



Who We Are

Reed Mariculture is the world's largest producer of marine microalgae concentrates. Our Instant Algae® larviculture feeds are used by over 500 hatcheries, universities, and marine ornamental operations in more than 80 countries around the world. We also produce zooplankton, copepods, and weaning feeds.

Our Products

Reed Mariculture's Instant Algae products are closer to nature than any other feed on the market. We produce whole-cell, whole-food microalgae feeds and enrichments from marine algae using proprietary processes. Our products provide fish, bivalve and shrimp hatcheries with clean, convenient, long shelf-life feeds that are superior choices to replace or supplement live microalgae. Our feeds ensure stable and rapidly-reproducing rotifer populations that offer rich nutritional value.

Our Services

We pride ourselves on our customer service and technical support. In addition to our expertise growing microalgae, we provide rotifer starter cultures (10 million to over 1 billion rotifers) and all the support necessary for customers growing their own cultures. We are also experts in shipping logistics, however remote your location. Our commitment to excellence will keep you coming back to Reed Mariculture.

Reed Mariculture Inc.

1-877-732-3276
www.reed-mariculture.com

RotiGrow Nanno™

Highest Yielding Microalgal Grow-Out Feed

RotiGrow Nanno is our highest yielding rotifer feed. It is single-species (*Nannochloropsis*) and produces phospholipid-rich rotifers. It also provides the highest Feed Conversion Rate of our products, with the least organic waste in the tank, and gives a high EPA and ARA pre-enrichment boost for use with high DHA-enrichment protocols.

RotiGrow Nanno Offers:

- **Healthy Rotifer Cultures** — Rapid growth, minimal fouling and reduced bacteria loads
- **Highest Yields** — Rotifers can double daily at densities over 8,000 L-Type rotifers per ml
- **Optimum Enrichment** — Supports full highly-unsaturated fatty acid (HUFA) enrichment; the best source of EPA and ARA as well as critical vitamins
- **Concentrated, Clean, Liquid Form** — Exceptionally clean and easy to use with minimal foaming or clumping, which means less time spent maintaining cultures
- **Long shelf life** — frozen, two years



Rotifer (*Brachionus plicatilis*) grown using RotiGrow algae

The RotiGrow System*

A two-step rotifer feed and enrichment system employing two supplemental feeds that further enhance larval fish nutrition. All our feeds are produced using proprietary processes with 100 percent of the biomass composed of nutritionally rich blends of microalgae. All feeds contain 75–95 percent intact whole cells for whole-food, whole life-cycle support.

STEP 1

RotiGrow Nanno — Highest Yielding Grow-out Feed

Supports Pre-Enrichment and Highest Yields
RotiGrow Nanno, a single-species (*Nannochloropsis*) feed, provides the highest Feed Conversion Rate of our products, with the least organic waste in the tank, and gives a high EPA and ARA pre-enrichment boost for use with high DHA-enrichment protocols.

STEP 2

N-Rich™ — One- to Eight-Hour Secondary Enrichment (with blends to meet the needs of your species of fish)

Full HUFA and vitamin enrichment plus "Whole-Cell" Nutrition

N-Rich offers a unique blend of microalgae that provides a wide spectrum of essential nutrients, including high levels of protein, carotenoids, sterols and optimized vitamin C, A, D and B vitamins. N-Rich can raise the nutritional profile of enriched rotifers to meet the needs of any fish. (See Rotifer Comparison Table on reverse)

Additional Products for Nutrition Enhancements:

STEP 3

OPTIONAL STEP: Cold storage and/or Gut Loading with N-Rich or Isochrysis/Pavlova Blend

Digestive and "Whole-Cell" Nutritional Support for Larval Fish

N-Rich High PRO is a nutritionally balanced rotifer finishing feed that is easily digested when released into fish larval guts. It contains a blend of microalgae including *Pavlova* and *Isochrysis*. N-Rich High PRO offers an optimal fatty acid profile, plus carotenoids, sterols and the right amounts of vitamins A, D, C, and B's.

STEP 4

RotiGreen™ — Greenwater: *Isochrysis*, *Nannochloropsis* and DHA/EPA blends
Greenwater to Promote Overall Fish Health

RotiGreen greenwater (**RotiGreen Iso**, **RotiGreen Nanno** and **RotiGreen Omega**) further supports rotifer and larval nutrition in the larval tank to promote health and enhance survival.

