



Lipofish trial 2007




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A Cargill Company

 **provimi**
shaping tomorrow's nutrition

Introduction

Wrap-up



-  **Effects of PUFA on coronary diseases**
-  **Effects of CLA on cancer risk**
-  **Effects of omega-3 on brain development**
(however some discussion: Br. J. Nutr. 96:7 and 97:1021)

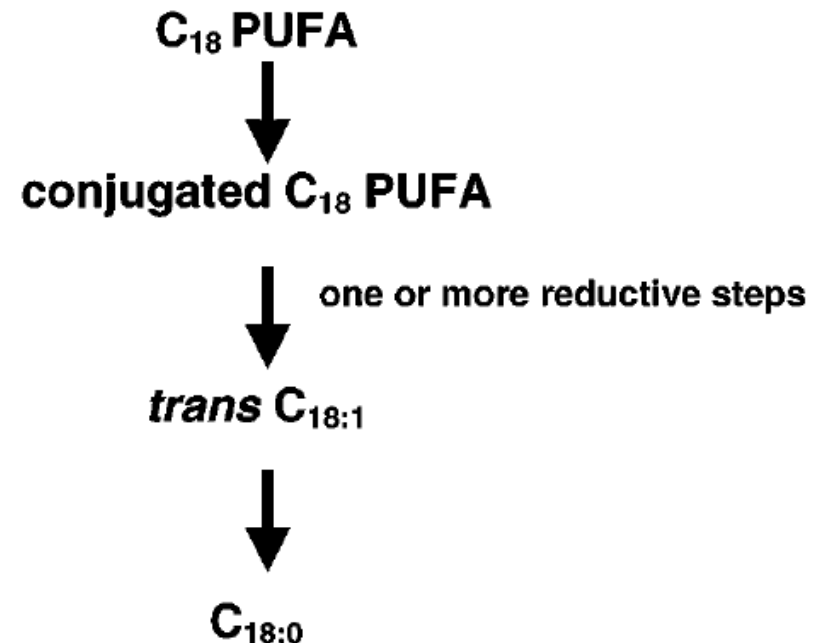
AND

- **Effects of all of these on milk prices/feed industry...**

Introduction

Wrap-up

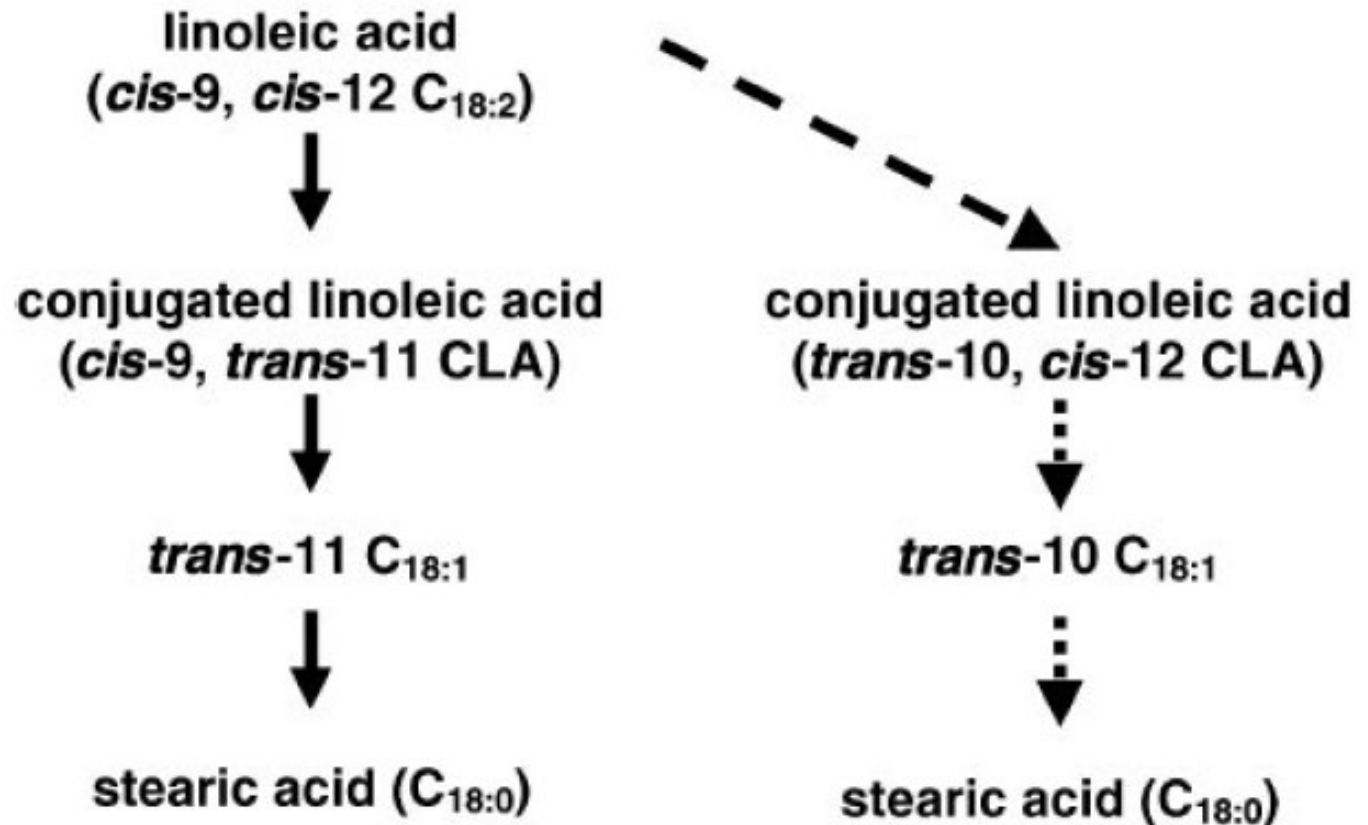
-  In rumen biohydrogenation (saturation) -> complete if time was unlimited
-  In tissues desaturation (determines biggest part of CLA in milk)



Introduction

Wrap-up

Example



Introduction

Wrap-up

 **Good and bad ones:**

 **'Good'**

 CLA (mainly c9t11 and t10c12)

 EPA/DHA (omega 3)

 **'Bad'**

 t10c12, t10 (milk fat depression)

 t11 through DHA/group B bacteria (fat<2%)

Materials & Methods

Dijkstra, farm with 4 AMS, 240 cows

Four groups

- 50 HP (high producing) cows
- 59 LP1 (low producing) cows
- 62 LP2 cows
- 60 Heifers

76 cows changed groups

12 cows/group selected for individual milksampling

Diets

	HP	Others
Grass silage	16.7	20.8
Maize silage	21	16.7
Dried Alfalfa	1.5	0.5
Grass pellets	1.5	2
Extr. Soya	2	2
Maize meal	0.6	
Hypropower	0.15	
Concentrates		

Materials & Methods

Lipofish: 50% Salmon oil on carrier

- High Producing (HP): 600 g Lipofish (523)**
- Heifer group (Vaars): 400 g Lipofish (477)**
- Low Producing 1 (LP1): 400 g Lipofish (399)**
- Low Producing 2 (LP2): 600 g Lipofish (615)**

