

FEED & LIVE ORGANISMS PRODUCTS

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VAKI™ FEEDING SYSTEM

VAKI Feeding System is an automatic system. The system is installed in containers and is simple to use. It is specially designed for smaller farms. The system utilizes one or more feed storage silos, which is useful when different sizes of feed are being used.

Feeding operation is based on feed from the storage silo the silo empties into a feed dosing auger. The auger moves this feed into a funnel which make sure that the feed goes to airlock and then into the main transport pipe. An air blower blows air into the distribution valve where it is directed into the individual feed pipes and transferred to specific cages.

The operation of the system is controlled by Programmable Logic Controller (PLC). Programmed computer software is used to interface and program the feeding system. The software controls feeding operations such as feed rates, meal times, feed types, etc. The operator, can monitor, interface, reprogram or override the automatic operation of the system.

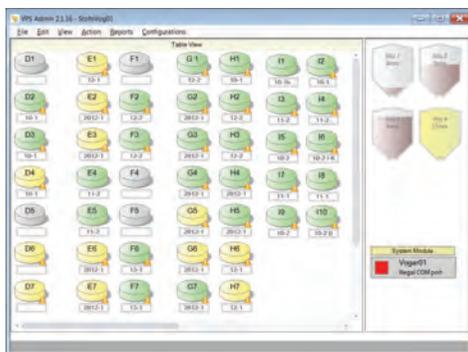
Advanced Software

The operation of the system is controlled by a PLC. Computer software is used to interface and program the feeding system. The system software controls feeding operation such as feed rates, meal times, feed types, etc. The operator can monitor, interface, reprogram or override the automatic operation of the system.

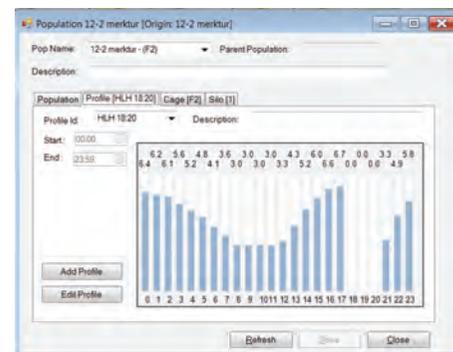
Maximum Fish Growth

The VAKI Feeding System controls the quality of the feeding and thereby helps attain maximum fish growth and health. In other words, the feeding control system ensures that feed usage is optimized toward growth targets, while a minimum amount of nutrients are lost to waste. A more efficient uptake of nutrients in the fish doesn't only benefit the environment, but it also improves farm economy.

CALL FOR MORE INFORMATION AND PRICING.



The interface, here the operator can monitor, interface, reprogram or override the automatic operation of the system.



Graph showing the quality of the feeding and thereby helps attain maximum fish growth and health.

ARVO-TEC FEEDING TECHNOLOGY PROFESSIONAL FEEDING CONTROL SYSTEM

A fully integrated feeding, measurement and alarm system. Feed amounts are calculated separately for each tank according to automatically updated biomass data, incoming water temperature and oxygen content. The system is easy to use with a menu-driven display in the control unit or an optional PC connection. Feeding data can be exported to management software. Stainless steel cabinet withstands extreme conditions.

Specifications

- 115 or 230VAC.
- 8, 16, 24 or 32 independent feeder channels per control unit (use up to 30 control units in one system for 960 channels total).
- Cable, radio, TCP/IP and mobile phone communication options.
- 8 measurement inputs per control unit.
- 5 digital sensor inputs (e.g., level switch circuits) and 2 alarm/control outputs per control unit.

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ARVO-TEC PIPE FEEDING SYSTEM

The pipe feeding system is a centralized solution for distributing large quantities of feed. This system can be used in sea, land and recirculating aquaculture systems.

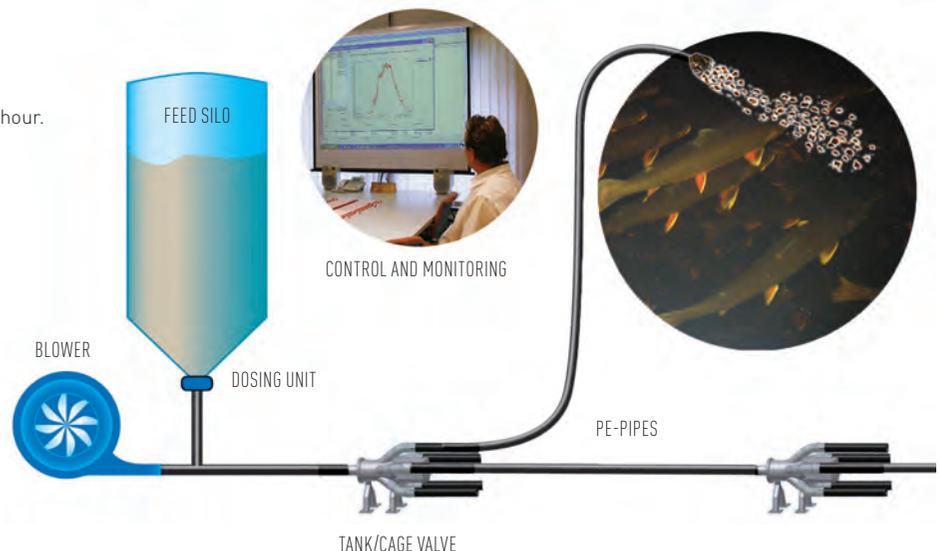
The system's reserve silos can be placed in a central feed storage area, where they can be refilled easily with large bags. The distribution system is based on a 75 mm PE pipe and can blow feed into the blower from up to 300 m away.

Arvo-Tec control system controls each tank entirely separately. Feed dosage requires precision, and the distribution valves uses electrical motor and revolver technology that is reliable and gentle on feed.

Specifications

- Feed up to 28 tanks, ponds or cages/one system.
- Double, triple, etc., systems for large farms.
- Maximum feeding capacity for each system is 650 kg/hour.

CALL FOR MORE INFORMATION AND PRICING.





ARVO-TEC ROBOT FEEDING SYSTEM

Improves feed efficiency and saves labor time. One feeding robot serves multiple tanks, eliminating the need for a feeder at each tank. A high feed turnover rate through the hopper prevents storage problems such as feed expiration. Controlled via local programmer or from a PC.



Specifications

- Travel speed 18 m/min.
 - 24VDC rechargeable battery.
 - Optical "eye" to avoid collision.
 - Provides 2 feed types from 50-L silos.
 - Each robot feeds up to 240 tanks, with a max rail length of 450 m.
 - Rail: 80 mm steel I-Beam, INP80, DIN1025
- Options include advanced PC control, automatic refilling and feed spreader.

CALL FOR MORE INFORMATION AND PRICING.



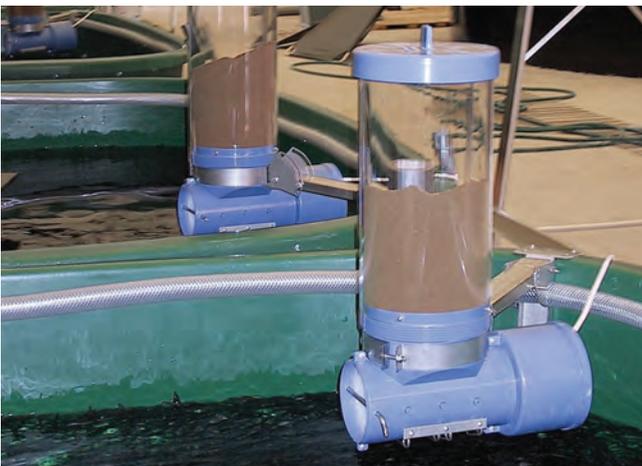
ARVO-TEC T DRUM 2000 FEEDER

The Arvo-Tec T Drum feeder has a very high accuracy, whilst remaining at a competitive price. The feeder is multifunctional and is suitable for start feeding in hatcheries to on-growing on tanks, ponds and cages.

Specifications

- 1, 6 or 10 litres transparent and 50, 150 or 600 white hoppers
- Standard motor 24 VAC, 11,3 W, 2 rpm
- Granule/pellet size 0,3-8 mm
- Minimum dose of 0,3, 1,5, 20, 45 or 100 g
- Strong, 316 stainless steel bracket
- Accuracy normally greater than 98%

CALL FOR MORE INFORMATION AND PRICING.

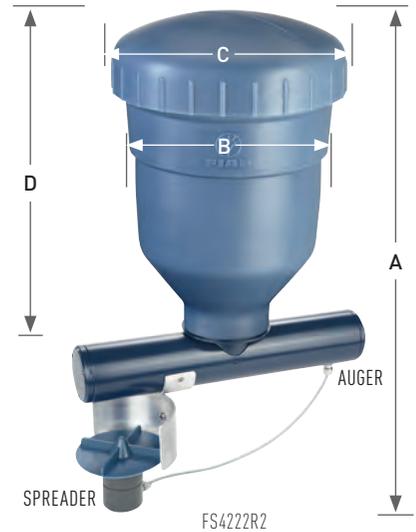


AUGER FEEDERS

FIAP Auger Feeders are designed to achieve reduced feeding expenditures and improved feed ratios, and can be used both indoors and outdoors. They are used throughout the world in commercial aquaculture facilities, providing perfectly controlled feeding in fish ponds and production plants. They are designed for feed pellets ranging from 1 – 10 mm. It's blockage-free auger screw is driven by a 12VDC motor and controlled by the FIAP Proficontrol controller (sold separately). One-year warranty.

