Table 1: **Effect of quality fish feed on fish performance**

Feed type	Price of a kg of feed	Amount of feed (kg) to produce 1 kg of fish	Money spent on feed to produce 1 kg of fish
Good quality /commercial feed	950	2	1,900/-
Low quality, cheap feed	750	4.5	3,375/

Therefore, cheaper fish feeds are not necessarily cost effective

ii) When excess feed is given

Any feed that is not eaten by the fish drops into the pond water. The excess feed dropping into the water may be a result of two things. Either the farmer gives too much feed for the fish, or the feed is of poor quality and the fish only eat a small proportion. Either way, the uneaten feed drops into the pond and starts rotting (decomposing).

Anything that rots in the pond takes up the fresh air (oxygen) that the fish needs for breathing, and produces bad gases (ammonia, nitrite & carbon dioxide) that are poisonous to fish.

Under such conditions, the fish gets stressed and stops eating. In extreme cases the fish dies.

Therefore, it is important to supply the exact amount of feed needed by the fish and avoid wastage

A good quality feed that is poorly administered is not better than a poor quality one

How to deal with over feeding

The signs of over feeding include the pond water turning very green. Eventually stressed fish is seen coming to the surface and gasping for air, especially at night and early morning. When these signs are observed, farmers should flush more water through the pond to dilute the effects of pollution until the green colour of the pond water is greatly reduced.

Proper fish feeding

Just as it is important not to supply excess feed, it is also important not to under feed the fish. Therefore, farmers should seek guidance on the right amount of feed to be fed to their fish daily.

Feeding charts are available at the aquaculture research and development center to guide farmers on the amount of feed to give different fish species and age groups.

For more information, contact:

The Aquaculture Research and Development Centre, Kajjansi
P. O. Box 530, Kampala
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Email: fish@aqua.go.ug

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The importance of quality fish feed and their proper management in ponds



Introduction

In fish farming, fish need to be provided enough nutritious food in order to attain big sizes in a short period of time.

There are two main types of fish feeds.
A) Natural food
B) Artificial feeds

A) Natural Food

Natural food can be stimulated to develop in a pond through pond fertilisation. A fertilised pond will have tiny plants (phytoplankton) and animals (zooplankton) that can only be seen under a microscope. (Figure 1).

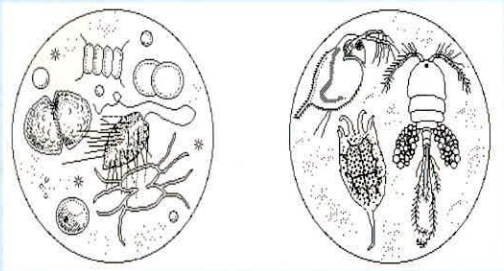

Figure 1: Microscopic plants and animals as seen under a microscope

***Note:** Natural food is normally sufficient only during early stages of fish development*

B) Artificial feeds

Artificial feeds are those feeds prepared and given to fish. The nutrients in these feeds should be well balanced to meet the nutritional needs of the cultured fish species.
The nutrients that should be included in fish feeds include:

- Protein for body building
- Fat for normal functioning of the body and for energy
- Carbohydrates for energy
- Mineral salts for bone structure and body functions
- Vitamins for good health

Locally available ingredients such as fish meal, soya, maize and wheat are some ingredients that provide the nutrients listed above.

There are two sources of artificial feeds.

i) On farm made feed

They are made on the farm by mixing ingredients into power/dough which is fed directly to the fish or cooked prior to feeding. However, in Uganda, on-farm made feeds have been found to lack some of the nutrients necessary for fast fish growth. Therefore, it is advisable to use them as supplementary feed along with pond fertilisation.

It is also recommended that farmers seek advice on how to formulate feeds from competent persons

ii) Factory-based fish feed

This type of feeds are prepared by commercial producers and sold to farmers.

Normally factory based feeds contain all the nutrients needed by the fish. The pellets can either be sinking or floating pellets.

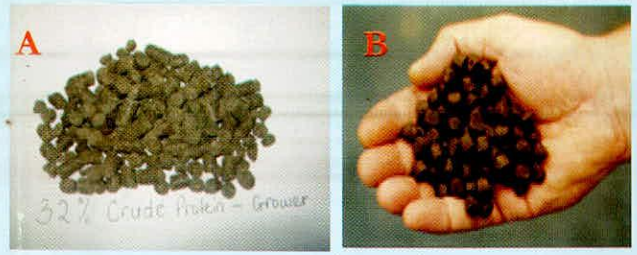

Figure 2: (A) Sinking pellets (B) Floating pellets

Economic considerations

The cost of feeds is the highest cost of production in commercial fish farming. It ranges from 40% to 60% of the total cost of production. Being the highest cost, a lot of care is needed to minimise over expenditure on feeds as much as possible in order to avoid loss of profit.

The two most important ways by which fish farmers may lose money in fish feeds are:

i) When the feed is of poor quality

When a feed lacks or contains certain important nutrients (especially protein for body building) only in small quantities, fish does not grow well. It has to eat a lot more feed in order to make little growth. Even if the price of such a feed is low, the farmer spends more money on the feed for each gain of 1 kg