Materials & Methods

Measurements

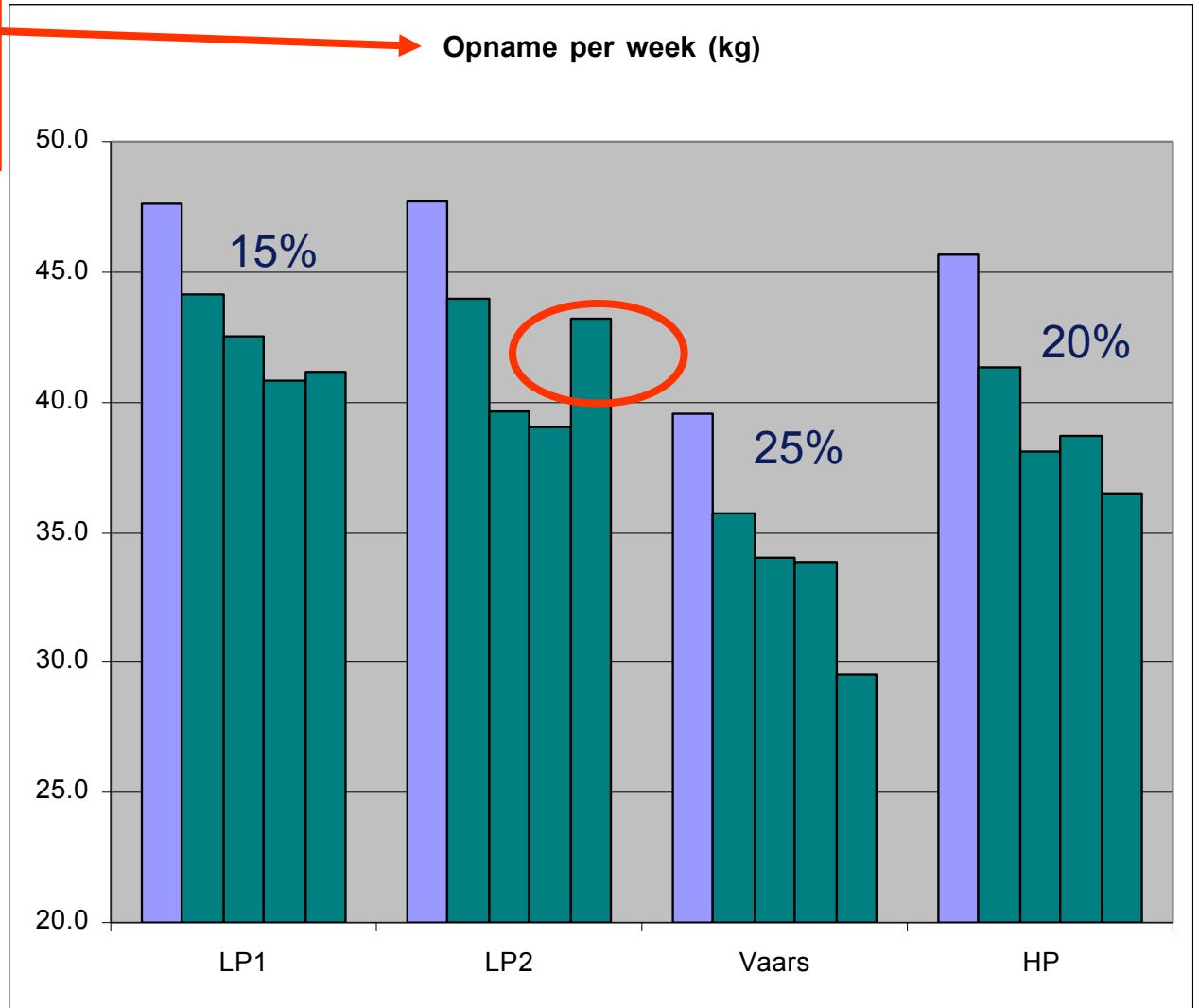
- **Daily feed and Lipofish intake per group**
- **Milk production per cow / day**
- **Milk components at –14d, 7d and 28d**
- **Milk FA pattern of group milk sample and of 4 cows per group at –14d, 7d and 28d**