MODEL		CAPACITY (LBS/KG)	A	B	C	D	EACH	4+
FS4222R2	FEEDER W/AUGER & SPREADER	22/10	26"	10"	12"	21"	\$649.99	\$617.49
FS4244R2	FEEDER W/AUGER & SPREADER	44/20	27"	12"	15"	21"	670.99	637.44
FS4288R2	FEEDER W/AUGER & SPREADER	88/40	35"	15"	19"	30"	702.49	667.37
FS4232R2	FEEDER W/AUGER & SPREADER	132/60	42"	19"	23"	36"	733.99	697.29
FS4022R2	FEEDER W/AUGER ONLY	22/10	26"	10"	12"	21"	586.99	557.64
FS4044R2	FEEDER W/AUGER ONLY	44/20	27"	12"	15"	21"	607.99	577.59
FS4088R2	FEEDER W/AUGER ONLY	88/40	35"	15"	19"	30"	628.99	597.54
FS4132R2	FEEDER W/AUGER ONLY	132/60	42"	19"	23"	36"	681.49	647.42
FS4059UPR2	REPLACEMENT AUGER						460.99	—

Note: Bottom of feeder should be at least 20" (50cm) above the surface of the water



DEMAND FEEDERS

The unique twist-lock lid is wind and varmint-proof on these high-quality, UV-resistant, polyethylene hoppers. All four sizes have the same pendulum demand feeding mechanism for #4 crumble to 1/4" pellets. One-year warranty.

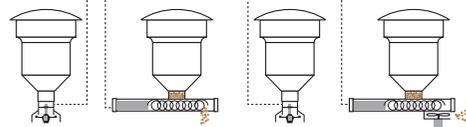
MODEL		CAPACITY (LBS/KG)	A	B	C	EACH	4+
FH221	DEMAND FEEDER	22/10	23"	12"	14"	\$261.49	248.42
FH441	DEMAND FEEDER	44/20	23"	15"	18"	282.49	268.37
FH881	DEMAND FEEDER	88/40	23"	19"	26"	345.49	328.22
FH133	DEMAND FEEDER	132/60	23"	23"	33"	418.99	398.04

Note: Bottom of feeder should be at least 20" (50cm) above the surface of the water

FEEDER CONTROLLER

The innovative FIAP Proficontrol Control sets new standards in automatic fish feeding. Thanks to its unique and smart programmability, it meets all expectations towards best possible feed dosing. The FIAP Proficontrol allows for operating up to 4 different FIAP feeders with one control. All settings as well as feeding periods (0–99 seconds), breaks (0–99 minutes) and motor speeds can be defined individually for the single outputs. Any settings made will be saved. Testing and manual feeding per output is feasible at any time. One-year warranty.

MODEL		EACH
1590	115/230V, 50/60HZ CONTROL	\$1,248.00
1594	5M CABLE	73.19
1594-1	10M CABLE	135.49
1594-2	20M CABLE	208.99
1591	SOCKET	27.29
1592	COUPLER CONNECTOR	17.89
1593	CONNECTOR PLUG	27.29



CABLES SOLD SEPARATELY



DIRECTIONAL FISH FEEDERS

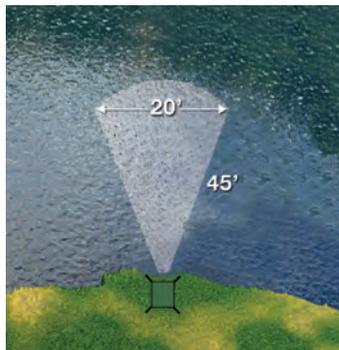
Aquatic Xtreme Fish Feeder® utilizes a high-velocity, centrifugal air blower system. Feed pellets are projected in a wedge-shaped feed pattern approximately 45-feet in length by 20-feet in width, without dropping feed within 5-feet of the feeder. Includes digital timer and 12V, 7amp rechargeable battery. Galvanized or powder-coated green finish.

Digital Timer is easy to set and reliable. It controls a dual motor system that delivers the flow of feed that is introduced into the air blower system. Includes built-in battery tester, large easy-to-read display and special coating for extreme temperature and weather protection. Pre-wired for optional solar charger. Timer has 5-Year Limited Warranty.

2-Watt Optional Solar Charger utilizes the sun's energy and extends the battery life and maintains charge. Built-in protection prevents battery power drainage. Installs on any side of the feeder and connects directly to the timer.

Key Features

- Includes Digital Timer and 12V Rechargeable Battery
- Feeds: 1-9 times/day, Run Time: 1-60 seconds/feeding
- Two feed-level sight gauges
- Low profile design for easy filling
- Removable side panel for quick access to blower system
- Straight legs for piers & docks; Adjustable legs for sloping pond banks
- Galvanized Steel Hopper with Powder-Coated finish for rust resistance.
- Easy Lockable Access Door protects timer and battery from elements.
- Dual motor blower design



Feed pattern.



Optional Solar Charger



Green Finish, Adjustable Legs,
Optional Solar Charger



Galvanized Finish, Straight Legs,
Optional Solar Charger



Galvanized Finish, Adjustable Legs,
Optional Solar Charger



AX70DLG mounted on dock.

CAPACITY FLOATING FISH FEED (LBS)	SINKING FISH PELLETS (LBS)	LEG TYPE	DIMENSIONS (FEEDER ONLY) L x W x H	SHIP WT (LBS)	GALVANIZED FINISH		GREEN FINISH	
					MODEL	EACH	MODEL	EACH
70	90	ADJUSTABLE	20" X 22" X 40"	100	AX70AL	\$733.99	AX70ALG	\$733.99
70	90	STRAIGHT	20" X 22" X 40"	91	AX70DL	733.99	AX70DLG	733.99
215	320	ADJUSTABLE	28" X 28" X 51"	154	AX215AL	891.49	AX215ALG	891.49
215	320	STRAIGHT	28" X 28" X 51"	145	AX215DL	891.49	AX215DLG	891.49
OPTIONAL SOLAR CHARGER				3	AX2W*	82.99	AX2WG**	82.99

*Black mounting bracket. **Green mounting bracket.

Replacement Parts

MODEL		SHIP WT (LBS)	EACH
AX12	DIGITAL TIMER	1	\$156.49
BT12HARB	12V RECHARGEABLE BATTERY	5.5	23.09



Digital Timer



12V Rechargeable Battery

Aquatic Xtreme Fish Feeders® is a registered trademark of SSI Investments I, LTD.

BELT FEEDERS

These belt feeders slowly dispense almost any dry medication, chemical or feed over a 12- or 24-hour period. If shorter length or intermittent feeding is desired, the conveyor belt can be pulled back halfway or feed can be spaced on the belt. These feeders will reduce labor costs and improve growth rates.

Housed in a weatherproof case and powered by a spring-wound stainless steel clock mechanism.

Feature corrosion-resistant clocks. All clocks are extremely durable.

Setting the feeders is as easy as lifting the lid, pulling back the belt and loading the feed. Repair parts are available and repairs can be made easily on site. One-year warranty.

- No electric power required
- Weather-resistant cover
- Thick belts
- Clear clock cover w/ gasket



BFS24

Belt Feeders

MODEL		DISPENSE AMOUNT (LBS)	DIMENSIONS* L X W X H (IN.)	SHIP WT. (LBS)	EACH
BFS12A	12-HR BABY BELT FEEDER	5	21 ⁷ / ₈ X 11 ¹ / ₂ X 6	6	\$229.99
BFS24A	24-HR BABY BELT FEEDER	5	21 ⁷ / ₈ X 11 ¹ / ₂ X 6	6	229.99
BFS12	12-HR BELT FEEDER	10	27 ⁷ / ₈ X 15 X 6	8	271.99
BFS24	24-HR BELT FEEDER	10	27 ⁷ / ₈ X 15 X 6	8	271.99

Replacement Parts

MODEL		SHIP WT. (LBS)	EACH
BFS12RC	12-HR CLOCK FOR MODELS BFS12A AND BFS12	1	\$82.99
BFS24RC	24-HR CLOCK FOR MODELS BFS24A AND BFS24	1	82.99
4420	CLOCK COVER, CLEAR		14.39
4350SS	STAINLESS STEEL MAINSPRING		18.29
4430	MAINSRING COVER, BLACK		14.39
4398	BABY BELT KIT (INCLUDES BELT, SHAFT, BRACKET, WIPERS)		50.39
4399	LARGE BELT KIT (INCLUDES BELT, SHAFT, BRACKET, WIPERS)		62.99

* Clock and S-ring are included in width.

**2-YEAR WARRANTY****KOI FEEDERS**

The Sweeney Koi Café is the ideal automatic fish feeder for your Koi pond, backyard water garden, grow-out tanks and outdoor ponds for smaller, ornamental fish. Special design helps prevent moisture from getting into the primary food supply and the hopper allows for long refill intervals. Select from red, green or champagne finishes. Add an optional solar charger and enjoy years of continuous performance without interruption.

- Adjustable feed flow lever to determine number of seconds per feeding
- Digital timer can feed up to 8 times per day and up to 59 seconds duration
- Built-in sight-gage to check on feed level
- Holds 10 lbs. of standard Koi food
- Equipped with 6 Volt rechargeable battery

	RED	MODELS GREEN	CHAMPAGNE	EACH
KOI CAFÉ FEEDER	SF36R	SF36G	SF36C	\$229.99
OPTIONAL SOLAR CHARGER	SX61-R	SX61-G	SX61-C	99.99
REPLACEMENT 6V BATTERY (MODEL BT626)				30.49

HANDHELD GRANULAR FEED DISPENSER

This hand-held, manually operated, granular feed dispenser is ideal for feeding fish housed in multi-tank, multi-tier, rack housing systems. Simply squeeze the spring loaded handle and the food will dispense quickly, accurately, and efficiently in consistent doses every time with minimal fatigue to the operator. This feeder is constructed of food grade acetal with stainless steel hardware to prevent corrosion. Only for use with dry, granular feed. Clear acrylic food canister holds 165 cubic cm of dry feed and is easy to refill. Includes two food dispensing discs (small disc dispenses 0.2 cubic cm per pull and large disc dispenses 0.4 cubic cm per pull). One-year warranty.

