



Laxa Fishfeed Ltd

Future raw material for fishfeed.

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ЦАХА́ FISКА FÓÐU • síðan 1991.

Laxa Fishfeed Ltd

- Production since 1987 (Istess)
- Former Skretting factory
- Laxá established 1991
- Production and sales of fish feed
- Domestic market in Iceland









Laxa Fishfeed Ltd

- Factory old but much renovated
- Product capacity 20.000 tons
- Annual production 11.000 tons
- Employee, 9 person
- Feed for Arctic Char, Salmon, Trout
- Resale's of juvenile feed (<1,5 mm) from Biomar and Skretting.



FISKAFÓÐUR SÍÐAN 1991.

Processing flow chart



Product data sheet and recipe

				Recipe 2145 ECO 9.0						Ras materiais	
			N	Name		Shar	r Min	Max			
			23	29 FISHM Ve	rð Q-3 2014 690/	100 22,275	5				
			1	40 FISH Off.		20,29	6				
FISKAFODUR				30 CORNGLA	MEA1, 60%	20,000	8	20,00			
				7 WHEAT		32,034	10,00	15,00			
ECO			31	02 RAPESEES	DMEAL DK	3.0,008	2	00,01			
Vaxtarfóður fvrir tax og aðra laxfiska, sem er sérsniðið		380 RAPESEEXIL 6,000 6,90									
að næringæbörfum og hentar til gjafar allt árið.				150 Shrimpinea	al 42,6%	5,000	2	5,00			
an men Suisering is taken in Suise and Suid				98 SOYA 47/3	5 Brasil	1,86,	1.15	20,00			
			21	40 Lana Fish p	prumix 2006	1,000	00.1 0	1,00			
túsian	Material (othis manual)		21	06 AQUASTA	ADM 1,5%	0,333					
ECO and extractioners to be their line must 32% (b)		19 MONOCA	PHOSPHATE	0,295	2						
ECO Mar isoberus teste hitt blutfall af fakerisla		50 Rovimix St	tay C 35%					 			
og lýsi som tryggir góðan vöxt og holdgæði	regiuntia, solamid, pekiun	regiugia, solarnol, raekiumiól,				100.000)				
	tivetigluten, vitamin, steinefni og Panaferd nåttinulent ifarefni			Recipe 2145 ECO 9,0						Natrienia	
	Contraction Contraction of Contract		N ⁴	Name	Units	Complement	Value	Min	Max		
			2	9 DEfah	MJ	21,365	21,365				
				1 Crude protein	n a/ks	350,000	350,000	350,000			
Efnainnihald (%)	Stærð	mm		 Crude fat 	a/ka	320,000	330,000	320,000			
	6,0	9,0		1 Starch	g/kg:	111.530	111,530	80,000	180,000		
Protein	38	35	6	5 Crude ash	E/kg	68,697	68,697		150.000		
Fita	32	32	6	6 Crade films	E/Ag	17,071	17,071				
Kolvetni	16	20	7	6 NP2	10/km	178,719	178,713				
Aska	7	6		0 Calcium	p/kg	11,225	11,225				
Purrefni	93	93		3 Pheapher	a/kg	16,150	8,150				
Panaferd, mg/kg	60	50	10	5 Lysine	ş/kg	22 225	22,225	17,100			
Meltanleg orkii, MJ/kg	21,3	20	0	0 Methionine	5%6	1.776	8,776	6,400			
Brüttöorka, MJ/kg	23,9	23.5	- 11	5 Cystine	5'kg	5,067	5,067	2.300			
			12	5 Threenine	5%E	1.1,007	13,007	9,400			
			13	0 Tryptophase	8¥8	3,037	3,057	2,100			
and the second se			13	5 Isokucine	2%2	13,957	13,957	8,900			
Vitamin I kg föðurs			10	Arginin .	p%g	\$10,018	16,018	12,300			
	6,0	9,0	.14	I Valine	282	37,124	17,124	11,100			
Vitamin A IU	2500	2500	14	7 Histidin	848	7,797	7,797	5,200			
Vitamin C3 IU	1500	1500	13	1 Phenylalania	874	16,413	16,413	-8,000			
Vitamin C mg/kg	100	100	16	0 Leucine	543	35,222	35,222	(4,600			
Vitamin E mg/kg	110	110	16	2 Tyrosine	s/kg	13,603	13,603	6,800			
			\$7	0 Vit A	NE/M	2409,975	2499,975	2000,000			
			17	Va Di	111/g	1499,983	1499,985				
Eddama			17	Z VILE	mickig	109,602	109,602				
Foonan	60	9.0	17	F Vit K	mit/km	6,490	6,890				
Lavor	400.1100	10000	12	4 Vit B1	mg/kg	7,149	7,149				
Shuppur di	500-1200	12004	17	5 Vit B2	mpika	17,561	17.561				
Such that the	500-1200	1200-	17	5 V#B3	marka	44,551	44,553				
			17	7 Vit 86	mg/kg	17,442	17,442				
			17	F Vil.B12	HØ/KB	115,784	135,784				
Dagleg föðurhörf sem prósenta af lifmassa	6.0	9.0	17	F Niacine	mgileg	60,934	60,974				
1 ax	400-1100	1100+	18	7 FelicAcid	ing kg	3.175	3,175				
3.0	0.4	0.3	18	Biotan	110/4.0	447,146	447,146				
6°C	0.5	0.4	18	2 Cholinu	maika	2061,847	2061,846				
9/C	0.0	0.6	18	Vec	maka	100/000	100,000	100.000			
12'C	13	1.0	19	Fe	maNa	75,394	55,394				
	114		10	5 Co .	maNa	7,081	7.061				
			19	7. Z.o.	make	247,624	247,624	118,700			
			19	8 Mail	maka	14,727	14:727				
			19	F. 1.	maka	3,000	3,000				
			20	5 E9	maka	10,100	0,700				
			20	Se	mg/kg	0,730	0.730				
			34	P DryMatter	g/kg	1028,405	928,405	906,000	950,000		
			.35	Attexandum	mg/kg	50,000	\$0,000	50,000			
			35	FM printing	s/kg	175,000	175,000	175,000			
		II A 1000 5	35	F dig proi	8/4.8	156,436	155,436				
			34	5 OE	141	19,380	19,500				
Contract and a set of the second set of the second			÷ 11	Av Ph Fish	a/ka	8,990	3.990	3,990			
12200 Java Mara In Arossanesi - toa Astrayn	V -	EISKAEODI	P 10	BLOW	e'ke	41.237	47.227				

