size of the pond should be at least 0.1 ha and a depth of water within the range of 92 to 183 cm is considered suitable. The pond is generally rectangular in shape.

Stocking Rate

The stocking rate depends on the system of culture, i.e., monoculture or polyculture.

(a) Monoculture

The monoculture system is not recommended since it does not make full use of the food and space available in the pond. However, if the farmers prefer this method, then they should engage in intensive culture. A stocking density of 1,500 fish per 0.4 ha is recommended.

(b) Polyculture

Polyculture is considered more profitable and the farmers are encouraged to use this system. The stocking rate recommended is as follows:

<u>Species</u>	<u>Stocking Rate/0.4 ha</u>
Sultan fish	800
Grass carp	300
Bighead carp	150
Common carp	150
Indonesian carp	150
	<hr/>
Total:	<u><u>1,550</u></u>

Supplementary Feeds

Supplementary feeds containing 29-30 per cent protein are suitable for feeding the fish. If the feed is lower in protein content, the growth rate is poor. Fish meal and internal visceral organs of poultry are among the foods containing about 30 per cent of protein. The following supplementary feeds are recommended:

- Coconut cake
- Soya bean cake
- Rice bran
- Napier and guinea grasses
- Cassava leaves
- Water "spinach" (kangkong), etc.

The fish should be given as much feed as they can eat. When they cease to show any interest in the food being given to them, feeding should be stopped temporarily.

Poultry droppings can be utilized in ponds as a fertilizer to initiate plankton growth, which serves as a natural food for the fish.

Growth Rate and Cost of Production

Sultan fish are able to grow up to an average size of 0.6-0.9 kg within a culture period of eight months. The cost of producing one kilogram of fish in 1981 was about M\$6.60.

COST AND RETURN

The following calculations are based on a pond size of 0.4 ha on a culture period of eight months, and on the assumption that household labour is utilized*.

1. Pond construction cost

i) Excavation and construction	M\$5,000.00
ii) Pond facilities	
a) One unit of T-shape pipe	3.60
b) 14 units of straight pipes M\$5.60 each	83.20
c) One 50 kg bag of cement	<u>8.20</u>
Total:	<u><u>M\$5,095.00</u></u>

* These calculations are based on 1981 prices.

2. Operating costs

2.1 Supply of fish

<u>Species</u>	<u>Size</u>	<u>Amount</u>	<u>Price/piece</u>	<u>Cost</u>
Sultan fish	10 cm	800	M\$0.50	M\$400.00
Grass carp	10 cm	300	M\$0.50	150.00
Bighead carp	10 cm	150	M\$0.50	75.00
Common carp	10 cm	150	M\$0.50	15.00
Indonesian carp	10 cm	150	M\$0.50	15.00
			Total:	<u><u>M\$655.00</u></u>

2.2 Feed

i)	Coconut cake 2,208 kg (M\$1.00 per kg)	M\$2,208.00
ii)	Soya bean cake 2,208 kg (M\$1.00 per kg)	<u>M\$2,208.00</u>
	Total:	<u><u>M\$4,416.00</u></u>

It is considered that cassava leaves, grasses and chicken droppings would be supplied free of cost.

2.3 Miscellaneous

i)	Fertilizer 100 kg	M\$ 95.00
ii)	Lime 302 kg	31.00
iii)	Others	<u>100.00</u>
	Total:	M\$ <u><u>226.00</u></u>

3. Total operating costs

Fish	M\$ 655.00
Feed	4,416.00
Miscellaneous	<u>226.00</u>
Total:	<u><u>M\$5,297.00</u></u>

4. Return

Total production (0.4 ha)	= 1,149 - 1,566 kg
Gross income	= M\$9,206 - M\$13,477.00
Net income	= M\$3,909.00 - M\$8,180.00
Monthly income	= M\$325.75 to M\$681.67

4. Yield

The estimated yield is as follows:

Species	Stocking Rate (0.4 ha)	Survival Rate %	Number Live Fish	Fish Weight (kg)	Total Weight	Price/kg (M\$)	Value (M\$)
Sultan fish	800	95	760	0.6 - 0.9	456-684	10.50	7,524 - 11,286
Grass carp	300	70	210	1.8 - 2.4	378-504	2.80	1,058 - 1,411
Bighead carp	150	70	105	1.8 - 2.4	189-252	1.98	374 - 500
Common carp	150	70	105	0.6	63	1.98	125
Indonesian carp	150	70	105	0.6	63	1.98	125

LIST OF SAFIS EXTENSION MANUALS

- SEC/SM/1 Khumua liang pla namcheut (Freshwater Fish Farming: How to Begin)-- in Thai
- SEC/SM/2 Oyster Culture
- SEC/SM/3 Mussel Culture
- SEC/SM/4 Ang pagpuna ug pagtapak sa pukot (Net Mending and Patching)-- in Cebuano-Bisaya
- SEC/SM/5 Mussel Farming
- SEC/SM/6 Menternak Ikan Airtawar (Freshwater Fish Farming: How to Begin)-- in Bahasa Malaysia
- SEC/SM/7 Makanan dan Pemakanan Udang Harimau, *Penaeus monodon* (Nutrition and Feeding of Sugpo, *Penaeus monodon*) -- in Bahasa Malaysia
- SEC/SM/8 Macrobrachium Culture
- SEC/SM/9 Selection of Marine Shrimp for Culture
- SEC/SM/10 Induced Breeding of Thai Silver Carp
- SEC/SM/11 Culture of Sea Bass
- SEC/SM/12 Smoke-curing of Fish

- SEC/SM/13 Cockle culture
- SEC/SM/14 Net Mending and Patching
- SEC/SM/15 Kanliang hoy malangphu (Mussel Farming) -- in Thai
- SEC/SM/16 Nursery Management of Prawns
- SEC/SM/17 Culture of Sultan Fish
(*Leptobarbus hoeveni*)

SAFIS

0 What is SAFIS?

SAFIS is the Southeast Asian Fisheries Information Service. It is a project of the SEAFDEC Secretariat set up to provide extension materials for small-scale fishermen and fish farmers in the region.

0 What are its objectives?

The immediate objectives are to collect and compile fisheries extension manuals, brochures, pamphlets and related aids for small-scale fisheries development, and to translate selected literature into local languages for distribution to fisheries extension workers in Southeast Asia.

0 What services will SAFIS provide?

SAFIS will attempt to provide information and publications such as:

- lists of available texts in fisheries extension services,
- translation of suitable manuals,
- manuals of appropriate technologies,
- photocopies of appropriate fisheries extension literature,
- a current awareness service of regional fisheries.

0 How much will these services cost?

A nominal cost of US \$0.15 per page will be charged for photocopying, handling, and surface mail. Airmail costs will be extra. The publication cost per manual will vary according to the book.

SAFIS is grateful for financial support received from the International Development Research Centre (IDRC) of Canada.

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SAFIS is the Southeast Asian Fisheries Information Service. It is a project of the SEAFDEC Secretariat set up to provide extension materials for small - scale fishermen and fish farmers in the region. For additional information, contact the Project Leader of SAFIS

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