- Simple, single-hand operation for ease of use
- Dispenses consistent doses of food rapidly
- Easy to clean or change food dispensing discs
- Dish washer safe

MODEL		SHIP WT (LBS)	EACH
AH20	HANDHELD GRANULAR FEED DISPENSER	1.0	\$188.99



The AH20 in use at PAES W.A.T.E.R.



3-YEAR WARRANTY

SEAVEGGIES CLIPS

This unique plastic clip is used to securely hold marine algae, spinach or other leafy foods for herbivorous fish. The large suction cup attaches the clip easily and holds firmly to aquarium glass. Unlike other clips, it has no metal parts and floats if it becomes detached from the tank wall.

MODEL	EACH
SVC	\$2.19



**CLIP SHOWN
HOLDING A PIECE
OF SEAWEED.**

POND FEEDER

Once-a-day feeder for small ponds

Flake food or pellets are dispensed slowly over several hours each day (adjustable quantity and feeding time). This feeder can hold close to 2 cups (approximately 200 grams) of food. Fully weatherproof, it can be mounted on a pole by the edge of the water or suspended over the water. One AA battery (included) required for quartz-timed motor. Measures 6 3/4" x 3 3/4" x 7 1/4". Three-year warranty.

MODEL	EACH	4+
PF21	\$47.99	\$45.59

4-WAY CONE WORM FEEDER

Use with live worms or flake foods

The 4-Way Cone Worm Feeder dispenses live or frozen worms or brine shrimp and reduces build-up on bottom of aquarium. It is made up of three separate pieces: A floating ring, a cone worm feeder, and a suction cup. Made of a soft, flexible, break-resistant plastic. The floating ring may be used to provide dry flake food while floating on the surface or, when used in conjunction with the suction cup, it may be attached to the side wall of the aquarium to restrict feeding to a certain area. In addition, when inserting the cone, it may be used as a free-floating or confined worm feeder.

MODEL		EACH
10526	4-WAY FEEDER	2.09



VIBRATORY FEEDERS

Benefit from highly accurate feeding rates and times with these vibratory feeders from Pentair AES. They easily handle almost all different feed types (even extremely fine and moist feeds) and they are resistant to clogging from even the oiliest feeds. Perfect for applications where multiple accurate feedings per day would otherwise require a lot of manpower, such as in a hatchery.

For each feeder, use a 12VDC adapter such as the **SF50** for 115VAC operation. You will also need a timer. We suggest either **SF44** for 115V, **SF41** for 12V. One timer can be used for up to 13 feeders (all connected feeders will feed at once). One-year warranty.

MODEL	CAPACITY (LITERS)	DIA	H	EACH	4+
AVF6	0.5	5½"	9"	\$114.49	\$103.04
AVF7	1.75	7½"	12"	177.49	159.74
AVF8	3.0	9"	12¾"	208.99	188.09

REPL. VIBRATORY MOTOR AND PLATE

AVF6RP	FOR AVF6	72.49	65.24
AVF7RP	FOR AVF7	82.99	74.69
AVF8RP	FOR AVF8	103.99	93.59

TYPICAL INSTALLATION FOR VIBRATORY FEEDERS

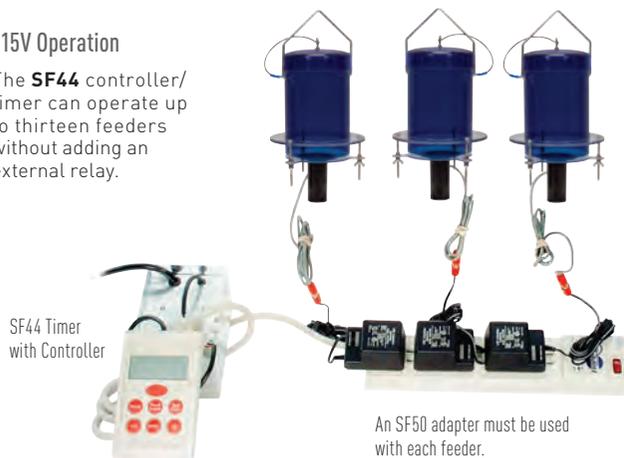
6/12V Operation

The **SF41** timer can operate up to thirteen feeders without adding an external relay.



115V Operation

The **SF44** controller/timer can operate up to thirteen feeders without adding an external relay.



TECH TALK 21

Hand vs Automatic Feeding

Hand or automatic feeding ... which is better?

Automatic feeders save time. All business people know – time is money. Most fish farmers are in short supply of both. The manual labor involved in feeding your fish every day by hand may seem small, but over the period of a year, can easily equate to thousands of dollars in man-hours.

For example, an operation with 10 tanks, feeding 3 times a day for 3 minutes per tank, at \$12 an hour will cost you \$18 per day in manual labor.

$$\text{---} \times \text{---} \times \text{---} \times \text{---} = \text{---}$$

(# of Tanks)	(# Feedings/Day)	(Min/Tank)	(Cost/Hr)	Cost/Day
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Automatic feeders require only a minimal amount of manual labor, including weekly filling of the hopper and resetting feeding rates (and recharging batteries if not tied into a central power source). An estimate for this maintenance is 15 minutes per week/per feeder. That equals \$2.80 a day in labor.

Manual Labor	Automatic Feeders	Savings
\$18/day	\$2.80/day	\$7.70/day
540/month	84/month	456/month
6,480/year	1,008/year	5,472/year

You can buy a lot of automatic feeders for \$5,472!

Automatic feeders allow feedings to be tailored to the biological clock of each species. They are ideal for the multiple feedings required when raising fry. Implementing a schedule of several feedings spread throughout the day may help to cut down on size variance of the fish, improve feed conversion ratios and level the load on the biofilter, and even out the oxygen demand. Remember, feed is usually the highest cost item in your operating budget, use it wisely!

FEEDER CONTROLLERS DESIGNED HERE

For single or multiple feeders. Easy to use, preassembled, extremely economical. These lightweight feeder controllers feature a reliable timer.

The controller is set to handle up to four feeders; however, the optional "Y" cable expands the capability to eight feeders (four "Y" cables would be required for eight feeders). The timer features safe 12V operation and is housed in a moisture-resistant, ABS plastic case. Feeders connect to the feeder time controller with 12' cables. No soldering or crimping, all components are interchangeable. Only one power supply is required for powering up to eight feeders. One-year warranty.

Basic

Features 8 feedings per 24 hours, adjustable from 2 to 59 seconds per feeding.

Deluxe

Up to 24 feedings per 24 hours, adjustable from 1 to 99 seconds per feeding.

MODEL		SHIP WT (LBS)	EACH	4+
H1201	DELUXE FEEDER CONTROLLER	2	\$418.99	\$398.04
SF50	12VDC ADAPTER FOR 115V	21	35.69	33.91
PA15	POWER SUPPLY, 12V	—	39.99	37.99
H1112-AQ	CABLE, 12'	—	12.19	11.58
H1113-AQ	"Y" ADAPTER	—	8.59	8.16



DIGITAL TIMER, CONTROLLER, ADAPTER

Features up to 24 feedings per 24 hours with a feeder "on" time of 1–59 seconds. The maximum output current is 10 amps, so each timer can control up to thirteen vibratory feeders without the need for an external relay.

For 115V Operation - SF44 Controller with Timer

Combines the 115V controller (SF40) with the 12V timer (SF41) for 115V operation. Can operate up to 13 vibratory feeders without adding an external relay. One 12V adapter (SF50) must be used with each feeder.

For 6/12V Operation - SF41 12V Timer

Can operate up to 13 vibratory feeders without adding an external relay. One Speed Controller (SF62) must be used with each feeder.

MODEL		SHIP WT	EACH
SF44	115V CONTROLLER W/12V TIMER	6	\$387.69
SF40	115V CONTROLLER	4	131.29
SF41	12V TIMER	2	183.79
SF62	12V CONTROLLER	4	104.99
SF50	12VDC ADAPTER FOR 115VAC	2	35.69

CONCENTRATED PLANKTONIC FEED

These products ship Next Day Air, FOB CA.

Phyto Feast® Fish Food

Provides a diversity of phyto-pigments, lipids, omega-3's, amino acids, carbohydrates and cell sizes. Proprietary harvesting and stabilizing processes keep cells intact and ensure nutrients get to your animals. This blend of the most important marine microalgae (*Pavlova*, *Isochrysis*, *Thalassiosira*, *Tetraselmis* and *Nannochloropsis*) will help your tank diversity improve, encourage your invertebrates to come out to feed and even help difficult-to-keep animals thrive. 32-oz bottle.

Roti Feast® Fish Food

Get superior color, vitality and growth rates! Roti Feast® is a highly nutritious plankton feed perfect for hard corals, larval fish and other reef carnivores that feed on small zooplankton. Rotifers are a critical feed used in marine fish and invertebrate hatcheries around the world. Contains tens of millions of fully intact marine rotifers *Brachionus plicatilis* with millions of eggs. 32-oz bottle, 4 oz treat 100 gal.

Arcti Pods® Fish Food

Arcti Pods® are large, nutrition-packed planktonic copepods (3,000 microns) harvested fresh from arctic waters. Great for fish and invertebrates such as LPS corals, anemones, zoanthids and brittle stars. Rich in carotenoids, which bring out the color of your animals. Also contain protein, omega-3 and -6 fatty acids and waxy esters for growth. 32-oz bottle, 1-2 teaspoons treat 100 gal.

MODEL		EACH
PFC32	PHYTO FEAST	\$32.99
RF32	ROTI FEAST	73.49
AP32	ARCTI PODS	77.19

Phyto Feast®, Roti Feast® and Arcti Pods® are registered trademarks of Reed Mariculture, Inc.



AP32 PFC32 RF32

FLAKE FOOD

Whether you're a hatchery manager, breeder or fish hobbyist, what is more important than high-quality food? Flake food is a highly nutritional food packaged and priced for the professional. We offer ten varieties in two package sizes.