No other feed is closer to nature or better for your rotifer, fish, and hatchery productivity.

* Meets Cod Egg profile for Omega-3 fatty acids when using Steps One and Two.

Technical Data

PHYSICAL DESCRIPTION/PROPERTIES:

Description:
Concentrated Blend of Microalgae

Appearance:
Green Viscous Liquid

Algal size: **1.5-2.0 µm**

Microalgal Biomass: **>16.4%**

Composition of Biomass (dry wt.)

Protein **58.6%**

Lipid **14.5%**

Carbohydrate **20.0%**

Ash **5.9%**

Packaging

1 Liter Bag



10 Liter Cubitainer®



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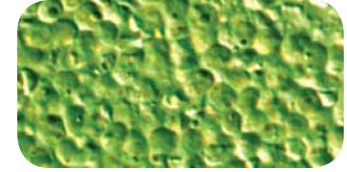
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RotiGrow Nanno™

Highest Yielding Microalgal Grow-Out Feed



Photomicrograph of RotiGrow Nanno

FEED & HARVEST RATES

Continuous Production Systems

Harvest Rate	20%	30%	35%	40%	45%
RotiGrow Nanno Feed Rate (ml per day/million rotifers)	0.63	0.94	1.09	1.25	1.41
Rotifer Harvest (million rotifers per liter of feed)	320	320	320	320	320

NOTES: 1. Feed rates based on rotifer count just prior to harvest
2. For 165 micron long L-Type rotifers with a mass of 0.18g dry weight/million rotifers
3. Feed continuously for best results

Batch Production Systems

RotiGrow Nanno (feed per day per million rotifers)	Rotifer density (per ml)				Rotifer Harvest (per liter of feed)	Growth Rate (per day)
	Day 0	Day 1	Day 2	Day 3		
1.3 ml	500	706	996	1,406	320 million	41%
1.8 ml	500	795	1,264	2,010	320 million	59%
2.6 ml	500	910	1,656	3,013	320 million	82%

NOTES: 1. Feed rates based on rotifer counts at the beginning of the day
2. For 165 micron long L-Type rotifers with a mass of 0.18g dry weight/million rotifers
3. Feed days 0, 1 and 2. Feed continuously for best results

FATTY ACIDS

Profile

12:0	Lauric acid	0.0	18:3n6	GLA	0.6
14:0	Myristic acid	2.2	18:3n3	ALA	0.3
16:0	Palmitic acid	21.5	18:4n3	SDA	0.1
16:1n7	Palmitoleic acid	3.3	20:3n6	DGLA	0.3
16:2n4	Hexadecadienoic	0.2	20:4n6	ARA	3.6
18:0	Stearic acid	0.4	20:5n3	EPA	30.3
18:1n9	Oleic acid	18.0	22:5n3	DPA (n-3)	0.0
18:2n6	LA	4.7	22:6n3	DHA	0.0

Summary

DHA : EPA : ARA 0 : 1.0 : 0.12
EPA + DHA 30 mg/g d.w. (Biomass)
Total HUFAs, 20:3n3 + 35 mg/g d.w. (Biomass)
Total fatty acids 105 mg/g d.w. (Biomass)

NOTE: fatty acid units after "profile" units are mg/g d.w.

ROTIFER COMPOSITION

Essential Fatty Acids and Total Lipids Typical profiles of rotifers grown on RotiGrow Nanno and enriched using N-Rich High PRO, a protein-rich feed, and N-Rich PL Plus, a phospholipid-rich feed.

	RotiGrow Nanno	3-hour enrichment N-Rich PL Plus	6 to 8 hour enrichment N-Rich PL Plus & High PRO	Cod eggs	Cobia eggs
Protein	68%	66%	64%	79%	n/a
DHA*	0.0	30	38	33	42
EPA	20	13	12	18.6	13.5
ARA	2.8	2.5	2.5	2.2	3.4
HUFAs	32	50	57	56.2	68
Total fatty acids	8.9%	13.0%	14.0%	13.2%	22%
Polar lipids	56%	55%	55%	71%	n/a
Sterols	5%	4.2%	4.3%	9.8	n/a
Free fatty acids	5%	5.1%	4.9%	5.4	n/a

NOTE: fatty acid units after "profile" units are mg/g d.w.

Technical Assistance:

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