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**Aquaculture Department**

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# Prawns need nutrients

Aquaculture Department, Southeast Asian Fisheries Development Center

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## PRAWNS NEED NUTRIENTS

Like any other living organism, prawns need essential nutrients or substances that will make them grow, regulate their body functions, and increase resistance to diseases.

The five major nutrients needed by prawns are (1) protein - 35-45%, (2) fats - 10%, (3) carbohydrates - 25%, (4) vitamins, and (5) minerals.

### Protein and Amino Acids

Protein is primarily necessary for growth. It also contributes heat and energy. About 35-45% protein is needed by prawns in their diets.

Amino acids are building blocks for protein formation. There are around eighteen amino acids needed to form protein, but only ten are considered essential in the prawn diet. When one amino acid is lacking or insufficient in the diet, protein formation can be delayed or decreased resulting in a lower efficiency of the diet.

Some protein sources from animals and plants are:

#### Animal Sources

1. fish meal, both white and brown
2. shrimp meal
3. shrimp head meal
4. earthworm meal
5. squid meal
6. chicken entrails
7. mussel meat
8. meat and bone meal
9. toads
10. snails

#### Vegetable Sources

1. yeast
2. soybean meal  
(defatted or full fat)
3. peanut meal

### Fats or Lipids

Fats or lipids are necessary for prawns not only for their energy value, but also for the presence of fatty acids that are essential to their growth and survival.

Some fat or lipid sources are:

1. cod liver oil and other fish liver oils
2. squid oil
3. beef tallow
4. purified soybean oil
5. crude degummed soybean oil
6. peanut oil
7. corn oil
8. sunflower oil
9. red palm oil

### Carbohydrates

Carbohydrates like sugars and starches are useful for their energy value. Aside from providing energy, they act as binders in the diet because of their "sticky" property. Cornstarch, potato starch, sago palm starch, wheat flour, agar or gulaman, and carrageenan are good binders.

Rice bran, corn meal, etc., aside from helping as binders, contain other nutrients needed by the prawn.

When used as ingredients, carbohydrate sources must be fresh and dry, not rancid and moldy.

Some carbohydrate sources are:

1. wheat flour (bread flour)
2. rice flour
3. cassava flour
4. potato starch
5. sago palm starch
6. rice bran
7. corn meal
8. copra meal

### Vitamins and Mineral

Vitamins and minerals are important regulators of body processes. Although the exact amounts of vitamins and minerals required by prawns are not yet known, certain levels must be included in the diet.

So far, there are around 16 vitamins and 13 minerals included in the premix. Their functions are interrelated and each one meets a definite need. For example:

<u>General Types</u>	<u>General Functions</u>
o Water Soluble Vitamins such as C, B <sub>1</sub> , B <sub>2</sub> , biotin, choline chloride, inositol, p-amino-benzôic acid, niacin, and folic acid.	- For proper utilization of protein, carbohydrates, and fats.
o Fat Soluble Vitamins such as A, D, E, and K.	- For building resistance to infection
o The minerals calcium and phosphorus	- For the formation of prawn exoskeleton or shell and prevention of "soft-shelling"

**Source:** Lecture Notes of Dr. F.P. Pascual, Head of Farming Systems Section, SEAFDEC Aquaculture Department, Tigbauan, Iloilo. 1987.