ALL PENTAIR AES FOODS ARE PACKAGED IN POLYESTER FILM BAGS WITH O₂ ABSORBERS TO ENSURE FRESHNESS.



COLOR TROPICAL MARINE

Similar to tropical flake but with higher levels of color enhancers. Krill and shrimp meal are also added. 45% protein content.

MODEL		EACH
ZCT5	5 LBS (2.3 KG)	\$55.99
ZCT25	25 LBS (11.3 KG)	195.29



EGG YOLK

Formulated from egg yolk, this food is a high protein/high fat flake. It is great for fattening juvenile/larval fish and thin fish. 45% protein.

MODEL		EACH
F05Y	5 LBS (2.3 KG)	\$61.49
F25Y	25 LBS (11.3 KG)	208.29



EARTHWORM

A 42% protein flake with a primary ingredient of earthworms. Breeders have reported an increase in spawning of 6-10 times.

MODEL		EACH
F05E	5 LBS (2.3 KG)	\$64.89
F30E	25 LBS (11.3 KG)	229.19



KOI AND GOLDFISH FOOD

Nutritionally balanced food for goldfish and koi. Increases digestibility and minimizes waste. Promotes healthy gill, fin and tissue development. Also enhances color.

MODEL		EACH
ZGF5	5 LBS (2.3 KG)	\$42.99
ZGF25	25 LBS (11.3 KG)	143.49



PLANKTON/KRILL/SPIRULINA

A special formula of plankton, Antarctic krill (*Euphausia superba*), Pacific krill (*Euphausia pacifica*) and *Spirulina*. A choice food with 44% protein.

MODEL		EACH
F05K	5 LBS (2.3 KG)	\$58.29
F30K	25 LBS (11.3 KG)	246.79



TROPICAL

Highly palatable and digestible, flakes are formulated as a balanced diet. Provides high levels of *Spirulina* and trace elements. 45% protein content.

MODEL		EACH
ZTF5	5 LBS (2.3 KG)	\$37.49
ZTF25	25 LBS (11.3 KG)	154.39



BRINE SHRIMP

Consisting primarily of baby brine shrimp, this flake formula has a protein content of 50%. Flakes are fortified with vitamins and minerals. Fat content at least 13% and low fiber content of 3%.

MODEL		EACH
ZBF5	5 LBS (2.3 KG)	\$86.89
ZBF25	25 LBS (11.3 KG)	358.79



SPIRULINA

Excellent source of vitamins and amino acids. This flake delivers a high protein content of 38% and is the choice food for fish requiring vegetation in their diet.

MODEL		EACH
ZSF5	5 LBS (2.3 KG)	\$50.29
ZSF25	25 LBS (11.3 KG)	173.09

FANCY GUPPY® FOOD

Formulated exclusively for raising and breeding species of fancy guppies. Vitamins are encapsulated into a small pellet that becomes soft quickly in water, yet does not dissolve.

The feed is high in linolenic acid, which promotes growth and improves the guppies' natural breeding habits.

MODEL		EACH	12+
HK41	22 G	\$3.59	\$3.41



HIKARI® PLANKTON

Ideal for feeding fish fry, this plankton-based food hangs suspended in the water column where fry can readily feed. It is processed with a unique low-heat reduction method that eliminates nutrient loss. Vacuum-packed for freshness, it will help fry grow strong and healthy. Sold in 4.4-lb bags, minimum 48% protein.



HK170

MODEL	LARVAL	SIZE (MM)	MESH	EACH
HK170	EARLY	.2	80-180	\$55.99
HK270	MIDDLE	.2-.37	60-80	55.99
HK370	LATE	.37-.61	30-60	55.99

CICHLID GOLD® FOOD

Rich in color enhancers, Cichlid Gold® is a specially formulated food for bringing out the brilliant, natural colors of fish. It is ideal for most species of carnivorous cichlids and works especially well for bringing out the colors in oscar, firemouth and red devil species. Highly nutritious, it's formulated in a floating pellet form that does not make water cloudy.

MODEL		EACH	
HK25	MINI, 8.8 OZ, 1/8"	\$7.19	\$6.83/12+
HK27	MEDIUM, 8.8 OZ, 3/16"	7.19	6.83/12+
HK28	MEDIUM 22 LBS, 3/16"	197.99	188.09/2+
HK29	LARGE, 8.8 OZ, 5/16"	7.19	6.83/12+



HK25



MICRO PELLETS® FOOD

Specially formulated for tetras, barbs and other small tropical fish. Contains a high level of protein (min 42%), vitamins and nutrients that are encapsulated in the pellets. Extremely small pellet size (<1 mm) makes it excellent for small tetras and larval fish.

MODEL		EACH
HK40	1 KG	\$73.09



Grams x .0353 = oz

Grams x .0022 = lbs

CICHLID STAPLE

This cichlid food is specially designed as an economical daily food for most species of cichlids. Fortified with vitamins and minerals, it is formulated to provide complete balanced nutrition. Available in two pellet sizes. Pellets float and will not make water cloudy.

MODEL		EACH
HK20	MINI, 22 LBS, 1/8"	\$116.89
HK22	MEDIUM, 22 LBS, 3/16"	116.89



HK20



ALGAE WAFERS FOOD

Specially formulated for tetras, barbs and other small tropical fish. Contains a high level of protein (min 42%), vitamins and nutrients that are encapsulated in the pellets. Extremely small pellet size (<1 mm) makes it excellent for small tetras and larval fish.

MODEL		EACH
HK35	250 G	\$13.89
HK36	1 KG	43.39



HK35

Fancy Guppy®, Micro Pellets® Hikari® and Cichlid Gold® are registered trademarks and/or trademarks of Kyorin Co., Ltd.

TECH TALK 17

Fish Food

The cost of fish food can represent 30 to 90% of the total cost of raising fish! In some situations (like indoor culture), feed must provide 100% of the complex nutritional requirements fish need. A less-than-complete diet will show up as poor feeding response, slow growth and/or disease problems. Poor water quality can also be caused by bad feed.

All feed should be used within the normal 6-month shelf life. Do not overfeed. In general, give fish a little less than they will eat (stop feeding them before they stop feeding).

O.S.I.® AQUARIUM FOODS

Ocean Stars International (O.S.I.®) has been supplying food products for the aquarium and aquaculture markets for over a decade. Backed by extensive research and development, O.S.I.'s wide range of flake and pellet foods has been formulated with exceptional nutritional advantages. All of the foods contain predigested ingredients for high nutrient absorption as well as natural color enhancers, feeding attractants and vitamins.

- Premium tested formulations.
- Promotes rapid growth, high survival rates.
- High levels of natural color enhancers.



20031-AQ



20035-AQ



6029



20032-AQ

MODEL		EACH
20031-AQ	FRESHWATER FLAKES, 2.2 LBS	\$37.59
20033-AQ	MARINE FLAKES, 2.2 LBS	36.69
20075	SPIRULINA FLAKES, 7 OZ	13.09
20035-AQ	SPIRULINA FLAKES, 2.2 LBS	53.99
6029	CICHLID FLAKES, 2.2 LBS	34.69
20032-AQ	GOLDFISH FLAKES, 2.2 LBS	31.29

O.S.I.® is a registered trademark of Ocean Star International.

TETRAMIN® FLAKES

TetraMin can be used to feed almost any freshwater fish. It is formulated with over 40 special ingredients and is very nutritious.

		EACH
16106	7.0 OZ	14.59
16623	4.5 LBS	65.89



16623

TETRA® JUMBOKRILL

Large pacific krill that is vitamin enriched and excellent for feeding large fish or mixing with foods. Rich in astaxanthin, it improves color and growth.

MODEL		EACH
16200	14 OZ	\$47.99



ZEIGLER® ZEBRAFISH DIET

Zeigler Adult Zebrafish Diet is a nutritionally complete diet for Zebrafish reared in the laboratory. It is specially formulated to promote healthy fin and tissue development and has demonstrated increased fecundity in laboratory conditions. The diet utilizes highly digestible ingredients which minimizes excreted waste thereby helping to maintain good water quality.

- Has demonstrated increased embryo production under laboratory conditions
- Includes Carotenoid Pigments to enhance sexual dichromatism
- Contains Stabilized Vit C and Brewers Yeast to promote healthy fin and tissue development
- Formulated for low phosphorous effluent in water
- Irradiated, resealable bag to ensure shelf stability
- Manufactured under ISO 9001:2000 guidelines to ensure consistent, high quality



MODEL		EACH
AH271	1 LB BAG	\$30.79

VITA FISH™ VITAMIN COMPLEX

Created for marine fish, corals and invertebrates, Vita Fish™ is a highly concentrated vitamin complex containing 10 essential vitamins. It is highly soluble, easily absorbed and can be used as a food additive to enhance the nutritional quality of dry or live food. Dosage rate is 2 drops per gallon.

MODEL		EACH
VF641	1 GALLON	\$88.49

Vita Fish™ is a trademark of Marine Enterprises International, LLC.



ZEIGLER® XENOPUS DIET

Provide necessary nutrients and help maintain optimal water quality. Manufactured under ISO 9001:2000 guidelines to ensure quality and consistency and then irradiated inside a 1-lb resealable bag.

International customers: Check with your customs agent to determine whether this product can be shipped to your country.

