

GEMMA MICRO

Complete extruded pre-starter diet for marine fish larvae

Gemma Micro is a **revolutionary pre-starter diet** which is designed to **replace Artemia** in the first feeding of marine fish larvae such as sea bass, sea bream and meagre.

Gemma Micro is a new generation starter feed produced with a sophisticated technological process based on cold extrusion. It is thus gentler on the raw materials and makes the feed easier to digest than a traditional crumble. The improved digestive and metabolisable properties create better growth and lower FCR.

Gemma Micro is rich in amino acids, essential fatty acids, vitamins, minerals and other important nutritional compounds to give larvae a fast and healthy start. A large fraction of the protein is hydrolysed for easy digestion. **Gemma Micro** composition is patented: no other diet contains as high a phospholipid content as Gemma Micro (more than 10%) for optimal growth, maximal survival and minimal malformation.

Ingredients

Fish meal, Lecithin, Wheat gluten, Fish oil, Vitamins and mineral premixes, Betaine.

Composition

	Size	Proteins	Lipids	Ash	Fibre	Phosphorus	Total n-3 HUFA of fat
	µm	%	%	%	%	%	%
Gemma Micro 75	< 120	55	15	13.5	5	2	14.3
Gemma Micro 150	100-200	55	15	13.5	5	2	14.3
Gemma Micro 300	200-400	55	15	13.5	5	2	14.3

Packaging & Shelf-life

Gemma Micro 75, 150 and **300** are packed in special aluminium/polyethylene bags under modified atmosphere conditions. **Gemma Micro 75** and **150** are packed in 1kg bags while **Gemma Micro 300** is packed in 2.5kg bags.

Gemma Micro 75, 150 and **300** have a 15-month shelf life.

FEED REGIME FOR SEA BASS

This suggested feed regime should be adapted to local conditions and blended with house rearing protocol.

Contact your local Skretting Service Centre for further technical assistance with sea bass rearing, and for more information about the **SPECTRUM** range of hatchery products.

TL (mm)	WT (mg)	Age (dph)	Temp (C)	Degree Days	Flow (l/min) per 10m ³	Artemia million/10m ³	GM 75 kg/10m ³	GM 150 kg/10m ³	GM 300 kg/10m ³	volume m ³	
4	0.07	1	12	12	0					10	FISH DENSITY AT 150000/m ³
		2	12	24	0					10	
		3	12	36	0					10	
		4	12	48	0					10	
		5	12	60	0					10	
		6	13	73	3.5					10	
5	1	7	14	87	3.5					10	
		8	14	101	3.5	10 (sm naup.)				10	
		9	14	115	7	10 (sm naup.)				10	
		10	14	129	7	15 (sm naup.)				10	
		11	15	144	7	20				10	
		12	16	160	7	20				10	BEGIN SKRETTING COFEED/WEANING PROGRAM (see back page)
		13	16	176	10	30	0.12			10	COFEED with GM 1hr and 0.5hr prior to Artemia feeding
		14	16	192	10	30	0.12			10	COFEED
		15	17	209	10	50	0.12			10	COFEED
		16	18	227	10	50	0.12			10	COFEED
		17	18	245	20	80	0.09	0.09		10	COFEED
		18	18	263	20	80	0.09	0.09		10	COFEED
		19	19	282	20	100	0.12	0.12		10	STAGE 1
8	3	20	20	302	20	100		0.24		10	STAGE 1
		21	20	322	20	100		0.24		10	STAGE 1
		22	20	342	27	100		0.30		10	STAGE 1
		23	20	362	27	75		0.40		10	STAGE 2
		24	20	382	27	75		0.40		10	STAGE 2
10	5	25	20	402	27	75		0.70		10	STAGE 2
		26	20	422	27	75		0.70		10	STAGE 2
		27	20	442	27	50		0.96		10	STAGE 3
		28	20	462	27	50		0.96		10	STAGE 3
		29	20	482	40	50		1.20		10	STAGE 3
12	10.2	30	20	502	40	50		1.20		10	STAGE 3
		31	20	522	40	25		1.40		10	STAGE 4
		32	20	542	40	25		1.50		10	STAGE 4
		33	20	562	40	25		0.80	0.80	10	STAGE 4
		34	20	582	40	25		0.90	0.90	10	STAGE 4
14	20	35	20	602	40	0		0.90	0.90	10	POST-WEANING
		36	20	622	40	Artemia Consumption		2.0		10	POST-WEANING
		37	20	642	40	1395 mg/10m ³		2.0		10	POST-WEANING
		38	20	662	40	6.1 kg/10m ³		0.8		30	FRY TRANSFER (ADJUST DENSITY to 20-30/l)
		39	20	682	40	20 kg/10m ³		0.8		30	
16	38	40	20	702	40			0.9		30	
		41	20	722	55			0.9		30	
		42	20	742	55			1.0		30	
		43	20	762	55			1.1		30	
		44	20	782	55			1.1		30	
18	69	45	20	802	55			1.1		30	
		46	20	822	55			1.3		30	
		47	20	842	55			1.3		30	
		48	20	862	55			1.3		30	
		49	20	882	55			1.4		30	
20	117	50	20	902	55			1.0		30	
		51	20	922	55			0.7		30	
		52	20	942	55			0.3		30	
		53	20	962	55			0.3		30	
		54	20	982	55					30	
22	180	55	20	1002	55					30	
		56	20	1022	55					30	
		57	20	1042	55					30	
		58	20	1062	55					30	
		59	20	1082	55					30	
		60	20	1102	55					30	