Results: Lipofish intake

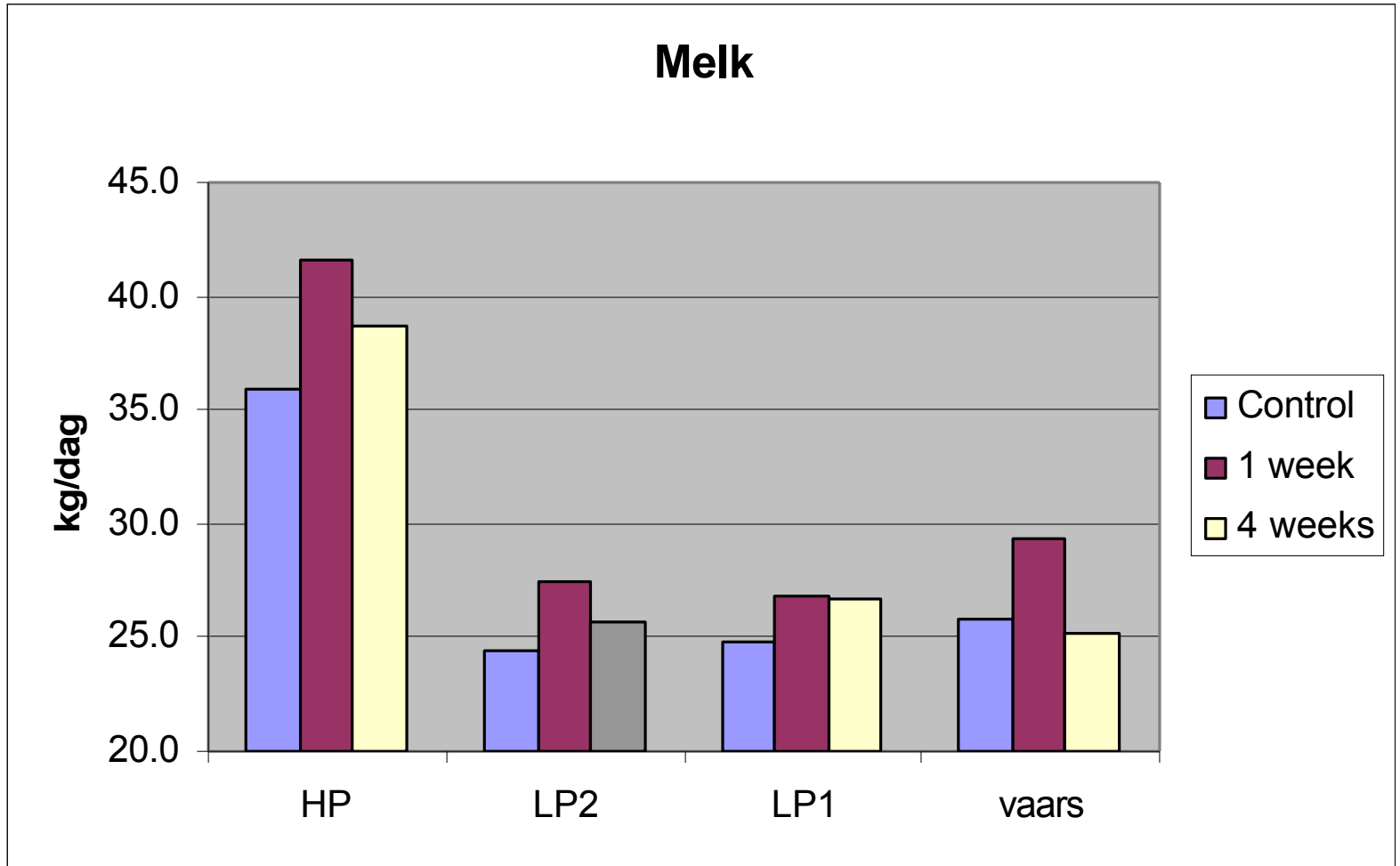
Opname =
Intake (fresh)

Opname per week (kg)