MODEL		EACH
AH241	1 LB BAG	\$14.69



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TetraMin®, Tetra® are registered trademarks of Tetra GmbH Corp. Fed Rep Germany

OTOHIME LARVAL FEEDS

Compare to BioKyowa

Otohime larval feeds are specially formulated to meet the needs of marine fish. They have been used in both ornamental and food fish hatcheries around the world. Available in slow-sinking pellet sizes of 200 microns to 2.3 mm. Krill, fish and squid meal are the main protein sources, making it a nutritious diet. *These items cannot be sold to customers in Canada.*

MODEL		EACH
T2360	B1 DIET, 200-360 MICRONS, 4.4 LBS	\$56.99
T2620	B2 DIET, 360-620 MICRONS, 4.4 LBS	62.89
T2920	C1 DIET, 620-920 MICRONS, 4.4 LBS	51.49
T2940	C2 DIET, 920-1,410 MICRONS, 4.4 LBS	47.89
T3115	EP1 DIET, 1.5 MM, 22 LBS	106.49
T3315	EP2 DIET, 2.3 MM, 44 LBS	184.19



ZEIGLER® LARVAL AP100 DIET

Larval diet consists of very fine, granulated microcapsules scientifically formulated to feed fish and shrimp during larval and postlarval stages. It has been used to successfully raise larvae of penaeid shrimp, trout, koi, catfish, lobster, shiners, many game fish and tropical fish. The formula consists of a highly digestible mixture of marine and animal proteins, vegetable protein, yeast, vegetable starches, fish and vegetable oils, vitamin and mineral premixes, pigments, antioxidants and biodegradable binders. Minimum protein content 50%. Sold in 500-gram (1.1 lb) cans with a 12-month shelf life. Includes Vpak® supplements to enhance disease resistance.

MODEL		LARVAL STAGE	EACH
LD50-AQ	<50 MICRON	ZOEAE1 TO ZOEAE3	\$46.19
LD100	<100 MICRON	ZOEAE3 TO MYDYSIS3	41.99
LD150	100-150 MICRON	MYDYSIS1 TO PL2-3	34.89
LD250	150-250 MICRON	PL1 TO PL6	29.69
LD400	250-400 MICRON	PL3-4 TO PL8	24.69



Vita-Chem® is a registered trademark of Aquatic Futures LLC. Zeigler® is a registered trademark of Zeigler Bros., Inc. Vpak® is a registered trademark of Dr.'s Wellcare Corp.

BIO-PURE® FREEZE-DRIED FOOD

Excellent for many species of fish, Hikari® foods benefit from a pharmaceutical grade freeze-drying technique that preserves the nutrition and palatability commonly lost in freeze-dried foods. Enriched with vitamins and free of parasites and bacteria.

MODEL		EACH
33201	BLOOD WORMS, 0.42 OZ	\$6.29

BIO-Pure® is a registered trademark of Kyorin Group (China) Ltd. Hikari® is a registered trademark of Kyorin Co., Ltd.



VITA-CHEM® ADDITIVE

A prestabilized, multivitamin additive that is water and tissue soluble, ideal for closed systems. It contains many natural extracts that are lost in prepackaged foods. It is a great additive for fin regeneration and preventing lateral line disease in marine fish.

MODEL		EACH
16709	SALTWATER, 16 OZ	\$29.69
16716	SALTWATER, 1 GALLON	186.89
16710	FRESHWATER, 16 OZ	29.69
16715	FRESHWATER, 1 GALLON	186.89



KOI FOODS

We believe Hikari® food is one of the best names in the business. Koi have been eating Hikari food for over 100 years. We buy direct to give you the freshest food at the best price. Wheat germ is 30% protein.

Staple™ Food: Good for all-around general feeding. Includes all the premium nutrition your goldfish or koi need to grow strong. 35% protein.

Economy Food: A basic, well-balanced, nutritional diet high in Vitamin C. 32% protein.

Excel™ Food: A specially prepared, floating color enhancer. A mixture of highly nutritious wheat germ and pure cultured Spirulina. 35% protein.

Hi-Growth™ Food: Promotes fast and healthy koi growth. Floating. 34% protein.

Wheat Germ Food: Great choice for the cooler months. Helps prevent indigestion and improves resistance to stress and disease. Sinking medium pellets are high in vitamins C and E and will not cloud water. 32% protein, 4% fat, 4% fiber.

Gold™ Food: A daily diet developed to meet the nutritional needs of koi while providing outstanding color enhancement. 40% protein.

MODEL		PELLET SIZE	EACH
HK11	STAPLE, 4.4 LBS	1/8"	\$28.89
HK282	STAPLE, 11 LBS	1/8"	62.99
HK289	STAPLE, 22 LBS	1/8"	125.99
HK12	STAPLE, 4.4 LBS	3/16"	28.89
HK1	STAPLE, 22 LBS	3/16"	110.19
HK13	STAPLE, 4.4 LBS	5/16"	30.39
HK14	STAPLE, 11 LBS	5/16"	62.99
HK489	STAPLE, 22 LBS	5/16"	102.89
HK8	WHEAT GERM, 5 LBS	1/8"	35.99
HK16	WHEAT GERM, 4.4 LBS	3/16"	35.99
HK10	WHEAT GERM, 11 LBS	3/16"	79.19
HK17	WHEAT GERM, 11 LBS	5/16"	76.09
HK9	WHEAT GERM, 33 LBS	5/16"	186.89
HK3	EXCEL, 11 LBS	3/16"	152.19
HK4	HI-GROWTH, 4.4 LBS	5/16"	56.69
HK5	ECONOMY, 8.8 LBS	5/16"	35.19
HK224	GOLD, 17.6 OZ	1/8"	13.59
HK228	GOLD, 11 LBS	1/8"	100.79



HK4

HK5

HK14

HK17



HK10

HK3

HK228



SAKI-HIKARI™ KOI FOOD

Choose from three kinds of professional koi food specifically designed for show-grade competition koi. Each contains a unique, beneficial set of bacteria that protects against infection, improves digestion and reduces waste up to 40%. Color-Enhancing diet has pure-cultured *Spirulina* and high levels of zeaxanthin to promote bright red areas on koi without affecting the color of white areas. Growth diet has a mix of fats and nutritional components to help koi grow to competition size. Multi-Season diet is made up of easily digested ingredients, including wheat-germ kernel, for steady growth even when water temperatures are cooler (below 58°F/15°C). All Saki-Hikari koi food will float.

MODEL		EACH
42204-AQ	COLOR-ENHANCING, 4.4 LBS	\$56.89
42208-AQ	COLOR-ENHANCING, 33 LBS	298.99
42284	GROWTH, 4.4 LBSW	54.99
42288	GROWTH, 33 LBS	285.69
42364	MULTI-SEASON, 4.4 LBS	64.09
42368	MULTI-SEASON, 33 LBS	329.99



42204

42364

42284

Hikari®, Staple™, Economy™, Excel™, Wheat Germ™, Gold™ and Saki-Hikari™ are registered trademarks and/or trademarks of Kyorin Co., Ltd.

Online Orders: PentairAES.com | Phone Orders and Tech Advice: 877.347.4788

KOI FOOD, SINKING

Now you can feed your koi the way they naturally feed using this sinking koi food, available only from Pentair Aquatic Eco-Systems. This koi food contains high-quality ingredients and is great for everyday use. Convenient 5-lb odorless, polyester film, reusable, resealable bags can be kept fresh by freezing until needed, so buy in quantity for a discount.

Natural Choice koi food contains a minimum of 36% protein, minimum of 5% fat and maximum of 4% crude fiber. Bag contains oxygen-absorbing packet to maximize freshness.

MODEL		EACH
ZBS5-1	5 LBS (2.3 KG)	\$32.09
ZBS20-1	20 LBS (9 KG)	80.89



ZBS5-1

BLACKWATER MAX COLOR KOI FOOD

Now your fish can have the best chance at fast growth and superb color. We've worked with one of America's top koi farms to offer this custom blend to you. It's loaded with krill, Spirulina, extra vitamins, minerals and other ocean products.

Content: 38% protein, 6% fat. 5- and 12.8-lb bags are packaged in stay-fresh, resealable bags. Use spring through fall. 3-mm floating pellets suitable for fish over 5". Use for other ornamental fish as well.

MODEL		EACH
BW251	5 LBS	\$19.19
BW252A	12.8 LBS	38.29
BW253	20 LBS	60.59
BW254	40 LBS	92.89



BW251

BLACKWATER COOL SEASON

In cooler temperatures a fish's metabolism slows, making digestion more difficult. Cool Season is a wheat germ-based formula blended to be easily digested when water temperature below 60°F (16°C). Use all year long if you want. Feed in the spring to help prevent "egg-bound" females. 32% protein, 4% fat, 4% fiber. 3-mm floating pellets.

MODEL		EACH
BWCS5	5 LBS	\$22.19
BWCS40	40 LBS	108.29



BWCS5



BWCS40

BLACKWATER MAX GROWTH KOI FOOD

Now you can feed your koi the same diet the professionals do. Food is 38% protein, 6% fat and fishmeal-based. Available in medium (3 mm) and large (7.8 mm) floating pellets. 5- and 12.8-lb sizes are packaged in a resealable, stay-fresh foil bag. Use for other ornamental fish as well.

MODEL		EACH
BW255	5 LBS, 3 MM	\$18.99
BW256A	12.8 LBS, 3 MM	37.39
BW257	20 LBS, 3 MM	50.99
BW258	40 LBS, 3 MM	92.89
BW42A	12.8 LBS, 7.8 MM	37.39
BW43	20 LBS, 7.8 MM	50.99
BW44	40 LBS, 7.8 MM	92.89



BW257



BW42A

MEDICATED KOI/GOLDFISH FOOD

CHEMICAL Waiver Form Required

This food contains all the nutrients needed to help ornamental fish heal quickly. Contains four antibiotics and may help heal ulcers. Must be fed continuously for 10 days. For use on ornamental and nonfood fish not intended for human consumption. Chemical waiver form required. 3-mm sinking pellet.

MODEL		EACH
6441	1 LB	\$16.59
6445	5 LBS	46.69



BLACKWATER GOLD-N PROFESSIONAL KOI AND GOLDFISH FOOD

Serious koi collections deserve serious koi food. Blackwater GOLD-N was developed to improve nutrient uptake, therefore increasing growth and luster. This diet combines the best ingredients—fishmeal, seaweed and wheat flour—with many other specialized ingredients, including beneficial bacteria to aid digestion. 40% protein, 10% fat.

