



## Algae – Primary Market Segments

1. EPA Rich Oil
  - ✓ Anti-inflammatory
  - ✓ Antidepressant
  - ✓ Cardiovascular health
2. Whole-food Algae
  - ✓ EPA rich + protein
3. Functional Foods
  - ✓ Pasta
  - ✓ Bread
  - ✓ Nanno-Beads (Algae Caviar)
  - ✓ Beverages (Smoothies, Drinks, etc)
  - ✓ Yoghurt
  - ✓ Protein bars
  - ✓ Algae/soybean balls

## Cost of Production

- \$2.50 per kg dry weight (whole algae)
- \$10 per L EPA-rich Omega 3 Oil

## Wholesale Price

- \$80-100 per L EPA-rich Omega 3 Oil
- > \$700,000 profit per hectare per year

## Productivity

- 20–30 g dry weight per m<sup>2</sup> per day
- 60-70 T per hectare per year (equiv. 15 000 L EPA-rich Omega 3 Oil)

## Cultivars

### *Nannochloropsis*

*High in Omega 3 EPA*

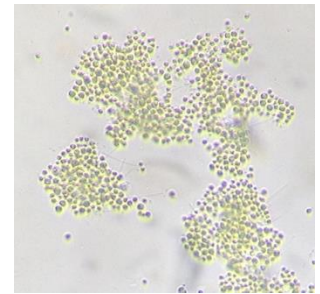
*Carotenoids*

*Protein*

*Antioxidants*

*Fast growth*

*High salinity tolerance (grows in 5-40 ppt)*



## Algae Nutrient Attributes

8-10% Omega – 3  
 50% EPA in total fatty acid  
 30-40% Protein  
 2-3% Carotenoids  
 Antioxidants  
 Vitamins  
 Minerals  
 Chlorophyll

### Nanno-Beads



## Benefits over Fish Oil

- ✓ Sustainably sourced
- ✓ Vegetarian
- ✓ No issues with fishy odour, heavy metal or PCB accumulation