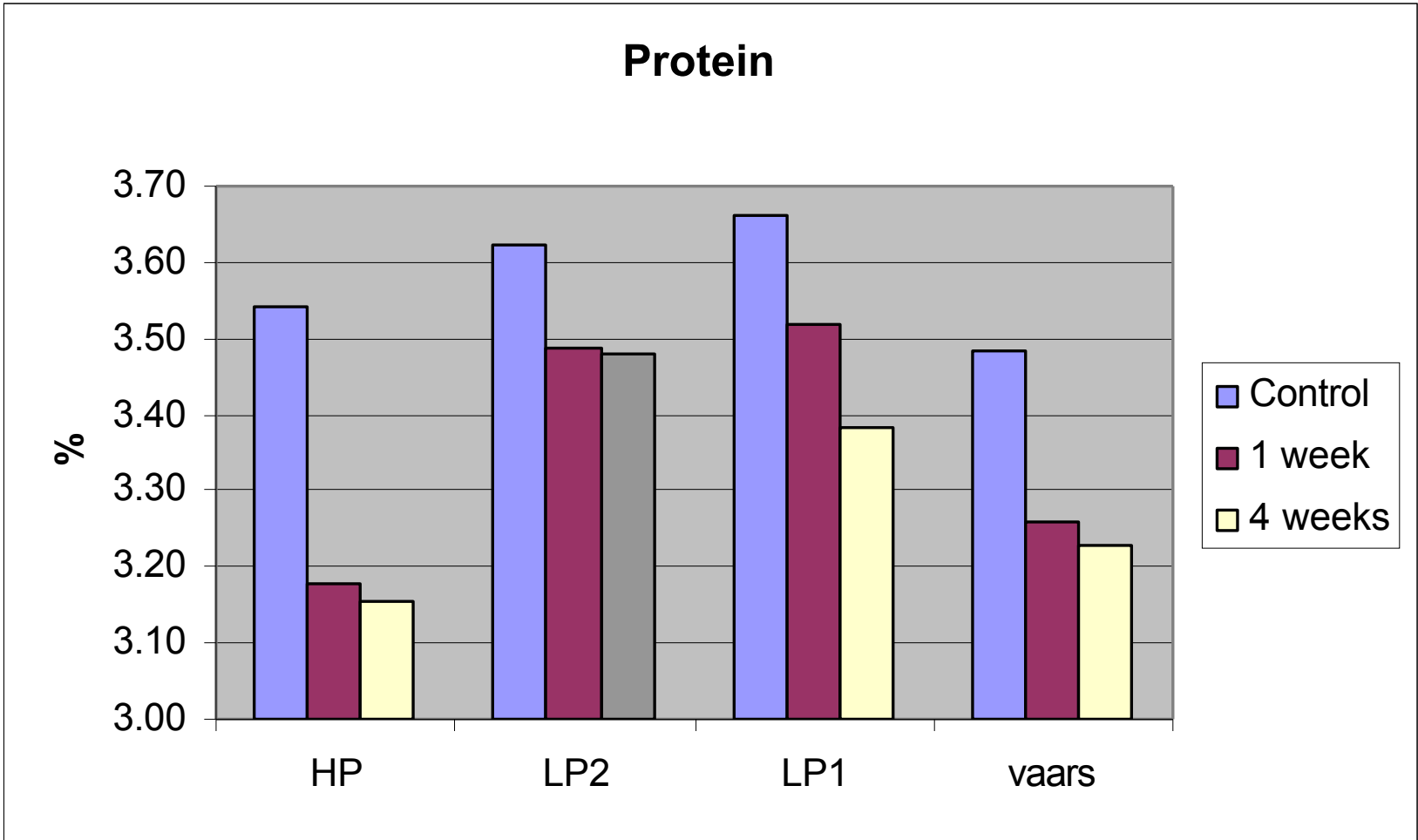
Daily intake ↓



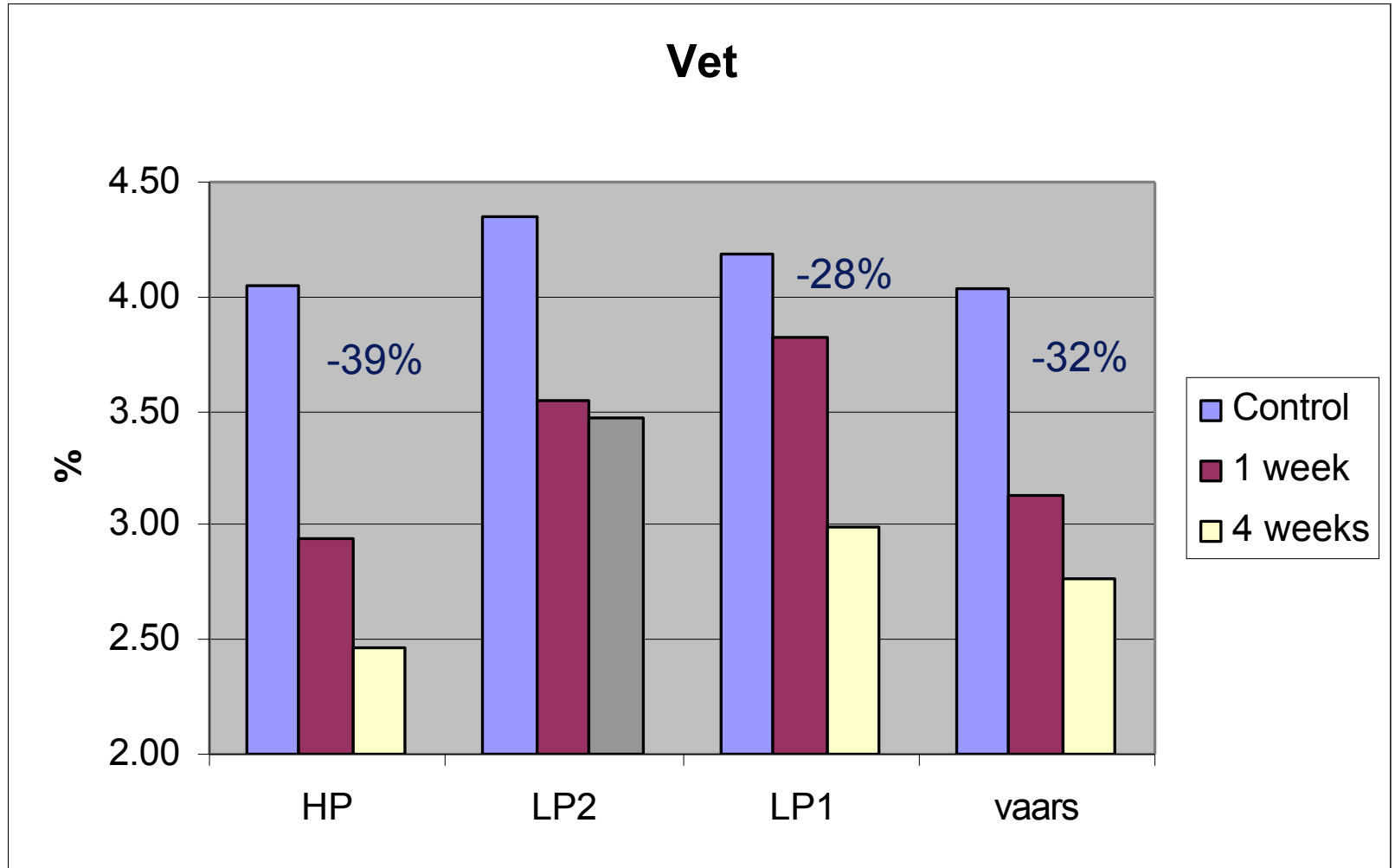
Results: Milk yield



Results: Protein production



Results: Fat production



Should I call Campina?

	Before	At wk 4	Difference
Sat. FA	72%	62%	-16%
Unsat. FA	28%	42%	+41
Omega-3	0.6%	0.9%	+37%
CLA	0.6%	3.0%	+344%