MODEL		EACH
BWG88	8.8 LBS	\$54.99
BWG40	40 LBS	177.29



DENSE CULTURE FOOD

Tanks • Raceways • Cages

We offer four styles of dense culture food. Each one contains fishmeal, poultry meal, blood meal and fish oil. Each can be fed to a wide variety of fish including catfish, tilapia, trout, salmon, hybrid striped bass and other cold and warmwater species.

F2A is a 50% protein sinking feed, an excellent starter feed for juveniles. **F2C** is a 41% protein, 3/16" floating pellet that works well for sub-adult fish in tanks or ponds. **F2E** is the same formulation as **F2C** but is a 7/32" floating pellet. **F2G** is a 3/16" floating pellet with 36% protein and a better choice for pond fish and larger tilapia.

All of the dense culture foods are made by the extrusion method. The extrusion method improves digestibility with less protein degradation. Ascorbic acid (a stabilized form of vitamin C) is added to all. Keep in mind that pellet sizes can vary by as much as 1/16". If you are unsure of the right size, order smaller rather than larger. Contains oxygen-absorbing packet to maximize freshness.

MODEL		MIN PROTEIN %	PELLET SIZE (IN)	PELLET SIZE (MM)	FEED TYPE	EACH
F2A	5 LBS	50	1/16	1.6	SINKING	\$16.39
F2B	50 LBS	50	1/16	1.6	SINKING	89.69
F2C	5 LBS	41	3/16	4.8	FLOATING	15.59
F2D	50 LBS	41	3/16	4.8	FLOATING	60.39
F2E	5 LBS	41	7/32	7.1	FLOATING	15.09
F2F	50 LBS	41	7/32	7.1	FLOATING	58.09
F2G	5 LBS	36	3/16	4.8	FLOATING	14.69
F2H	50 LBS	36	3/16	4.8	FLOATING	50.79



F2G



ZEIGLER® KOI FOODS

Nutritionally complete diets for koi and goldfish that float. Marine proteins increase palatability, digestibility and reduce waste. Nutrient-dense pellets contain stable vitamin C and brewer's yeast for healthy gill, fin and tissue development. Koi Fancier is formulated for color enhancing. Pond Fancier with wheat germ is nutrient-dense for all pond fish and is the choice for koi during colder weather. Nitrogen flushed to preserve freshness. All contain Vpak® additives to increase your koi's resistance to disease.

MODEL		EACH
K106	KOI FANCIER, 5 MM, 33 LBS	76.59
K108	POND FANCIER, 5 MM, 33 LBS	52.89

Zeigler® is a registered trademark of Zeigler Bros., Inc. Vpak® is a registered trademark of Dr.'s Wellcare Corp.

ZEIGLER® AQUA STAB-L FOOD FW SW

A special diet for both freshwater and saltwater fish

It contains high levels of protein (40% minimum), vitamins and minerals together with various preservatives and stabilizers that protect the feed against microbial degradation after being placed in the water.

Aqua Stab-L is a 3/8" sinking pellet with excellent water stability. After wetting, it has a soft, doughy consistency which is ideal for incorporating hormones and medications. Typically used for bottom feeders, as bait in tropical fish and baitfish traps and for attracting fish for harvest and sampling.

Sold in 5- and 44-lb (2.2 and 20 kg) bags. Held in cold storage. Oxygen absorbing packet keeps food fresh.

MODEL		EACH
AM5	5 LBS	\$16.79
AM50	44 LBS	83.99



ZEIGLER® FINFISH STARTER FOOD AND TREATMENT

Finfish Starter Food is a slow-sinking diet with the higher vitamin levels required for early development. It has a great emphasis on marine ingredient sources for increased digestibility and energy utilization.

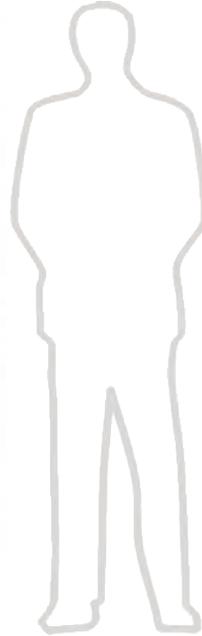
Carotenoid pigments enhance growth in early stages. Low nitrogen and phosphorous levels reduce nutrient discharge in effluent. Meets FDA requirements regarding restrictions on mammalian protein sources (**ZM1-ZC4** = 55% min; **ZP1-ZP3** = 50% min). Contains Vpak® to improve survivability. Oxygen-absorbing packet included. Guaranteed analysis: 15% min fat, 2% max fiber, 12% max moisture, 8% max ash.

EZ Bio is a biological aquaculture treatment for hatcheries that combats pathogenic bacteria. This environmentally friendly formula is an easy way to improve your fish's health and make them more stress-resistant. 5-gram scoop of quick-dissolving powder treats up to 3 metric tons.

MODEL	SIZE (LBS)	FEED TYPE	DIAMETER (MM)	EACH
ZM1	5	MEAL	.4-.6	\$15.69
ZM2	44	MEAL	.4-.6	124.19
ZC1	5	#1 CRUMBLE	.6-.85	15.69
ZC2	44	#1 CRUMBLE	.6-.85	124.19
ZC3	5	#2 CRUMBLE	.85-1.2	15.69
ZC4	44	#2 CRUMBLE	.85-1.2	124.19
ZP1	5	PELLET, SLOW SINKING	1.5	14.19
ZP2	44	PELLET, SLOW SINKING	1.5	77.49
ZP3	44	PELLET, SLOW SINKING	2	77.49
EZB400	400 GRAMS	EZ BIO AQUACULTURE TREATMENT	-	41.69



IP-PBR-1000L



IP-PBR-100L

ALGAE BIOREACTORS

Industrial Plankton Algae Bioreactors are a turn-key solution for aquaculture hatcheries, research, and biotech. Through automation, these bioreactors eliminate the majority of repetitive tasks involved in culturing algae. The equipment can be automatically cleaned and sterilized before inoculation by simply pressing a button on the touchscreen. The sealed chamber, when seeded with 20 litres of algae, is capable of growing up to 1,000 litres of pure culture in 7-10 days, while continuously monitoring algae growth using a built in sensor. The machine also self-harvests and replaces the harvested water with new water and nutrients, which are filtered and sterilized at the point of entry. The equipment greatly simplifies the complex and time consuming task of algae culture, while also increasing production reliability and biosecurity. Requires fresh or saltwater inlet line. One-year warranty.

AQUACULTURE APPLICATIONS—Model IP-PBR-1000L uses real time monitoring, user friendly control system, and data logging, letting hatcheries focus on their livestock, and not their algae. Problems with algae production are often the causes of low or unreliable hatchery yields. This unreliability and high production costs of microalgae are limiting factors to the success of many hatcheries. Despite efforts over the past decade to develop cost-effective artificial diets to supplement live microalgae, on-site live microalgal production remains a critical element in the operation of most successful marine hatcheries.

RESEARCH APPLICATIONS—Model IP-PBR-100L combines cutting edge technology with meaningful production volume, simplifying production of live algae in universities, public aquariums, and industrial research. Researchers can see their culture parameters graphed continuously in real time, and sterilize the reactor between experiments with the push of a button – all in a fully automated closed system, featuring closed loop pH control, integrated heating/chilling, and remote access capabilities. The algae produced is ideal for feeding zooplankton and larval marine animals.

PRODUCTION MODES—Practically all species of freshwater and saltwater algae commonly used in aquaculture can be grown in the reactors. They can be operated in batch mode, or continuously using an automated top and drop, which harvests then replaces a portion of the culture each time the cell density exceeds a user setpoint.

PBR 1000L Production

BATCH (7-10 DAYS)	OPERATING EXPENSES (PER BATCH)*	CONTINUOUS	OPERATING EXPENSES (PER MONTH)*
Nutrients + CO ₂	\$13	Nutrients + CO ₂	\$51
Electricity (at €10/KWh)	\$28	Electricity (at €10/KWh)	\$123
Labor (1 hour at \$20/hour)	\$20	Labor (3 hours at \$20/hour)	\$60
Total	\$61	Total	\$234

SPECIES	HARVEST	DENSITY	SPECIES	HARVEST	DENSITY
T-Iso		25 M/ml	T-Iso	300-500 L/day	15 M/ml
Nannochloropsis		210 M/ml	Nannochloropsis		82 M/ml
Tetraselmis	1000L/batch	4.5 M/ml	Tetraselmis		3 M/ml
			Thalassiosira weissflogii		14 M/ml
			Skeletonema costatum		16 M/ml
			Haematococcus pluvialis		1 M/ml

*Actual OPEX and production numbers may vary between facilities.

Features:

- **TANK**—The star shaped, corrugated tank doubles the surface area exposed to light, so cultures grow denser before cell shading limits growth. The tank bottom is sloped to facilitate circulation and drainage.
- **LIGHTS**—LED and T5 grow lights provide bright, evenly spaced light across the tank surface, providing maximum light without photo inhibition. To prevent photo inhibition during scale up, the bioreactor checks the culture density and only turns on lights as they are needed, based on user controlled setpoints. The brightness can also be controlled, allowing algae with a variety of light requirements to be cultured.
- **CLEANING & STERILIZING**—If you want to restart the culture it's a simple process. The tank is drained through the bottom, then pressure washed and sterilized by pushing a button.
- **INOCULATION**—The bioreactor starts by adding water and nutrients, then adjusts temperature and light levels. Inoculation is simple, just hook up a carboy or flask to the machine's inoculation port, then use the onboard air supply to push the culture from the carboy into the bioreactor.