FISKAFÓÐUR

• SÍÐAN 1991 •

Fóðurverksmiðjan Laxá hf. - Krossanesi s. 460 7200 - laxagelaxa.is - www.laxa.is

Percent of each Raw Material in Fishfeed

Raw material supply

- Fish meal and fish oil is purchased domestic and fished within FAO 027 fishing area in N-Atlantic.
- Wheat and WheatGlutenMeal from EU.
- Rapeseed meal and oil from Denmark.
- Hipro Soy and SPC from Brazil/Argentina.
- CGM from China.
- Vitamins/minerals is premixed from Netherland.
- Natural colorants are Panaferd from NOI in Japan and synthetic from BASF in Germany.
- "New" plant meals are like PeaBeanMeal and GuarMeal,
- Laxa can guarantee traceability from fish farm to fishing area for all fish based materials.
- Laxa only use GMO free and GMP certified plant meal and can supply certificates for all plant based material.

RM difference between countries

Unique fishfeed

- Laxa can guarantee traceability from fish farm to fishing area for all fish based materials.
- Laxa are Global GAP certified.
- Laxa only use natural ingredients in ECO feed.
- Laxa only use GMO free plant meal.
- Laxa only use GMP+ certified plant meal.
- All raw material are certified as Responsible sourcing.
- Laxa don't use avian and mammalian raw materials.
- Laxa have low carbon footprint due clean energy and low inclusion of plant meal.
- Over 50% of raw materials are domestic and marine origin.
- Stable and good quality through the years.

- The best possible raw material for fishfeed are fishmeal and fishoil.
 - It is both best in nutrition and in production.
 - Concern about sustainability and future availability.
- Possible raw material to replace marine sources has to:
 - Give same or better nutritional effect.
 - Give same or better technical effect in production.
 - > Be in big volume.
 - Be priced reasonable .
 - > Be possible to grow domestic or in western part of Europe.
 - > Have minimal effect on food production for humans.
 - > Have low undesirable content like toxins.
 - > Have low carbon footprints.

GMO plant meal

> Higher protein content, increased EPA/DHA fatty acid and decrease anti nutritional substance.

> Krill

> Dispute about environment and cost of getting big volume from lower part of food chain.

Micro Algae

Interesting with lot of good effect in nutrition but still expensive and limited volume.

Macro Algae

> Low in protein and high in undesirable substance that are expensive to reduce in process.

Bakteríur – Yeast Bacteria

> Expensive and low volume

Sveppir – Fungus

Expensive and low volume

- Insects Meal
 - > Many species used but mainly Black Soilder Fly (BSF).
 - > To feed the insects are used waste from vegetables/fruit, fish guts and Macro Algae.
 - > Environment friendly and good to utilize food waste from humans.
 - > Undesirable substance possible and pathogenic bacteria.
 - > Nutritionally very interesting raw material and natural for salmonids species.
 - > Limited inclusion in recipe due to Chitin.
 - > Will most likely be in limited volume and expensive. Used in advertising purpose.

- SylPro SCP Meal
 - > Possible to use either fungus or bacteria to produce Single Cell Protein.
 - > To grow bacteria there is possibility to use waste from forest industry.
 - Wood waste are grinded, heat and chemical treated to get Lignin and Cellulose, enzyme used to break it down to monosugars, use of bacteria (yeast) to transform the monosugars over to protein and finally the mass dryed and grinded to powder..
 - Interesting raw material for fishfeed.
 - Have better effect in fishfeed than plant meal
 - High in protein like plant meal.
 - > Reasonable pricing possible.
 - > Possible to produce in Scandinavia.
 - > Environment friendly use of waste.
 - > Sustainable sources.
 - Low carbon footprint.

Wood could be the next sustainable way to feed fish

SylFeed project – SylPro the future raw material for fishfeed

ARBIOM PRODUCT ~ TECHNOLOGY PARTNERS ABOUT ~ MEDIA CONTACT Arbiom is pioneering the Wood-to-Food **Evolution of Food with Process** technology that redefines the use of wood and the future of food. **Forestry Material Highly Fermentable Protein-rich SylPro® Substrates Microorganisms** iΠ Forested land area Abundant Strong, Existing Does not & Available Industrial is increasing in EU, compete with Feedstock **Supply Chains US and China** food crops

Takk fyrir mig.