Transfer fry from **Gemma Micro 300** to **Gemma Wean 0.3**.

See **Gemma Wean** and **Gemma PG** technical cards for continuing feed table, or contact your local Skretting Service Centre.

FEED REGIME FOR SEA BREAM

This suggested feed regime should be adapted to local conditions and blended with house rearing protocol.

Contact your local Skretting Service Centre for further technical assistance with sea bream rearing, and for more information about the **SPECTRUM** range of hatchery products.

TL (mm)	WT (mg)	Age (dph)	Temp (C)	Degree Days	Flow (l/min) per 10m ³	Algae	Rotifers million/10m ³	Artemia million/10m ³	GM75 kg/10m ³	GM150 kg/10m ³	GM300 kg/10m ³	volume m ³	
3.5	0.05	1	18	18	3.5	standard method						10	FISH DENSITY AT 100,000/m ³ or 1.0 million/10m ³
		2	18	36	3.5	standard method						10	
		3	18	54	3.5	standard method	60					10	
		4	18	72	7	standard method	60					10	
		5	19	91	7	standard method	80					10	
		6	19	110	7	standard method	80					10	
4	1	7	19	129	7	standard method	100					10	
		8	19	148	10	standard method	0					10	
		9	19	167	10	standard method	100					10	
		10	19	186	10	standard method	140		0.06			10	BEGIN SKRETTING COFEED/WEANING PROGRAM (see back page)
		11	19	205	10	standard method	140		0.06			10	COFEED with GM 1hr and 0.5hr prior to rotifer feeding
		12	19	224	20	standard method	160		0.06			10	COFEED
		13	19	243	20	standard method	160		0.12			10	COFEED
		14	19	262	20	standard method	180	5 (sm. naup.)	0.12			10	COFEED
		15	19	281	20	standard method	220	10 (sm. naup.)	0.12			10	COFEED: feed rotifers first then Artemia during transition
		16	19	300	20	standard method	220	20 (sm. naup.)	0.09	0.09		10	COFEED
		17	19	319	27		150	50 (sm. naup.)	0.09	0.09		10	COFEED
		18	19	338	27		50	40 (sm. naup.)	0.12	0.12		10	STAGE 1
		19	19	357	27		0	40 (sm. naup.)	0.12	0.12		10	STAGE 1
6	2.5	20	19	376	27			40		0.24		10	STAGE 1
		21	19	395	27			40		0.24		10	STAGE 1
		22	19	414	27			30		0.30		10	STAGE 2
		23	19	433	27			30		0.30		10	STAGE 2
		24	19	452	27			30		0.30		10	STAGE 2
7	4.3	25	20	472	27			30		0.35		10	STAGE 2
		26	20	492	27			20		0.35		10	STAGE 3
		27	20	512	40			20		0.35		10	STAGE 3
		28	20	532	40			20		0.50		10	STAGE 3
		29	20	552	40			20		0.50		10	STAGE 3
8	7.1	30	21	573	40			10		0.50		10	STAGE 4
		31	21	594	40			10		0.65		10	STAGE 4
		32	21	615	40			10		0.65		10	STAGE 4
		33	21	636	40			10		0.35	0.4	10	STAGE 4
		34	21	657	40			0		0.35	0.4	10	POST-WEANING
9.2	11.7	35	21	678	40					0.30	0.5	10	POST-WEANING
		36	21	699	40						0.8	10	POST-WEANING
		37	21	720	40						0.8	10	
		38	21	741	40						0.9	10	
		39	21	762	40						0.9	10	
10.5	19.2	40	21	783	40						1.0	10	
		41	21	804	40						1.0	10	
		42	21	825	40						1.2	10	
		43	21	846	40						1.2	10	
		44	21	867	40						1.4	10	
12	31	45	21	888	40						1.4	10	
		46	21	909	40						1.5	10	
		47	21	930	40						1.5	10	
		48	21	951	40						1.8	10	
		49	21	972	40						1.8	10	
14	49	50	21	993	40						1.0	10	
		51	21	1014	55						1.0	10	
		52	21	1035	55						1.1	10	
		53	21	1056	55							10	
		54	21	1077	55							10	
16.5	90	55	21	1098	55							10	
		56	21	1119	55							10	
		57	21	1140	55							10	
		58	21	1161	55							10	
		59	21	1182	55							10	
19	150	60	21	1203	55							20	FRY TRANSFER (ADJUST DENSITY to 15,000/m ³)