- **SCALE-UP**—To increase biosecurity the culture is scaled up gradually over the course of days, automatically adding water and nutrients whenever a set culture density is reached.
- **HARVEST**—A portion of the culture is harvested multiple times each day, then automatically replaced with new water and nutrients. Small frequent harvests increase the overall yield, and make the algae's nutrient profile more predictable. The whole tank can also be harvested with the push of a button.
- **BIOSECURITY**—Incoming water is slowly passed through a UV filter after being pre-filtered using a nominal micron filter. Nutrients are then added to the water and passed through 2 additional stages of absolute micron filtration, down to 0.1um. Air and CO₂ entering and leaving the tank are also passed through 0.1um filters. Harvesting is done automatically using a biosecure pinch valve.

User friendly touchscreen interface



A user friendly touchscreen interface lets you control the culture parameters and fine tune the operation for different species and situations. User controlled setpoints control parameters such as temperature, CO₂ injection, harvesting cell density, light levels, etc. In addition to automated controls the machine can be controlled manually, making it easy to harvest, or add water or nutrients at any point.



Culture parameters are logged and graphed in realtime on the touchscreen, making it easier to maintain a culture in exponential growth for continuous culture, or decide when a batch is ready for harvest. The controls, including these graphs, can be accessed remotely from a personal computer.

	CULTURE DENSITY IP-PBR-1000L	CULTURE DENSITY IP-PBR-100L
Nannochloropsis	187 million/ml	300 MILLION/ML
Isochrysis	20 million/ml	38 MILLION/ML
Tetraselmis	2 million/ml	4.1 MILLION/ML



CONTACT OUR TECH SUPPORT STAFF FOR ASSISTANCE

MODEL	ELECTRICAL			APPROX. WATTS	TANK CAPACITY (LITERS/GALLONS)	SCALE UP TIME	ASSEMBLED DIMENSIONS			IDEAL WORKING SPACE			SHIP WT (LBS)	EACH
	VOLTS (1PH)	HZ	AMPS				L	W	H	L	W	H		
IP-PBR-1000L	115	60	30	1900	1000/265	7-10 Days (20L inoculum)	54"	59.5"	87.5"	66"	70"	96"	400	\$33,600.00
	230	50	15											
IP-PBR-100L	115	60	15	1150	100/27	6-8 Days (2L inoculum)	54"	28"	72"	60"	36"	84"	150	\$30,975.00
	230	50	7.5											

Note: IP-PBR-1000L requires min. 48.5" x 78.5" doorway; IP-PBR-100L requires min. 24" x 68" doorway. Prices are FOB Victoria, Canada, motor freight. Includes chiller.

POLYESTER MESH BAGS

Ideal for collecting rotifers, *Artemia*, fish eggs and other small organisms, these polyester mesh bags are available in 18" and 31" (46 and 79 cm) lengths and a variety of mesh sizes. They can also be used for filtering particulate matter from tank inlets and overflows. Bag is equipped with a stainless steel ring 7" in diameter and a cotton handle.

- Pre-filters water.
- Zooplankton collector.



PMB1L

MODEL	MESH SIZE (MICRON)	LENGTH	EACH	10+
PMB1	75	18"	\$13.99	\$11.89
PMB1L	75	31"	21.19	18.01
PMB2	100	18"	10.89	9.26
PMB2L	100	31"	17.39	14.78
PMB3	125	18"	10.89	9.26
PMB3L	125	31"	16.99	14.44
PMB4	150	18"	6.59	5.60
PMB4L	150	31"	7.69	6.54
PMB5	200	18"	6.59	5.60
PMB5L	200	31"	7.69	6.54
PMB6	250	18"	6.59	5.60
PMB6L	250	31"	7.69	6.54
PMB7	300	18"	6.59	5.60
PMB7L	300	31"	7.69	6.54
PMB8	400	18"	6.59	5.60
PMB8L	400	31"	7.69	6.54
PMB9	800	18"	6.59	5.60
PMB9L	800	31"	7.69	6.54
PMB10	1,500	18"	6.59	5.60
PMB10L	1,500	31"	8.89	7.56

TECH TALK 20

Algae Culture

On-site algae culture is a necessity in most marine hatcheries. Algae is the primary diet for bivalves, larval shrimp and live larval feeds, such as rotifers and *Artemia*. Many different species of algae are cultured throughout the world and each batch is typically just a single species selected for its size and nutrient profile.

During culture, it is crucial that steps are taken to avoid contamination, either from pathogens or from other species of algae or ciliates. Sterilization of all equipment and culture media is, therefore, necessary. They can be autoclaved, dipped in alcohol, chlorinated, etc. Contaminants are often waterborne; however, air can also be a pathway for contamination. Placing the air compressor intake in the culture room or an air-conditioned room reduces temperature fluctuations and contaminant load. Care should also be taken to avoid condensation in the air lines, which can lead to ciliate infestations. Installing an in-line desiccant filter can eliminate condensation. To eliminate a recurring contamination problem, sterilize the air delivery system and use the appropriate inlet air filter.



FL2-AQ

BACTERIA FILTER

Will filter air down to .3 microns. Autoclavable. Use for single species algal culture, bioassay work, experiments, etc. Fits 6.35 mm through 9.5 mm tubing.

MODEL		EACH	10+
FL2-AQ	FILTER, 1/4-3/8" HOSE BARB	\$9.99	\$8.99

PROLINE F/2 ALGAE FOOD

- For intensive algae culture in fresh or marine water.
- Vitamin and mineral content ratios equal to Guillard's 1975 F/2 formulation.
- Professional research concentration.
- Complete algae growth media.

Larval fish, penaid shrimp, *Artemia* species, freshwater prawns, bivalve mollusks and other inverts require algae. Mass cultivation of algae requires a mixture of various vitamins and minerals for maximum algae growth. ProLine F/2 Algae Food provides these essentials in a complete, easy-to-use liquid form. When used as directed, allows fast growth rates and high densities to be achieved. One gallon each of solutions A and B will produce 7,680 gallons of growth media. For culturing diatomaceous organisms, sodium metasilicate must be added to the F/2 Formula.

MODEL		SHIP WT (LBS)	EACH
239800	F/2, PART A, 1 GALLON	10	\$26.19
239801	F/2, PART B, 1 GALLON	10	26.19
239802	F/2, PART A, 5 GALLONS	52	94.49
239803	F/2, PART B, 5 GALLONS	52	94.49
239804	SODIUM METASILICATE, 1 KG	2.5	13.89



239800

239802

INSTANT ALGAE® MARINE PASTE

Providing a cost-effective alternative to live algae can be the difference between profit and loss in a hatchery. Produced by Reed Mariculture, Instant Algae is a high quality, super-concentrated, liquid, marine microalgae feed for larval shrimp, fish and bivalves. It can be used to supplement or replace live algae in the hatchery. Instant Algae is 95–100% as effective as live algae. Algae concentration is based on the density of the average live algae culture (i.e., one liter Premium 3600 is equal to 3,600 liters of an average algae culture). Weighs 3 lbs. Ships Next Day Air.

MODEL		VOLUME	EACH
PM36N	NANNOCHLOROPSIS PREMIUM 3600	1 QUART	\$73.49
PM18I	ISOCHRYSIS PREMIUM 1800	1 QUART	46.19
PM18P	PAVLOVA PREMIUM 1800	1 QUART	46.19
PM18T	THALASSIOSIRA PREMIUM 1800	1 QUART	30.49
PM183	SHELLFISH DIET 1800*	1 QUART	46.19

*Shellfish diet is a mix of *Isochrysis*, *Pavlova*, *Tetraselmis* and *Thalassiosira weissflogii*.



PM36N PM18I

KENT F/2 ALGAL FORMULA

This complete algal culture formula is an enhanced Guillard's F/2 nutrient media and is formulated for the commercial culture of microalgae and diatoms. Pro-Culture F/2 Algal Formula is properly preserved and stabilized to ensure potency. This product provides nitrogen and micronutrients for high growth rates of microalgae when both parts A&B are used. Also contains vitamins essential for the growth of freshwater and marine flagellated phytoplankton. Concentrated liquid form eliminates the need for purchasing bulk chemicals. Formula is composed of a two-part solution, preventing decomposition of vitamins and precipitation of trace elements. The shelf life exceeds two years.

One gallon each of solutions A and B will make 7,680 gallons of culture water. For culturing diatom organisms, sodium metasilicate must be added at 20 grams per 1,000 gallons of culture water



MODEL		SHIP WEIGHT (LBS)	EACH
F2A5	F/2, PART A, 5 GALLONS	54	\$100.19
F2B5	F/2, PART B, 5 GALLONS	54	100.19

SELCON CONCENTRATE

Highly unsaturated fatty acids

Only Selcon Concentrate contains omega-3 HUFA, Vitamin B12 and pure stabilized vitamin C. Highly concentrated, it is ideal for enriching rotifers and *Artemia*. Can also be soaked into freeze-dried foods.

MODEL		EACH
SE60	2 OZ (60 ML)	\$15.29
SE16	16 OZ (473 G)	103.09

Instant Algae® and RotiGrow® are registered trademarks of Reed Mariculture, Inc., Selco® is a registered trademark of Inve Technologies, N.V. Joint Stock Co.



SE60 SE16

LIQUID HUFA

Ideal for brine shrimp

Use Easy Selco® to enrich zooplankton prior to feeding to increase omega-3 fatty acids and essential amino acids. Increasing the nutritional value of rotifers and *Artemia* can make a huge difference in larval survival. Easy Selco® contains 200 mg/g dry weight. Recommended feed rate is 0.6 grams Selco® per liter of salt water. Simply emulsify the enrichment for 3 minutes and add to the zooplankton tank at least 24 hours prior to feed out. *Do not freeze.* Ship weight 3 lbs.

