

How can you Realize Proper Fish Growth by Balance Nutrition?

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Abstract: Nutrition is one of the main products of all fish culture. We see that any imbalance in nutrition reduces the immunity power & fishes will be moribund in the fishponds. The farmers will not get more profit from their fish's culture. The imbalance in nutrition has commercially damaged business funds for further fish culture; also we found that imbalanced nutrition develops the toxic substance at pond bottom. Naturally, toxic substances have destroyed the ecosystem of our social environment. The main problem of balanced nutrition is that the environment has not properly supported the best qualities of ingredients for balanced nutrition. Naturally, we found that many fishes proper survive by balancing nutrition. The balanced nutrition has resisted secondary disease & improves immune responsible functions. Every living fish develops their cell division by a proper nutritious profile. The fish's outer surface body's color & size will help you to realize the proper viability of balanced nutrition. Here i mainly discuss the IMC species of rohu culture procedure because it dominates the maximum pieces. The balanced nutrition & proper nutrition monitoring process has improved the digestive system & will reduce the toxic substances in the pond's environment.

Keywords: realize proper fish, growth, balance nutrition

INTRODUCTION

Why Require a Balance of Nutrition?

1. If lower consumption of feed means- higher % of nutrients leach out and high FCR, if higher consumption of feed means-digestible problems, increase organic matter at pond bottom. Also increase micro flora in ponds.
2. Maintain Productivity (growth, repair, survival & hormone secretion for reproduction)
3. Reduce environmental stress
4. Increase availability of dietary energy level
5. Improve stimulatory function, reduce the chances of moribund
6. Reduce waste materials
7. Improve the eco-friendly system (lesser chances of fish mortality).
8. Reduce production cost and economically viable.

Challenge for Fish Growth

1. Bio-available ingredients for good contributions of balance nutrient
2. Number of cells increases-Hyperplasia
3. Increase in cell size-Hypertrophy

Symptoms of proper growth, color, texture by the balance nutrition-**Stage Wise Require Balance of Nutrition for IMC-**

Stage	Size (mm)	Weight (gm)	Require Days (approx.)	Desire level of Protein %	Desire level for Fat %	Desire level of Carbohydrate %	Desire level of Growth Promoter %
Fingerling	100-150	6-8	80-90	36-40	6-12	40-45	0.1
Yearling	350-450	100-200	240-270	32-35	5-10	38	0.13
Adult	>460	1000	300-365	28-30	5-8	35	0.15

Mechanism of Balanced Food Digest by the IMC species-

Required organs for digestive functions are-mouth, buccal cavity, pharynx,oesophagus, intestinal bulb, intestine, rectum, and anus.

First IMC took the food by mouth. The upper lip, lower lip and labial papillae properly help to capture the food. Then food goes to the buccal cavity. The buccal cavity has started mastication the food by the buccal papillae, here is not appear tongue & teeth. Then food goes to the anterior pharynx. The gills have helped. Then food goes to the posterior pharynx. The posterior pharynx has teeth for food cut into smaller pieces & grinding the food. Also found mucus membrane in the posterior

pharynx & helps the food soften. Then food goes through the oesophagus. The oesophagus is made of the mucus membrane. The oesophagus has helped the food go to the intestinal bulb. This time, the oesophagus valve had closed due to food having not returned to the mouth. The anterior cardiac part of the intestinal bulb helps food mix with the bile duct and pancreatic duct. Here, the liver has secretions bile ducts for fat digestive purposes. Here, pancreases have trypsin secretions for protein digestive purposes. The posterior cardiac region of the intestinal bulb has helped absorb food nutrition. The rectum stores indigestible food. Finally, balanced nutrients are absorbed from the intestinal tube & absorb nutrients spread to the cell by the blood circulation. Then indigestible materials are removed through the anus.