Transfer fry from **Gemma Micro 300** to **Gemma Wean 0.3**.

See **Gemma Wean** and **Gemma PG** technical cards for continuing feed table, or contact your local Skretting Service Centre.


COFEED & WEAN PROGRAM

Use this suggested weaning program along with the **Gemma Micro** feed regimes for sea bass and sea bream.

The program can be adapted to local conditions (hand feed, autofeeders), and work schedule. However, caution should be exercised not to overfeed the tank. Overfeeding is reduced by distributing dry diet only when *Artemia* density is lowest in the tank, thus increasing the probability of investigation and acceptance by the fry.

For further explanation and assistance please contact your local Skretting Service Centre.

TIME		Co-Feed	STAGE 1	STAGE 2	STAGE 3	STAGE 4	Post-Weaning
0800	0800	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
↓	0830	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
1000	0900	LIVE FEED	ARTEMIA	ARTEMIA	ARTEMIA	feed diet	feed diet
	1000					feed diet	feed diet
1100	1100	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
↓	1130	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
1300	1200	LIVE FEED	feed diet	feed diet	feed diet	feed diet	feed diet
	1300		feed diet	feed diet	feed diet	feed diet	feed diet
1400	1400	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
↓	1430	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
1600	1500	LIVE FEED	ARTEMIA	feed diet	feed diet	feed diet	feed diet
	1600		feed diet	feed diet	feed diet	feed diet	feed diet
●-----CLEAN TANKS-----●							
1700	1700	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
↓	1730	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
1900	1800	LIVE FEED	ARTEMIA	ARTEMIA	feed diet	feed diet	feed diet
	1900		feed diet	feed diet	feed diet	feed diet	feed diet
2000	2000	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
↓	2030	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
2400	2100	LIVE FEED	ARTEMIA	ARTEMIA	ARTEMIA	ARTEMIA	feed diet
	2200						feed diet
	2300						feed diet
	2400						feed diet
0100	0100						feed diet
↓	0200	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
	0300	feed diet	feed diet	feed diet	feed diet	feed diet	feed diet
	0400	LIVE FEED	ARTEMIA	ARTEMIA	ARTEMIA	feed diet	feed diet
	0500						feed diet
	0600					feed diet	feed diet
0700	0700						feed diet
# feeds/day		12	13	13	14	15	13

 If natural photoperiod, then this time period can be omitted.

DISTRIBUTE FEED ACROSS ENTIRE WATER SURFACE. AMOUNT ACCORDING TO SKRETTING FEED REGIME.

CO-FEED AT 1HR AND AGAIN AT 30MIN PRIOR TO ARTEMIA FEEDING.

DURATION OF EACH STAGE IS 4 DAYS. PROGRESS FROM STAGE 1-4.

CLEAN TANKS AT THE END OF EACH DAY.