MODEL		EACH
SE536A	1 KG	\$68.99



N-RICH PL PLUS

Provides a host of nutrients typical of *Isochrysis*, *Pavlova*, *Tetraselmis*, and *Thalassiosira* including carotenoids, enzymes, and sterols. High protein and carbohydrate content maintains rotifer health throughout the enrichment process. Easy to measure and disperse, and produces minimal waste.

MODEL		EACH
NRICH	1 QUART	\$46.19



ROTI-GROW® PLUS FEED

An all-in-one diet that can be used for growout, enrichment and gut-loading. This microalgal blend meets HUFA requirements up to 40 mg/g d.w. and DHA:EPA ratio of 1.6:1. Produces rotifers rich in phospholipids DHA, EPA and ARA. Clean, effective and allows use of enrichment feeds that are nutritionally balanced for healthier rotifers.

MODEL		EACH
RGP	1 QUART	\$69.79



BRINE SHRIMP EGGS

Brine shrimp eggs from the Great Salt Lake (GSL). 90% guaranteed hatch rate. Sold in 15-oz, vacuum-packed cans.

MODEL		EACH
BS90	425 GRAMS (15OZ.)	\$73.99

Air shipments require dry ingredients to be moistened with 100 mL of distilled water.



Actual Brine Shrimp

SMALL BRINE SHRIMP EGGS

6 grams of brine shrimp eggs (about a million!).

MODEL		EACH	4+
SB503	6 GRAMS (0.2 OZ.)	\$4.09	\$3.68

**BRINE SHRIMP NET**

Made of a fine, nylon mesh (including stitching) and a vinyl-coated wire handle.

MODEL	FRAME SIZE	HANDLE LENGTH	MESH SIZE	EACH
BSN1	4" X 3"	9¾"	350 MICRON	\$2.49

**DRY BRINE SHRIMP FEED**

This dry brine shrimp feed is excellent for raising *Artemia salina* from nauplii to adults. The dry, powdered form is much easier to use than having to produce hundreds of gallons of live algae. Will equal or surpass any density and growth rate known for live algae diets. Recommended feed rate is ½ to 1 gram per gallon per day.

MODEL		EACH
DS16	454 GRAMS (16 OZ)	\$31.49

**TECH TALK 109****Rotifer Culture, High-Density vs Batch Methods**

Rotifers are typically fed live algae and grown either in ponds or tanks when used as a commercial scale larval diet. A farm with the space and water available to use traditional pond rearing methods should keep doing so. A farm using live algae to grow rotifers in tanks should consider an alternative. Traditional batch culture requires the grower to have both live algae tanks and rotifer rearing tanks. The table compares the batch method to a new, high-density method that substitutes algae paste for live algae.

The batch method requires a much higher investment in equipment and space. The high density method only requires rotifer tanks and their filtration systems. Water is another cost of growing rotifers. Generally speaking, the batch culture method uses 75 percent exchange per day. The high density method, using algae paste, requires about 20 percent exchange of water per day. Another cost factor is labor. Batch culture requires two full-time live feed technicians, while the high density method only requires one part-time technician.

High density rotifer culture systems can clearly reduce costs. However, these systems require a transition time and there is a learning curve. You will need a technician who is willing to learn the system and how to predict its production. Since more rotifers are being grown in one tank, it is best to have a backup system running at a lower production rate as insurance should a system fail.

EQUIPMENT COST TO RAISE 100 MILLION ROTIFERS PER DAY

	BATCH METHOD	HIGH-DENSITY METHOD
Density of rotifers	500 per ml	2,000 per ml
Tank size	100 Liters	100 Liters
Algae requirement per tank	75 liters fresh algae	2.5 liters algae paste
Total rotifers per tank	50 million	200 million
Tanks needed for 1 week feed	10-14 tanks	1-2 tanks
Estimated equipment cost	\$12,000	\$3,000

◀ ROTIFER PRODUCTION SYSTEMS ✓ DESIGNED HERE

High-density systems

Our intensive rotifer production systems are designed for high-volume production. These systems will save you a lot of money, space and work. Production densities exceed 5,000 rotifers per milliliter of *Brachionus plicatilis*. *B. rotundiformis* are also suitable for this system. Systems are complete, including culture tank, filtration system, pure oxygen diffuser and ammonia neutralizer dosing system. Since these systems use Instant Algae® marine paste, they eliminate the need for labor-intensive algae production. Only 30 minutes of tank maintenance per day is required to produce 100 million to 2.5 billion rotifers per day. Systems also include an operations manual and ClorAm-X® water conditioner.



AR150K

MODEL	CAPACITY (LTRS)	AREA (METERS)	VOLTAGE	HZ	EACH
AR150K	150	1 X 1.6	115	60	\$3,148.00
AR150K-H	150	1 X 1.6	230	50	3,148.00
AR256K	450	1 X 2.2	115	60	3,967.00
AR256K-H	450	1 X 2.2	230	50	3,967.00
AR1000K	1000	2 X 2.2	115	60	6,036.00
AR1000K-H	1000	2 X 2.2	230	50	6,036.00
930018	REPL. FILTER MATERIAL, PER LINEAR YARD				14.69



AR1000K

Instant Algae® is a registered trademark of Reed Mariculture Inc. ClorAm-X® is a registered trademark of Aquascience Technologies, LLC.

Online Orders: PentairAES.com | Phone Orders and Tech Advice: 877.347.4788

LIVE ORGANISMS

Pentair AES offers live organism cultures for laboratory biotoxicology research, educational studies or live food cultures. Due to availability and shipping requirements, please allow 5 days for shipment.

All organisms ship Next Day Air. Organisms are guaranteed to arrive alive or we will refund the full purchase price of the lost organisms, excluding shipping. All organisms are shipped with an acclimation guide.



Daphnia pulex



Daphnia magna



Brachionus Plicatilis



Oryza latipes (Medaka)

INSTANT ROTIFERS

Produced by Reed Mariculture, these live marine rotifer cultures of *Brachionus plicatilis* are the solution for short-term feeding in marine aquariums and as a starter culture. One-quart package contains approximately 600,000 rotifers, shipped in breathable bags and enriched with algae. Includes 15-oz rotifer diet algae mix of *Nannochloropsis* and *Tetraselmis*. These cultures can be refrigerated for up to 2 weeks or used immediately. **Ship Next Day Air**, FOB CA.

MODEL	EACH
RC6N	\$50.39

Saltwater Algae

MODEL		QTY	EACH
LAC1Q	NANNOCHLOROPSIS	1 QUART	\$19.29
LAC3Q	ISOCHRYSIS	1 QUART	18.69

Freshwater Invertebrates

MODEL		QTY	EACH
285103	DAPHNIA PULEX	100+ GRAVID ADULTS	\$62.99
285105	MOINA SPP.	1,000+	93.49
285106	DAPHNIA MAGNA	100 EGGS	21.59
285107	DAPHNIA MAGNA	100+ MIXED AGE	62.99
285108	DAPHNIA MAGNA	100+ GRAVID ADULTS	62.99

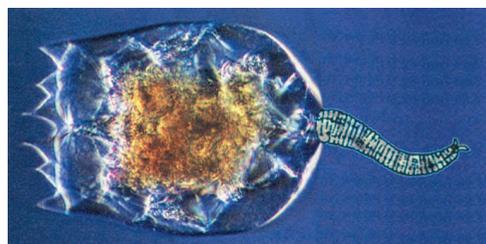
Saltwater Invertebrates

MODEL		QTY	EACH
285121*	ARTEMIA, ADULT, 1 LB	1,000 ML	\$60.89
285122*	ARTEMIA, ADULT	200 ML	31.49
LRC2	BRACHIONUS PLICATILIS	1 QUART	20.29
LRC3	BRACHIONUS PLICATILIS	1 GALLON	41.99
285123	OCEAN COPEPODS	1 LITER	68.39
285125	PALAEONETES VULGARIS	200	136.59

Japanese Medaka

MODEL		QTY	EACH
285135	ORYZIAS LATIPES (EGGS)	20	\$26.29
285136	ORYZIAS LATIPES (<90 DAYS)	10	29.39
285137	ORYZIAS LATIPES (>91 DAYS, SEXED)	5	26.29

*Not for shipment to Canada.





Butterfly



Standard Fin



Goldfish



Koi Stocking Packs

KOI STOCKING PACKS

Guaranteed to arrive alive

We have partnered with Blackwater Creek Koi Farms to offer several varieties of koi at reasonable rates. Blackwater Creek is an isolated group of three farms with high-quality fish that has maintained disease-free status for SVC through government testing and monitoring. All koi originally 'bred' from, champion Japanese koi stocks. We are sure you will enjoy the koi you receive. All prices include overnight shipping from Blackwater Creek.

Shipping info

Standard Overnight shipping is included in the price for the continental USA*. All orders placed by Saturday at 5 PM ship Wednesday of the upcoming week. No shipping to PO boxes—customers must be home to accept package. You must supply an email address with your order to receive a tracking number. *Koi cannot be shipped to Maine. Shipping is available to Hawaii and Alaska for an additional charge. Hawaii requires an Import Permit.

BUTTERFLY KOI

MODEL				EACH
BUFU1	3-6"	SMALL/MEDIUM	20 FISH PER BOX	\$237.29

STANDARD FIN KOI

MODEL				EACH
STND1	3-6"	SMALL/MEDIUM	20 FISH PER BOX	\$181.69

KOI STOCKING PACK—MIX OF DECORATIVE, SELECT AND BUTTERFLY**

MODEL				EACH
STCKFF50	2-4"	SMALL	200 FISH PER BOX	\$373.79

**Receive an additional discount when ordering in conjunction with a Mini Fish Farm, models FF50-3, FF50-3W1 or FF50-W2.

GOLDFISH—MIX OF SARASSA, SHUBUNKINS, COMETS AND WAKINS

MODEL				EACH
GOLDFISH1	3-4"	SMALL	50 FISH PER BOX	\$142.79

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