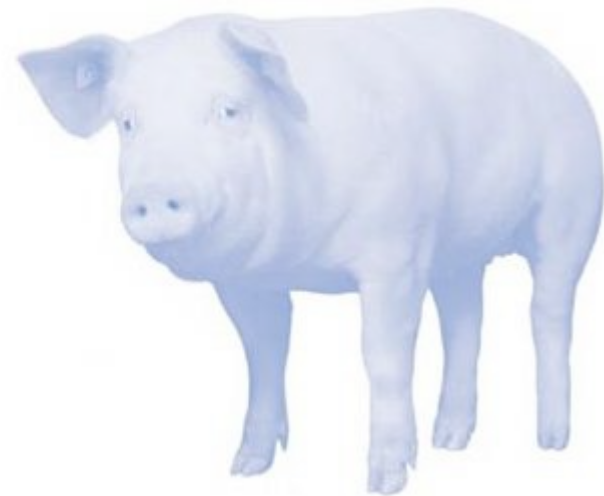
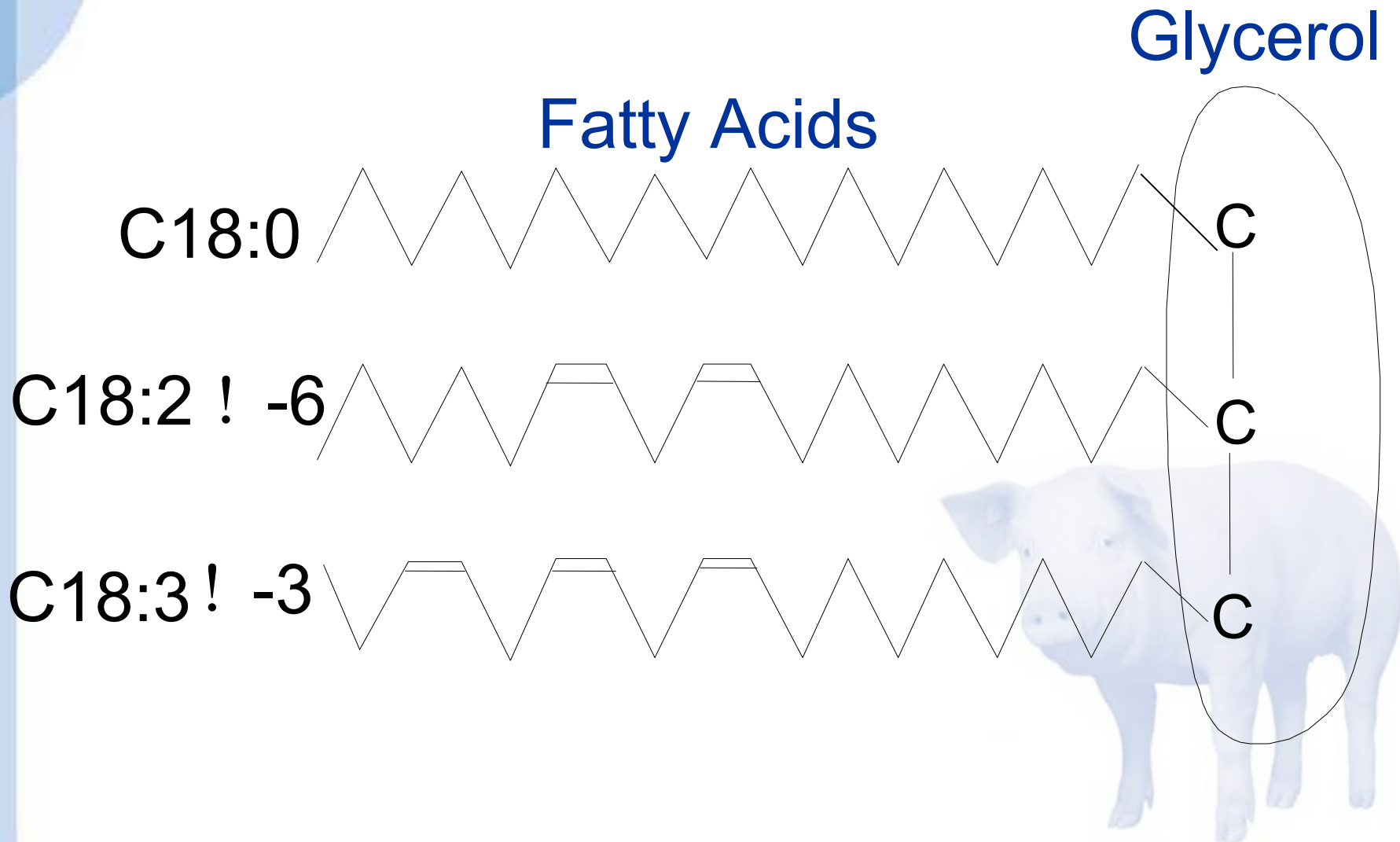


