

GenoSysFat NRC Project Feed Production

22.04.15 start-up meeting

- EWOS Innovation is fish feed provider for WP2 feeding trial.
- Evaluate if low EPA/DHA in feed at early stages can increase EPA/DHA retention (synthesis) in seawater (epigenetic mechanism).
- LNO/PO oil mix to provide 18:3n-3 precursor and match saturation of 100% FO control diet at ca. 0.7% EPA+DHA of diet to stimulate EPA/DHA synthesis.
- Two feed productions for ca. 0.2 to 5g fish and for ca. 5 to 500g for salmon trials at NIVA Solbergstrand and Aquagen (only LNO/PO diet to transfer).

FO=fish oil
LNO=linseed oil
PO=palm oil

GenoSysFat LNO/PO feed production and shipment for Aquagen trial



Feed no.	Code	Initial fish weight (g)	Feed size (mm)	Fish number	Feed (kg)
90013165	LNO/PO FW 015	0.2	0.6	3000	1.1
90013167	LNO/PO FW 040	0.4	0.9	3000	2.7
90013169	LNO/PO FW 1	1	1.3	3000	18.0
90013418	LNO/PO FW 5	5	1.7	3000	39.0
90013420	LNO/PO FW 15	15	2.2	3000	58.5
90013422	LNO/PO FW 30	30	2.8	2000	52.0
90013424	LNO/PO FW 50	50	3.5	2000	90.0
Seawater transfer		80			
Final weight		80			

Abbreviations: FO=fish oil; LNO=linseed oil; PO=palm oil; FW=freshwater; SW=seawater

GenoSysFat LNO/PO feed production and shipment for NIVA Solbergstrand trial



Feed no.	Code	Initial fish weight (g)	Size (mm)	Fish number	Feed (kg)
90013165	LNO/PO FW 015	0.2	0.6	1500	0.6
90013167	LNO/PO FW 040	0.4	0.9	1500	1.4
90013169	LNO/PO FW 1	1	1.3	1500	9.0
90013418	LNO/PO FW 5	5	1.7	1500	19.5
90013420	LNO/PO FW 15	15	2.2	1500	29.3
90013422	LNO/PO FW 30	30	2.8	600	15.6
90013424	LNO/PO FW 50	50	3.5	600	27.0
<i>Seawater transfer</i>		<i>80</i>			
90013426	LNO/PO SW 50	80	3.5	600	108.0
90013428	LNO/PO SW 200	200	4.9	600	234.0
<i>Final weight</i>		<i>500</i>			

Abbreviations: FO=fish oil; LNO=linseed oil; PO=palm oil; FW=freshwater; SW=seawater

GenoSysFat FO feed production and shipment for NIVA Solbergstrand trial



Feed no.	Code	Initial fish weight (g)	Size (mm)	Fish number	Feed (kg)
90013164	FO FW 015	0.2	0.6	1500	0.6
90013166	FO FW 040	0.4	0.9	1500	1.4
90013168	FO FW 15	1	1.3	1500	9.0
90013417	FO FW 5	5	1.7	1500	19.5
90013419	FO FW 15	15	2.2	1500	29.3
90013421	FO FW 30	30	2.8	600	15.6
90013423	FO FW 50	50	3.5	600	27.0
<i>Seawater transfer</i>		80			
90013425	FO SW 50	80	3.5	600	108.0
90013427	FO SW 200	200	4.9	600	234.0
<i>Final weight</i>		500			

Abbreviations: FO=fish oil; LNO=linseed oil; PO=palm oil; FW=freshwater; SW=seawater

GenoSysFat feeds 1st production:

formulation, formulated composition and shipment



Feed number	90013164	90013165	90013166	90013167	90013168	90013169
Feed name	FO FW 015	LNO/PO FW 015	FO FW 040	LNO/PO FW 040	FO FW 1	LNO/PO FW 1
Feed size (mm)	0.6	0.6	0.9	0.9	1.3	1.3
North Atlantic fishmeal	40.9	40.9	40.0	40.0	40.0	40.0
Plant meals	45.9	45.9	44.8	44.8	44.8	44.8
Additives	3.3	3.3	3.2	3.2	3.2	3.2
North Atlantic fish oil	9.9	0.0	11.9	0.0	11.9	0.0
Linseed oil	0.0	6.8	0.0	8.1	0.0	8.1
Palm oil	0.0	3.2	0.0	3.8	0.0	3.8
Protein (%)	56	56	55	55	55	55
Fat (%)	16	16	18	18	18	18
Saturated (% total FA)	24	24	24	24	24	24
EPA+DHA (% diet)	2.2	0.7	2.4	0.7	2.4	0.7

Abbreviations: FO=fish oil; LNO=linseed oil; PO=palm oil; FW=freshwater; SW=seawater

GenoSysFat feeds 2nd production (a): formulation, formulated composition and shipment



Feed number	90013417	90013418	90013419	90013420	90013421	90013422
Feed name	FO FW 5	LNO/PO FW 5	FO FW 15	LNO/PO FW 15	FO FW 30	LNO/PO FW 30
Feed size (mm)	1.7	1.7	2.2	2.2	2.8	2.8
North Atlantic fishmeal	40.0	40.0	40.1	40.1	30.0	30.0
Plant meals	41.5	41.5	40.3	40.3	49.3	49.3
Additives	3.5	3.5	3.3	3.3	3.4	3.4
North Atlantic fish oil	15.1	0.0	16.3	0.0	17.3	1.2
Linseed oil	0.0	9.7	0.0	10.5	0.0	10.3
Palm oil	0.0	5.4	0.0	5.9	0.0	5.8
Protein (%)	51	51	49	49	47	47
Fat (%)	21	21	22	22	22	22
Saturated (% total FA)	24	24	24	24	24	24
EPA+DHA (% diet)	2.9	0.7	3.1	0.7	3.1	0.7

Abbreviations: FO=fish oil; LNO=linseed oil; PO=palm oil; FW=freshwater; SW=seawater

GenoSysFat feeds 2nd production (b): formulation, formulated composition and shipment



Feed number	90013423	90013424	90013425	90013426	90013427	90013428
Feed name	FO FW 50	LNO/PO FW 50	FO SW 50	LNO/PO SW 50	FO SW 200	LNO/PO SW 200
Feed size (mm)	3.5	3.5	3.5	3.5	4.9	4.9
North Atlantic fishmeal	30.1	30.1	35.2	35.2	25.0	25.0
Plant meals	48.4	48.4	39.4	39.4	45.9	45.9
Additives	3.9	3.9	2.6	2.6	3.3	3.3
North Atlantic fish oil	17.6	1.2	22.8	0.6	25.8	1.8
Linseed oil	0.0	10.5	0.0	14.2	0.0	15.4
Palm oil	0.0	5.9	0.0	8.0	0.0	8.6
Protein (%)	47	47	44	44	41	41
Fat (%)	22	22	28	28	31	31
Saturated (% total FA)	24	24	24	24	24	24
EPA+DHA (% diet)	3.1	0.7	4.0	0.7	4.2	0.7

Abbreviations: FO=fish oil; LNO=linseed oil; PO=palm oil; FW=freshwater; SW=seawater