QUALITY TEST OF THE PRODUCTS RECEIVED FROM THE INTERZOO

Research Proposal, PRO 2507

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Introduction

Feeding the fish is very important in aquaculture.

The objective of feeding fish is to provide

- nutritional requirements for good health,
- optimum growth and optimum yield,
- minimum waste within reasonable cost, and
- optimize profits

Feed determines nutrient loading in the pond, fish growth rate, economic viability of the enterprise and health status of the fish.

If there is no utilizable feed intake by the fish, there can be no growth and death eventually results.
Under-nourished or malnourished fish cannot maintain health and growth, regardless of the quality of the environment.

Clinical disease often ensues when nutritional needs are not met.
Nutritionally- balanced and quality-controlled diets are essential in fish production.

Objective

To find out the quality of the products received from Interzoo

Color enhancing food

Fish coloration is determined by three factors. They are,

- Genetics
    - whether the fish has inherited the necessary genetic material to show certain colors

- Nervous system and glandular factors
    - Coloration depends on a fish's mood and general health. All things being equal, a sick fish is probably less colorful than a healthy one. Males also may develop strong colors to attract females, and how the color of subordinate males lessens in the presence of dominant males

- Dietary factors
    - Nutrients and chemical compounds that the fish eats, which directly or indirectly influence color.

After providing optimal conditions, the next opportunity to influence fish color is by introducing coloring agents into the fish's diet.

Moss Ball

FIGURE 1: MOSS BALL

Common Name: Moss Balls/Marimo Balls

Family Name: Cladophoraceae

Temperature: 68-82F (20-28C)

pH tolerance: 6.8-7.5

Cladophora aegagropila is an aquatic moss that is slowly formed into a ball over a long period of time.

Moss Balls are a different type of algae than those that normally form in an aquarium and are very slow growing.

They are great for algae control because they "outcompete" the algae by using the same nutrients and starving the algae.

These balls are very simple to raise and neither requires special care nor occupies much space, as it is grown in a glass jar or even in a fish globe with fishes.

Biological Filtration

Waste products accumulated in the aquarium causes the rise of ammonia in the water.

Biological filtration is the removal of harmful waste chemicals that is produced by fish waste and uneaten food in the aquarium.

Since the performance of the bio filter largely depends on the microbial activities, a constant source of substrates (organic substance and nutrients) is required for its consistent and effective operation.

There are three main biological processes that can occur in a bio-Filter,

- attachment of microorganism,
- growth of microorganism and
- decay and detachment of microorganisms

Success of a bio filter depends on the growth and maintenance of microbes (biomass) on the surface of filter media.

It is necessary to understand the mechanisms of attachment, growth and detachment on the surface of the filter media.

Products received from Interzoo

Type 1

- Alimentos Premium Pleco Food
- Pleco Growing Food
- Pleco/Ground Fish Food

Type 2

- African Cichlid Growing Food
- African Cichlid Special Growing Food
- Characinidae, Afherinoformes and American Cichlid Growing Food
- Optimal Nutrition for Neon Tetra

Type 3

- Tropical Fish Color Enhancing Food
- Super Color Enhancing Food (floating) for African Cichlid

Type 4

- Sandaster S-100 (filtered beneficial bacteria)
- Sandaster SS-100 (filtered beneficial bacteria)
- Cladophora – Moss Ball

FIGURE 2: ALIMENTOS PREMIUM PLECO FOOD

FIGURE 3: PLECO GROWING FOOD

FIGURE 4: PELCO/GROUND FISH FOOD

FIGURE 5: AFRICAN CICHLID GROWING FOOD

FIGURE 6: AFRICAN CHILID SPECIAL GROWING FOOD

FIGURE 7: CHARACINIDAE, AFHERINFORMES AND AMERICAN CICHLID GROWING FOOD

FIGURE 8: OPTIMAL NUTRITION FOR NEON TETRA

FIGURE 9: TROFICAL FISH COLOR ENHANCING FOOD

FIGURE 10: SUPER COLOR ENHANCING FOOD (FLOATING) FOR AFRICAN CICHLID

FIGURE 11: SANDASTER S-100, SANDASTER SS-100

FIGURE 12: MOSS BALL

Experimental Design

1. Experimental Design for Type 1 Category

Although Pleco fish are not available in Horana farm, Pleco fish feed coming under the type 1 category, will test using the guppy fish.

