

EWOS

BROOD

9 mm

Complete Feed for Salmonids

GUARANTEED ANALYSIS

Crude Protein	Min.	50 %
Crude Fat	Min.	16 %
Crude Fibre	Max.	1 %
Phosphorus	Min.	1.1 %
Ash	Max.	11 %
Sodium	Max.	0.7 %

AX

INGREDIENT STATEMENT

Fish Meal, Fish Oil, Wheat, Wheat Flour, Vitamin Premix (L-Ascorbyl-2-Polyphosphate, Vitamin E Supplement, Menadione Sodium Bisulfite Complex, Calcium Pantothenate, Biotin, Riboflavin Supplement, Pyridoxine Hydrochloride, Vitamin D3 Supplement, Folic Acid, Vitamin B12 Supplement, Vitamin A Supplement, Thiamine Mononitrate), Mineral Premix (Calcium Carbonate Flour, Magnesium Oxide, Ferrous Sulfate, Zinc Sulfate, Manganese Sulfate, Sodium Selenite, Copper Sulfate, Calcium Iodate, Cobalt Carbonate), Artificial Color Additives (Astaxanthin). May contain: Yeast Extract.

FEEDING DIRECTIONS: Feed as the sole ration for Salmonids

STORAGE DIRECTIONS: Store in a cool, dry place

Manufacture Date: 14.03.12

YY/MM/DD

Expiry Date: 14.11.07

YY/MM/YY

270AN

Item Number: 500007

MO #: 2605773

Manufactured by:

EWOS Canada Limited

772nd - 132nd Street, Surrey, B.C.

Canada V3W 4M8

Phone: 804 591-6366

PRODUCT OF CANADA

Net Weight: 55 LB (25 KG)



50000755

Pdt #: A3040 Lot #: 630063

Pdn Date: Sep 19, 2014

BioClark's Starter

#2 CRUM

Complete Feed for Salmonids

GUARANTEED ANALYSIS

Crude Protein (min)	52 %	Crude Fiber (max)	1.0 %
Crude Fat (min)	20 %	Phosphorus (min)	1.4 %

INGREDIENTS: Fish Meal, Poultry Meal, Fish Oil, Wheat Flour, Corn Gluten Meal, Wheat Gluten, Dried Whey, Porcine Gelatin, A Vitamin/Mineral Premix Containing: Vitamin A Acetate, Vitamin D3 Supplement, Ascorbyl Polyphosphate C, Vitamin E Supplement, Inositol, Zinc Sulphate, Nicotinic Acid, Calcium Pantothenate, Manganese Sulphate, Riboflavin, Pyridoxine Hydrochloride (B6), Thiamine Mononitrate, Menadione Sodium Bisulfite Complex (Vitamin K), Copper Sulfate, Folic Acid, Calcium Iodate, D-Biotin, Sodium Selenite and Vitamin B12 Supplement, Vitamin E Supplement, Brewer's Yeast, Mono Ammonium Phosphate, Astaxanthin, and Ethoxyquin, a preservative.



Manufactured for:

Bio-Oregon

1140 Industrial Way, Longview, WA, 98632

800-962-2001 Phone 360-425-6785 Fax

Net Wt. 20 kg/ 44 lb.

THIS PACKAGE IS TO BE SOLD AS A COMPLETE UNIT ONLY
FEEDING DIRECTIONS: Feed as sole ration to salmon & trout

Product of Canada

GR

Vegetarian Rainbow Trout? - A Look at Research into Alternative Plant-Based Diets -

Every trout farmer knows that feed costs contribute a significant percentage of their annual total variable operating costs. They may not know, however, that the crude protein content of this feed is likely the most expensive portion. Fishmeal has been the most commonly utilized source of crude protein in salmonid diets, but challenges to the continued use of this source arise on a seemingly weekly basis.

Trout grow best when fed relatively high concentrations of dietary protein, but ingredients that contain high concentrations of crude protein command very high prices in the global marketplace. Prices for fishmeal range from U.S. \$7 - 9 per unit of protein, while plant protein ingredients often range from U.S. \$2 - 5 per unit of protein. This large price differential has driven research evaluating the use of alternatives to fishmeal in salmonid diets for over five decades.

Other factors have recently brought the search for fishmeal protein alternatives back to major focus. Critics of the salmonid aquaculture industry have asserted that recent increases in global trout and salmon production are placing undue pressure on wild stocks of fish used to produce fishmeal, and this pressure will be unsustainable in the future. Furthermore, critics also point to fishmeal as a major contributor to effluent nutrient loads from fish farms. This is often due to unusable forms of phosphorus contained in the fishmeal itself.

Given the seemingly large economic advantage of utilizing plant protein sources, and the recent criticisms for continuing to increase pressure on wild fisheries for fishmeal production, why aren't plant-based diets available and/or accepted for salmonids on a large commercial scale? Often the essential amino acid profiles are not quite right, or the plant protein products contain biologically

active chemicals that negatively impact nutrient uptake in the salmonid digestive system. These components, known as antinutritional factors, have been found to reduce growth in rainbow trout when plant sources such as soybean meal are included at concentrations greater than 15%.

Many efforts are focused on improving the utilization of plant proteins in salmonid diets by examining and improving the plants themselves. The Soy-in-Aquaculture initiative, funded by the United Soybean Board is examining these antinutritional factors in rainbow trout and Atlantic salmon. A major focus of the Agriculture Research Service unit of the US Department of Agriculture is examining the possibilities of breeding new strains of barley that have ideal properties for use in salmonid diets. Concurrent studies are examining the ultimate product quality differences that arise from the shifts in protein sources and the potential impacts that these changes might have on consumer preference.

Of concern to many in this process, but a topic that until recently has received little research attention, is the possibility that a large interaction between the genetic makeup of commercial stocks of salmonids and the dietary protein/energy source may exist for growth. In other words, the rainbow trout that have been selected for improved performance using fishmeal diets may not be the animals most able to utilize diets formulated with new plant-based products. This possibility could potentially leave the industry in an unfavorable position to utilize any diets developed through the major efforts focused on modifying the plant products themselves.

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