Lipofish 50

Essential source of fatty acids



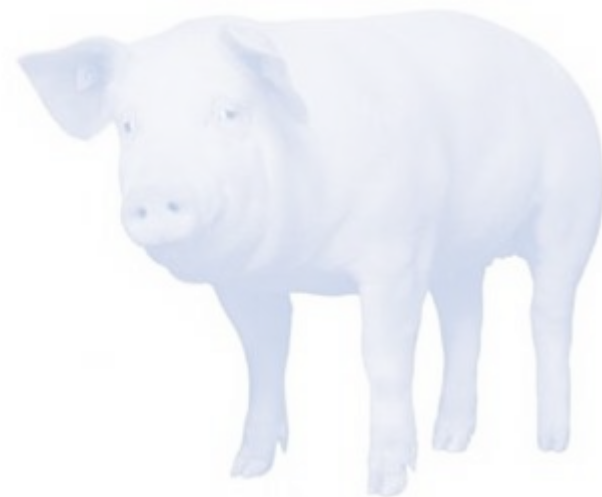
Fat structure





Fatty acid synthesis by animals

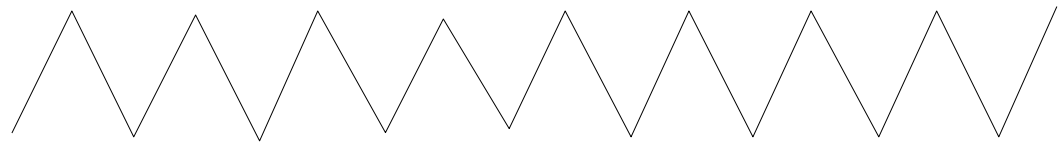
- Autonomous from carbohydrates
- Modification of dietary fatty acids:
 - Extension via enlongase enzymes
 - Desaturate via desaturase enzymes
- Incorporation of volatile fatty acids



Desaturase enzymes

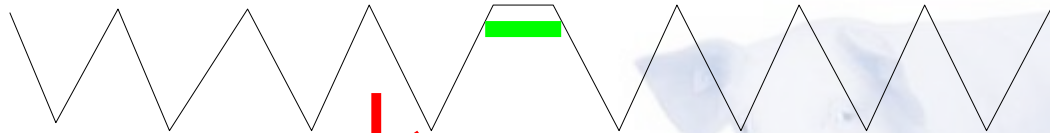
Animals lack desaturase enzymes 12 and 15

C18:0



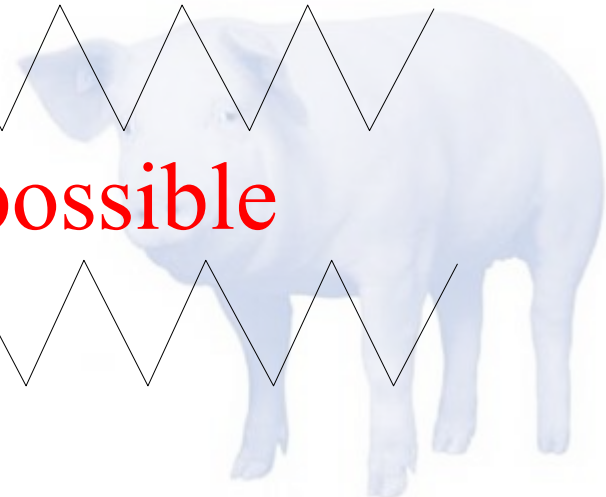
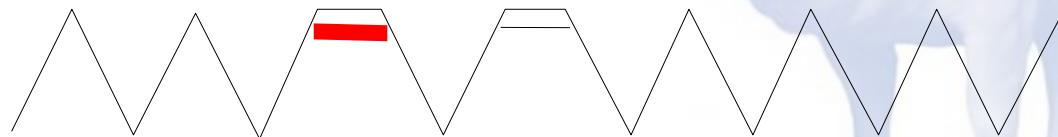
↓ possible