Four 5*10 sized cement tanks will be selected with 2500 guppy fry.
Same amount of powder feed and brine shrimp will be provided to select four tanks for one month period until they were sorted.
After one month period, female guppy fish will be selected from earlier four nursery tanks for the experiment.
Two 5 * 10 cement tanks including 1500 female guppy per each tank will be maintained separately.
Average weight of Guppy fish from each tank will be taken
One tank will be fed with guppy feed and brine shrimp which was practiced normally in Horana farm.

Table 1: Current Feed Practice

Time	Feed
8.00 a.m.	Aquamaster, 999
10.00 a.m.	Aquamaster, 999
12.00 p.m.	Aquamaster, 999
1.00 p.m.	De capped brine shrimp
2.00 p.m.	Aquamaster, 999
4.00 p.m.	Aquamaster, 999

Another tank will be fed with **Alimentos Premium Pleco Food** instead of normal guppy feed.

Table 2: Experimental Feed Practice

Time	**Feed**
8.00 a.m.	Alimentos Premium Pleco Food
12.00 p.m.	De capped brine shrimp
4.00 p.m.	Alimentos Premium Pleco Food

After one month, average fish weight from both tanks will be taken and data will be analyzed.

Same procedure will be applied for **Pleco Growing Food** and **Pleco/Ground Fish Food** as mentioned under the type 1.

Then the weight gain will be compared with same amount of guppy fish in same sizes of cement tanks which were fed with normal guppy feed practiced in Horana farm.

2. Experimental Design for Type 2 Category

Three types of Cichlid growing foods coming under type 2 category will be tested with ram fish in Horana farm.

Four 5*5 sized cement tanks will be selected with 135 ram fish per each tank.

Ram fish will be fed with **African Cichlid Growing Food, African Cichlid Special Growing Food, Characinidae, Afherinoformes and American Cichlid Growing Food** twice per day separately.

As a controller another same tank with same amount of ram fish will be fed with solid form feed containing prima 0 and 999.

After one month, weight gain of ram fish will be compared among three experimental tanks and the controller.

Optimal Nutrition for Neon Tetra Feed

This feed will be tested with Minnow fish hence Neon tetra is not available in Horana farm.

One month aged 300 minnow fish in 5*5 cement tank will be tested with experimental feed while maintaining same size tank with same amount of fish as a controller using current feed procedure.

Table 3: Current Feed Procedure

Time	Feed
8.00 a.m.	Aquamaster
10.00 a.m.	De capped brine shrimp
12.00 p.m.	Aquamaster
3.00 p.m.	De capped brine shrimp
4.30 p.m.	Aquamaster

Table 4: Experimental Feed Procedure

Time	Feed
8.30 a.m.	Optimal Nutrition for Neon Tetra feed
10.00 a.m.	De capped brine shrimp
3.00 p.m.	De capped brine shrimp
4.30 p.m.	Optimal Nutrition for Neon Tetra feed

After one month weight gain of fish will be compared.

3. Experimental Design for Type 3 Category

Tropical Fish Color Enhancing Food will be tested with both ram and minnow fish. **Super Color Enhancing Food (floating) for African Cichlid** will be tested with ram fish.

Both ram and minnow fish in 5*5 sized cement tanks same as in experiments mentioned under type 2 will be arranged.

Table 5: Experimental Feed Procedure

Time	**Feed**
8.30 a.m.	Color Enhancing Food
10.00 a.m.	De capped brine shrimp
3.00 p.m.	De capped brine shrimp
4.30 p.m.	Color Enhancing Food

4. Experimental Design for Type 4 Category

Fish waste included tank will be selected.

After that, fish will be removed from this tank and only waste water will be taken.

As a controller, waste water containing glass tank will be kept without any treatment.

Quality parameters of waste water will be checked

- pH
- Ammonia
- Nitrite

Moss ball will be introduced in to one glass tank filled with waste water.

Another two glass tanks will be arranged with waste water. Prepared water filter will be set to one glass tank and allow to run water through the filter. Another glass tank will be arranged with water filter same as earlier. **Sandaster S-100** (filtered beneficial

bacteria) and **Sandaster SS-100** (filtered beneficial bacteria) will be introduced into that filter. Then, allow to run water through the filter.

After 5 days, water quality parameters will be checked in each tanks.

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