DEPENDING ON THE KIND OF FISH, THE EFFECTIVENESS OF FEEDING RATION SELECTION

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Abstract: Every balanced lake and pond management effort should focus on creating a self-sustaining forage base. Additional feeding is a good way to accomplish this. For many species of forage fish, the best way to feed them is to use an automatic fish pond feeder that is loaded with pellet feed. Fish feeders for lakes and ponds give bait the edge it needs to increase survival and breed more successfully while also giving the pond the food it needs to sustain a higher biomass of forage.

Key words: cellulose, supplementary feed, detritus, bacteria, plankton, aquatic plants, fiber, nutritional value.

Introduction

For best results, various feeds are used to provide the fish with the extra proteins and good carbohydrates they need.

Proteins are mainly composed of water, carbon and nitrogen. They are broken down during fish digestion into various amino acids used for growth, reproduction, repair and secretion processes. Proteins are mainly found in animal by-products, oilseeds and their processed cakes. Juvenile and brood stock fish require more protein than others.

Carbohydrates such as starches, sugars, and cellulose are primarily composed of water and carbon. They provide the fish with the energy necessary for maintenance and vital functions. Good carbohydrates are mainly found in cereals and molasses. Indigestible cellulose predominates in bran, husk, coffee pulp, sugar cane pulp and whole cotton seeds, which also have a high fiber content.

Three types of feed are used in fish ponds:

- natural food;
- additional feeds;
- Full channels.

Natural food is naturally found in the pond. It can include detritus, bacteria, plankton, worms, insects, snails, aquatic plants, and fish. Their abundance largely depends on the quality of the water. Liming and fertilization, in particular organic fertilizer, can help provide a good supply of natural food for fish.

Additional complementary foods are regularly added to the fish's diet. They usually consist of additives that are cheap at cost and available locally. Such as terrestrial plants, food waste, or agricultural by-products.

Complete feeds are made from a mixture of carefully selected ingredients to provide the fish with all the nutrients they need for good growth. They should be made in a form that is easy for fish to consume and digest.

The production system can be determined depending on the type of feed that the fish feed on.:

• Extensive: fish production is completely dependent on natural food;

• Semi-intensive: Fish production depends on both natural feed and additional feed, so more fish can be raised in the pond.;

• Intensive: fish production is completely dependent on complete feed and water quality.

Fig.1. Granular feed for fish

There are several reasons why it is necessary to supplement the natural food available in the pond with artificial feeds obtained from outside, for example, when natural products become insufficient for proper nutrition of fish and ensure good growth, and when more fish are raised in the pond to receive more fish products and at the same time it is necessary to ensure good growth.

Table. 1. Physico-mechanical properties of compound feeds for trout

Indicator	Feed recipes for trout	
	starting	production
Humidity,%	8,88	8,03
Color	Dark Brown	Dark Brown
Smell	Pleasant fishy	Pleasant fishy
Bulk mass (density), kg/m^3	613,1 + 11,2	56,8 ± 8,5
Pellet size, mm	2	5
Water resistance, min.	825 ± 35,5	725 ± 35,5

Swelling capacity, min.	122 ± 15	90 ± 20
Fineness, %	2,5 ± 0,034	2,5 ± 0,022
Water absorption coefficient, K	0,83 ± 0,002	0,73 ± 0,002

As additional feeds are increasingly used, high nutritional requirements are placed on them. That is, the feed should be high in protein and carbohydrates and low in fiber, as well as well absorbed by fish, with a given food quality. At the same time, there is a need to reduce the cost of compound feed in order for compound feed to be more affordable during most of the fish growing season. There is a need for minimal additional costs for transportation, processing and recycling, as well as simplification of use and storage.

Additional feeds are available in two forms: dry and wet.

Dry feeds such as cereals and oilcakes are easier to store, transport and distribute to fish, while wet feeds such as blood, rumen contents, molasses and brewing waste require special treatment before feeding, for example, mixing with dry feeds to absorb some of the moisture or drying to increase shelf life.

As a result, additional feed is usually provided to fish either in dry form, about 10% humidity, or wet from 30 to 50% humidity. This latter form is preferred for some species and may be more palatable and better absorbed, yielding better results. The feed can also be better utilized by reducing losses. But wet food is poorly stored, and only small amounts should be prepared at a time.

Conclusion

It is important to adapt the particle size of the feed to the size of the fish's mouth in order to reduce feed loss and maximize its utilization. Depending on the size of the fish, the preparation may include various processes, such as crushing or crushing dry food for juvenile fish and chopping vegetable raw materials into small pieces for herbivorous fish.

The feed particles should not be smaller than necessary, as small particles quickly dissolve in the water and it becomes more difficult for fish to eat properly, while larger particles can be consumed by fish and decompose in the water.

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