

Can Feeding Extruded Flax and Canola Seed Improve Cow Health and Milk and Meat Quality?

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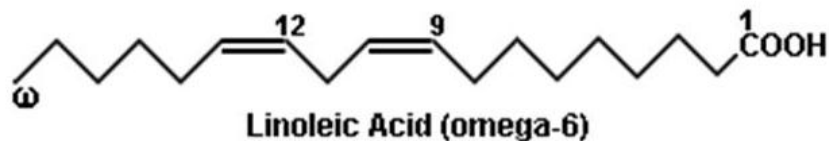
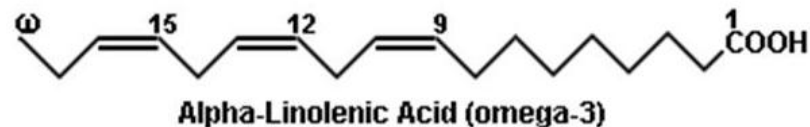
Outline

- Background
- Why producers should be interested in fatty acids
 - Cow reproduction
 - General health
 - Calf growth and development
- Milk and meat trials
- Conclusions



Background

- Fatty acids are the building blocks of fat
- Flax contains high amounts of omega-3 fatty acids
- Canola contains approximately equal amounts of omega-3 and omega-6 fatty acids



Biohydrogenation

- In the rumen, fatty acids are biohydrogenated by the bacteria

Omega-6 \rightarrow *c9,t11* CLA

- CLA has been linked to cancer prevention in humans

Omega-3 Sources

- Fresh grass and green hay forages have higher amounts of omega-3 than silage or old hay



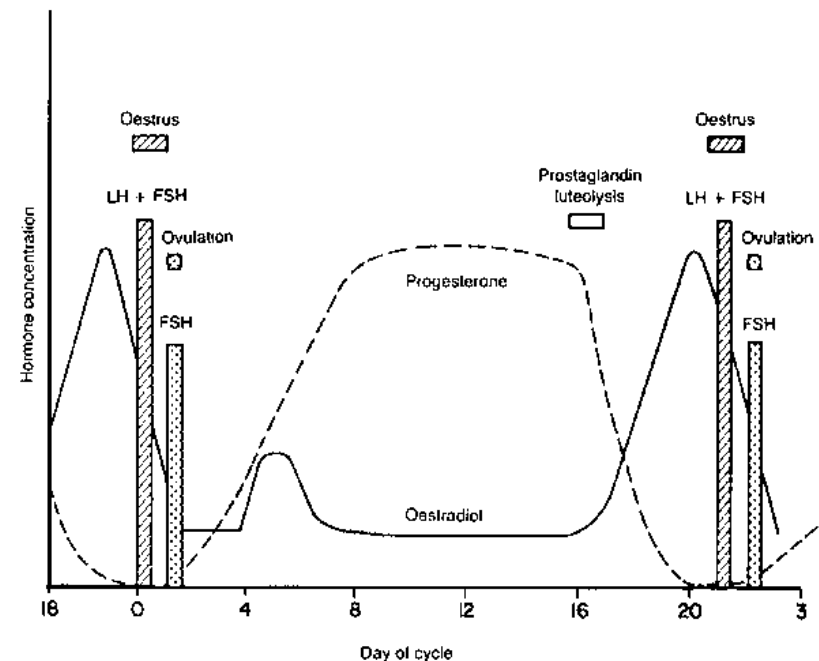
Why should the
Producer care?

Cow Reproduction

- As milk production has increased, conception rates have decreased
- Poor conception rates can be partially counteracted by providing increased dietary fat
- Recent studies suggest specific fatty acids play a role in improving conception rates

Cow Reproduction

- Omega-3 fatty acids have been shown to improve the chance of the cow accepting and keeping the pregnancy
 - Hormone balance



General Herd Health

- Anti-inflammation
 - Mastitis
- Heart problems
 - Heart attacks
- Nervous system
- Bone density
- Hoof health



Calf Growth and Development

- Omega-3 supplemented diets increase average daily gain and feed efficiency
- Mixed results on scouring



Research

- Milk Trial:

- 2 identical trials of 6 cows fed 1.7 kg/head/d LinPro-R for 28 days

LinPro-R: 54% flax seed

- Meat Trial:

- 6 steers were fed 1.8 kg/head/d LinPro-REx for 57 days

LinPro-REx: 36% flax seed, 20% canola seed

Milk Trial Results

	TRIAL 1		TRIAL 2	
	Control	LinPro-R	Control	LinPro-R
Milk yield, kg/d	43.3	43.6	36.4	33.9*
Milk fat, %	3.57	3.36*	3.41	3.73
Omega-3 fatty acids	0.45	0.83*	0.44	0.71*
Omega-6 fatty acids	1.9	2.0*	2.3	1.8
CLA fatty acids	0.30	0.60	0.33	0.49*

* Indicates a significant difference between Control and LinPro-R treated tests.

Meat Trial Results

	Omega-3		Omega-6	
	Control	LinPro-REx	Control	LinPro-REx
Liver	0.71	2.28*	0.15	0.07
Heart	0.56	2.05*	0.00	0.01
Tongue	0.56	0.78*	0.53	0.45
Ribeye	0.25	0.78*	0.01	0.11*
Shoulder	0.36	1.08*	0.01	0.07
Ground Beef	0.36	0.72*	0.28	0.30

* Indicates a significant difference between Control and LinPro-R treated tests.

Conclusions

- Significant increases of omega-3 fatty acids in milk and meat are possible with the use of an extruded flax feed additive
- This benefits the consumer, as well as the cow and calf
- Cow health and reproduction were not looked at in this study, but research shows positive health improvements and increased conception rates

Questions?