Aspects & activities for the digestive process-

Liver-bile duct secretions for fat digestion
Pancreas – Trypsin secretions for protein
Protein-Amino Acid
Fat-Fatty acid + Glycerol
Carbohydrate- Glucose

IMC's cell development activities by balance nutrition-

Here nutrient are divided into two categories-1) Macro nutrient (Protein, Fat, Carbohydrate) 2) Micro Nutrient (Mineral, Vitamin, etc)

Activities of Macro nutrient-

Useful of Protein

Protein Deficiency symptoms-



Requirement to Balance Protein-

Fewer level protein impact on cells	Desire Level of Protein impact in the cells	Excess level protein impact on the cells
Less growth & fewer mechanisms for cell activities	Fishmeal is highly digestible & provides a balanced amino acid profile. To be required of protein 28-40% depending on various stages.	Increase feed cost & increase toxic substances in ponds.

The mechanism of protein works in cells-

High concentrations of protein accumulate in the outer layer of the cell membrane. Simple diffuser or facilitated diffuser system proteins easily enter the cells through receptors on the cell membrane by the channel or carrier. The rate of the simple diffuser system depends on the concentration of protein molecules and surface area of the cell membrane. The nucleus has imported protein from cytoplasm.

DNA (Transcription) –mRNA (Translation)—Protein Synthesis in cells

Protein Synthesis-

DNA-single standard mRNA, mRNA goes out of the nucleus & goes to cytoplasm. Then attach with a ribosome. Then make rRNA, and then make protein. Ribosome starts translation & makes tRNA in cytoplasm. tRNA (transfer RNA) mixes with mRNA in cytoplasm. They make amino acid vall codon. Then make methionine. Amino acid makes peptide bonds & protein synthesis in cells. Finally, protein works in the cells for structure, repair, transport etc. and develops the cell membrane.

Mainly protein works in cells-

1. Source of energy
2. Growth promoted
3. Structural & repair materials for tissue
4. Muscle contraction
5. Transport
6. Enzymes
7. Hormones
8. Defensive
9. Storage
10. Receptor

Useful of Fat Fat Deficiency Symptoms-

Reduce immune response & reduce the body temperature.

Requirement to Balance fat-

Fewer level fat impact on the cells	Desire Level of fat impact on the cells	Excess levels fat impact on the cells
Reduce energy sources.	Fish oil provides omega-3 fatty acids, Improves taste & texture. To be required of fat level 5-12% at various stages.	Health hazards of disease

Mechanism of Fat Works in the cells-

Here fat works as a fatty acid basis. When huge quantities of fatty acids are accumulating in the outer cell of the cell membrane, that's time, proteins are made of a channel and a diffusion system enters the cell membrane. The fatty acid has gone to mitochondria. First, the fatty acid mixes with cytosol and makes Fatty Acyl CoA. Then the fatty acid bound with carnitine (one type of amino acid), then removes the CoA by the carnitine acyltransfer-1, making fatty acid carnitine as a carrier for entering into the mitochondria. Now not possible for oxidation in mitochondria, then carnitine is removed by the carnitine acyltransfer-2 enzyme. Then it makes a fatty-acyl-CoA form. Then, oxidation of mitochondria makes Acetyl CoA form, which then enters the Kerb cycle. The Kerbs cycle produces ATP as an energy source for the mitochondria. This energy will help to improve the cell's activity and temperature, also help the immune response of the cell.

Mainly fat works in cells-

1. Source of energy
2. Building/Structural materials(cell membrane phospholipid)
3. Storage molecules(plant-as oil in seed, animal-as fat)
4. Heat Insulator
5. Regulator(sex hormones)
6. Protection
7. Produce color & smell

Use of Carbohydrates

Carbohydrate Deficiency symptom

Lack of proper digestive problems

Requirement of Balance Carbohydrate-

Fewer levels of Carbohydrate impact in the cells	Desire Levels of Carbohydrate impact in the cells	Excess levels of Carbohydrate impact in the cells
Less amount of amylase produce for digestive	Amylase produce for improve digestive system. To be required 35-45%	Stress for digestive process.