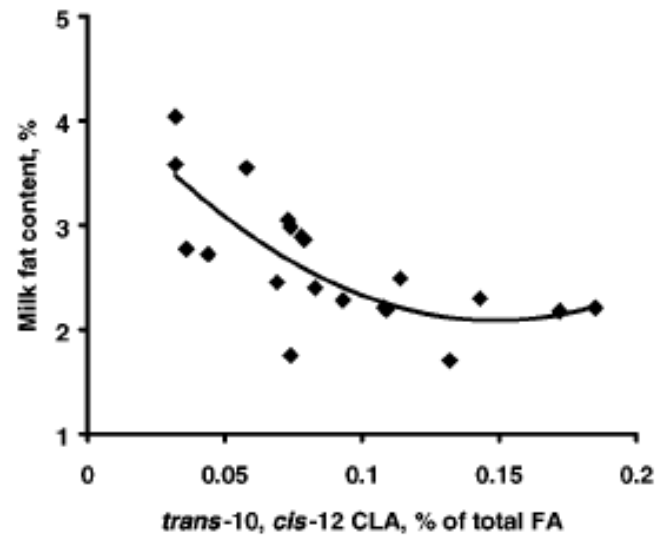
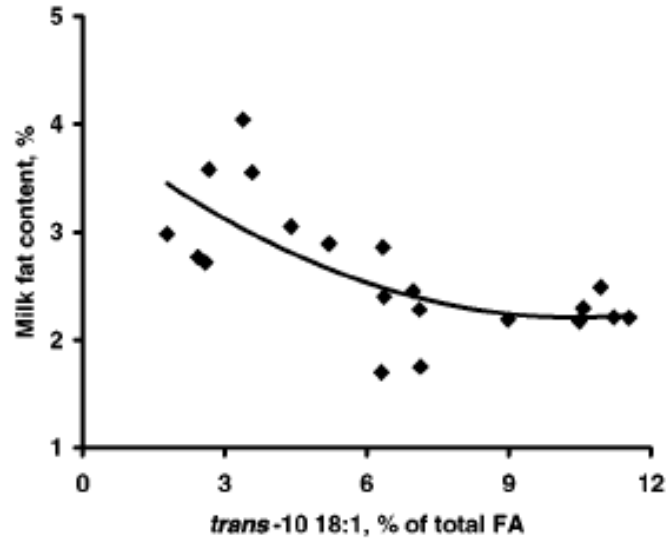
	Before	At wk 4	Difference
ALA	0.51%	0.45%	-11%
EPA	0.05%	0.13%	173%
DPA	0.06%	0.16%	191%
DHA	0.00%	0.10%%

But High Producing...?

	before	At wk 4	Difference
C18:2 t10c12	0.00%	0.10%	...%
C18:1 t10	0.30%	3.51%	1079%
C18:1 t11	1.15%	6.49%	421%

High Producing: 8% C18:1 t10 at week 4!

Milk fat depression



	Fat depression			O-3			CLA	
	C18:2 t10c12	C18:1 t10	C-18:1 t11	EPA	DHA	EPA+DHA	C-18:2 c9t11	C-18:2 t10c12
HP1	0.00	0.34	1.31	0.05	0.00	0.05	0.56	0.00
LP21	0.00	0.26	1.33	0.06	0.00	0.06	0.67	0.00
LP11	0.00	0.28	1.11	0.05	0.00	0.05	0.57	0.00
V1	0.00	0.28	1.33	0.04	0.00	0.04	0.67	0.00
	0.00	0.29	1.27	0.05	0.00	0.05	0.62	0.00
HP2	0.08	5.36	5.19	0.08	0.08	0.16	1.77	0.08
LP22	0.08	0.70	8.75	0.06	0.01	0.07	4.37	0.08
LP12	0.09	1.01	6.12	0.05	0.00	0.05	2.92	0.09
V2	0.07	0.79	6.95	0.04	0.00	0.04	3.09	0.07
	0.08	1.96	6.75	0.06	0.02	0.08	3.04	0.08
HP3	0.11	7.96	4.63	0.24	0.20	0.43	1.46	0.11
LP23	0.01	0.33	3.08	0.08	0.03	0.11	1.69	0.01
LP13	0.11	0.82	7.31	0.08	0.05	0.13	3.98	0.11
V3	0.10	1.74	7.54	0.06	0.05	0.12	3.26	0.10
	0.08	2.71	5.64	0.11	0.08	0.20	2.60	0.08