## NUTRIENT COMPOSITION of ALGAE NANNOCHLOROPSIS HIGH 0-3

Sort	Code	Name	Amount	Sort	Code	Name	Amount
00	DRYMATTER	DRY MATTER	90%	126	THREO DIG	THREONINE DIGESTIBLE	1.46%
01	C.PROTEIN	CRUDE PROTEIN	31.50%	127	TRYPT DIG	TRYPTOPHAN DIGESTIBLE	0.96%
01	NPN	EQUIVALENT CRUDE PROTEIN		128	VALINE DIG	VALINE DIGESTIBLE	1.49%
01	RDP	RUMEN DEGRADABLE PROTEIN		129	ARGININDIG	ARGININE DIGESTIBLE	1.55%
01	UDP	UNDEGRADABLE PROTEIN				HISTIDINE	0.72%
02	ADF	ACID DETERGENT FIBRE				PHENYLALANINE	2.14%
02	EFF NDF	PHYSICAL EFFECTIVE NDF				PROLINE	3.18%
02	LIGNIN	LIGNIN	0.00%	15	CALCIUM	CALCIUM	1.76%
02	NDF	NEUTRAL DETERGENT FIBRE		15	P (AVAIL)	PHOSPHORUS (AVAILABLE)	1.28%
02	NFC	NON FIBRE CARBOHYDRATES		15	P (TOTAL)	PHOSPHORUS (P TOTAL)	1.28%
02	ORG ACIDS	ORGANIC ACIDS		15	P(PHYTATE)	PHOSPHORUS (PHYTATE)	0.00%
02	SOL FIBRE	SOLUBLE FIBRE		16	CL	CHLORIDE (Cl)	2.32%
02	STARCH	STARCH	15.75%	16	K	POTASSIUM (K)	1.28%
02	SUGAR	SUGAR		16	NA	SODIUM (Na)	1.48%
03	ASH	ASH	7.88%	16	S	SULPHUR (S)	0.97%
03	FIBRE	CRUDE FIBRE	4.00%	17	DCAD	DCAD (Na+K)-(Cl+S)	
04	FAT	FAT	28%	17	MG	MAGNESIUM (Mg)	1.56%
04	FAT SAT	FAT SATURATED	9.10%	18	VIT A	VITAMIN A	<0.25 µg/g
04	FAT UNSAT	FAT UNSATURATED	18.53%	18	VIT B1	VITAMIN B1 (Thiamin)	51-70 µg/g
04	LINOLE18-2	LINOLEIC ACID C18:2n-6	0.45%	18	VIT B2	VITAMIN B2 (Riboflavin)	25-62 µg/g
04	O-3EPA-DHA	EPA C20:5n-3 & DHA C22:6n-3	9.07%	18	VIT B6	VITAMIN B6 (Pyridoxine)	3.6-9.5 µg/g
04	O-3LINLN18	alpha LINOLENIC ACID C18:3n-3	0.00%	18	VIT B12	VITAMIN B12 (Cyanocobalam)	0.85-1.7 µg/g
04	OLEIC 18-1	OLEIC ACID C18:1	1.69%	18	VIT C	VITAMIN C (Ascorbic Acid)	1.0-3.2 µg/g
04	PALMIT16-0	PALMITIC ACID C16:0	8.89%	18	VIT D3	VITAMIN D3	<0.35 µg/g
04	STEAR18-0	STEARIC ACID C18:0	0.21%	18	VIT E	VITAMIN E	0.18-0.35 µg/g
04	PAMITOLEIC ACID C16:1		6.20%	18	VIT K3	VITAMIN K3	
04	EICOSATERAENOIC ACID C20:4n6		1.12%	19	BIOTIN	BIOTIN	0.95-1.1 µg/g
05	D.E.PIGS	DIGES. ENERGY PIGS (MJ)		19	FOLIC A	FOLIC ACID	17-26 µg/g
05	D.E.SOW	DIGES. ENERGY SOWS (MJ)		19	NIACIN	NIACIN	
05	M.E.DOGS	MET. ENERGY DOGS (Mcal)		19	PANTACID	PANTOTHENIC ACID	
05	M.E.POULA	MET. ENERGY POULTRY (MJ)		20	CHOLINE	CHOLINE	
05	N.E.PIGS	NET ENERGY PIGS (MJ)		30	CO	COBALT (Co)	8.649 mg/kg
06	M.E.RUMIN	MET. ENERGY RUMINANT (MJ)		30	CO ORGANIC	COBALT ORGANIC CHELAT	
07	N.E.L DAIR	NET ENERGY LACTATION (Mcal)		30	CR	CHROMIUM (Cr)	0.415 mg/kg
08	D.E.HORSE	DIGEST. ENERGY HORSES (MJ)		30	CU	COPPER (Cu)	115.83 mg/kg
08	N.E.MAINT	NET ENERGY MAINTENANCE (Mcal)		30	CU ORGANIC	COPPER ORGANIC CHELAT	
09	N.E.GAIN	NET ENERGY OF GAIN (Mcal)		30	FE	FERROUS IRON (Fe++)	2398.5 mg/kg
101	LYS TOT	LYSINE (TOTAL)	2.21%	30	I	IODINE (I)	
111	METH	METHIONINE	0.95%	30	MN	MANGANESE (Mn)	625.5 mg/kg
112	MET+CYS	METHIONINE PLUS CYSTINE	1.71%	30	MN ORGANIC	MANGANESE ORGANIC C	
113	ISOLEUC	ISOLEUCINE	1.58%	30	MO	MOLYBDENUM (Mo)	3.717 mg/kg
114	LEUC	LEUCINE	2.36%	30	SE	SELENIUM (Se)	0.018 mg/kg
115	THREO	THREONINE	1.73%	30	SE ORGANIC	SELENIUM ORGANIC CHEL	
116	TRYPT	TRYPTOPHAN	1.20%	30	SI	SILICON (Si)	
117	VALINE	VALINE	1.83%	30	ZN	ZINC (Zn)	42.3 mg/kg
118	ARGININE	ARGININE	2.33%				
12	LYS AV PIG	LYSINE AVAILABLE PIGS	1.85%				
121	LYS DIGPLT	LYSINE DIGESTIBLE POULTRY		31	BETA-CAROTENE		440 mg/kg
122	METH DIG	METHIONINE DIGESTIBLE	0.79%	31	TRANS-VIOLAXANTHIN		1020 mg/kg
123	MET+CYSDIG	METHIONINE+CYSTINE DIGESTIBLE	1.44%	31	ANTHERAXANTHIN		160 mg/kg
124	ISOLEUCDIG	ISOLEUCINE DIGESTIBLE	1.32%	31	ASTAXANTHIN		320 mg/kg
125	LEUC DIG	LEUCINE DIGESTIBLE	1.98%				