Mechanism of Carbohydrates Works in the cells-

Here, carbohydrates work as a glucose basis. When huge quantities of glucose are accumulating in the outer layer of the cell membrane. Cell membranes do not permit glucose to easily enter the cell due to glucose being a bigger size. Here, cell membrane's protein layers are conformational changes like flip-flop bases and glucose easily enters and goes to the cell's cytoplasm. In the glycolysis process, glucose breaks down and produces 2 pyruvates in the cytoplasm. This time, a small quantity of energy is released through ATP and NADH. Then it easily enters into the mitochondria. In the presence of oxygen, mitochondria produce huge quantities of ATP through the kerbs cycle process. This energy will help with cell activities and improve immune function.

Carbohydrate mainly works in cells-

1. Energy source
2. Immune function

Activities of Micro Nutrition-**Useful of Minerals****Minerals Deficiency symptoms-**

Soft cell, slow growth, inactive movement

Mechanism of Minerals works in cells-

In the osmoregulation process, the cell membrane's special protein to be pumped the minerals for enter the cell, this time taking some quantity of ATP for pumping purposes. These active transportation process minerals influence the cell's parts activities .

Requirement of Balance Minerals-

Fewer levels of minerals impact in the cells	Desire Levels of minerals impact in the cells	Excess levels of minerals impact in the cells
Proper physical development not found.	For physical development purpose 1-1.5% requires.	Fishes are suffering huge stress & fatal

Minerals work in cells-

1. Inorganic minerals needed to improve physical structure
2. Regulate fish activities
3. Over minerals are fatal for fishes.

Useful of Vitamins

Vitamin Deficiency Symptom-



Requirement of Balance Vitamin-

Fewer levels of vitamin impact in the cells	Desire Levels of vitamin impact in the cells	Excess levels of vitamin impact in the cells
Abnormal & deformities of the body.	Vital role play for muscle contraction & immune response. To be required 0.1-0.15%	Cell will be hard, reduce the flexibility. Larger quantities of vitamin are toxic for influence the diseases. So unhealthy for fishes.

The mechanism of vitamins works in the cell-

When vitamins (organic compounds) reach the outer layer of the cell, that's time integral proteins make a channel. Then vitamins enter the cell. Various types of vitamin influence in the cell's parts.

Vitamin works in cell-

- ☐ Assist metabolic process in the body
- ☐ Provide anti-oxidant for fight infection
- ☐ Regulate Hormones
- ☐ Build strong bone & muscle

- ☐ Excess vitamin unhealthy for fishes.

Physical Appearances of Balance Nutrition-

1. Fine Dust
2. Water Stability
3. Colour
4. Smell

Aspect of Balance Nutrition-

- ☐ The balance of nutrition has provided all cells' structures.
- ☐ In the mitosis process, the parent cell is divided into a daughter cell.
- ☐ All cells' parts have properly works.
 - ☐ All cells' size increases in a proper way as various stages of IMC culture.



Require lab testing report-

Lab testing report is mandatory of balance nutrition for nutrition value count of IMC's various stages.

CONCLUSION

We found those bio-available ingredients are fish meal, fish oil and other quality products properly not getting from our environment. These products are the main source of balanced nutrition. I discuss here the symptoms of nutrition deficiency & how it can monitor the proper nutritional utility for digestive purposes. Also, here I discuss the physically & mechanically required proper nutrition benefits of IMC culture. Balanced nutrition not only improves the health benefits of IMC, it will help the ecosystem and save natural resources. Balanced nutrition has provided IMC's health benefits and IMC has given nutrition values for health benefits to us. Finally, balanced nutritious values have reduced production costs for fish culture at various stages.

Unbalancing nutrition means disturbing ecosystems and destroying natural phenomena.

The physical appearance of feeding has a very significant role in balancing nutrition. Genetically improved species have developed their body structure & visible colour. The culture pond's environment plays a good role in natural nutrition support, if there are any nutritional deficiencies of species at various stages.

The aquaculture business will be grown by balancing nutrition

Thank You