C18:1 ! -9



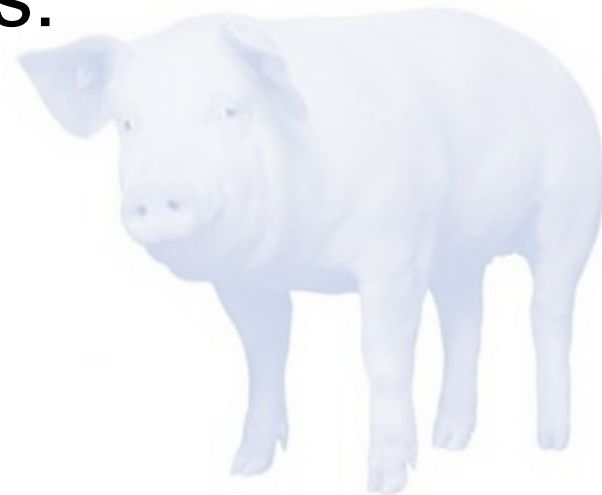
* ↓ impossible

C18:2 ! -6



! -6 and ! -3: essential fatty acids

- ! -6 are **linolic** derivates:
 - Corn (-oil)
 - Soya oil, toasted soybeans
 - Sunflower oil
- ! -3 are **linoleic** derivates:
 - Linseed
 - FISH OIL





Essential fatty acid deficiency

- Impaired growth rate
- Skin problems
- Fertility problems
- Blood problems (clotting and pressure)
- Lower immune response
- Insufficient response to inflammation



Eicosanoids

- Prostaglandins, thromboxans, prostacyclins, leukotrienes
- Regulation of several body processes
- Eicosanoids are ! -6 and ! -3 derivatives
- ! -6 derivatives (C20:4)
 - fierce immune- / inflammation response
 - vasoconstriction and blood clotting
- ! ! -3 derivatives (C20:5 and C22:6)
 - moderate response
 - vasodilatation and anti-clotting

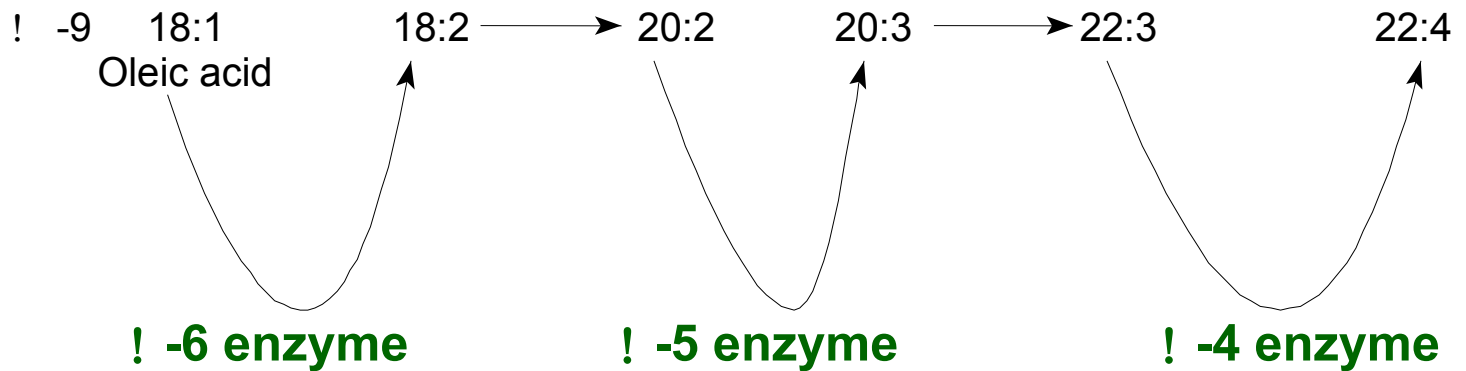


**Animals need in addition to
! -6 fatty acids ! -3 fatty acids
as well to balance the effects of
C20:4 (arachidonic acid)
with
C20:5 (EPA) en C22:6 (DHA)**

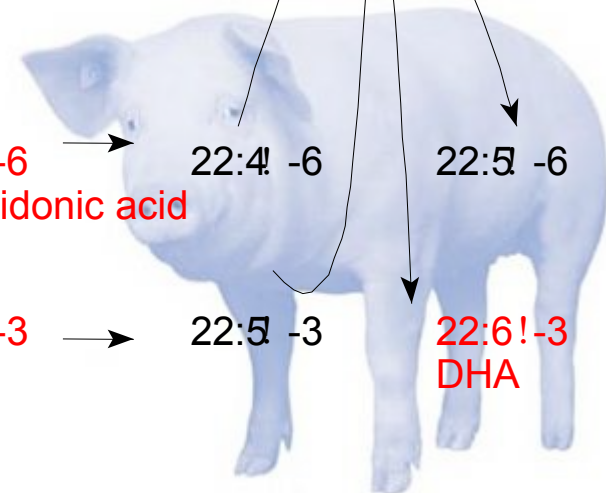
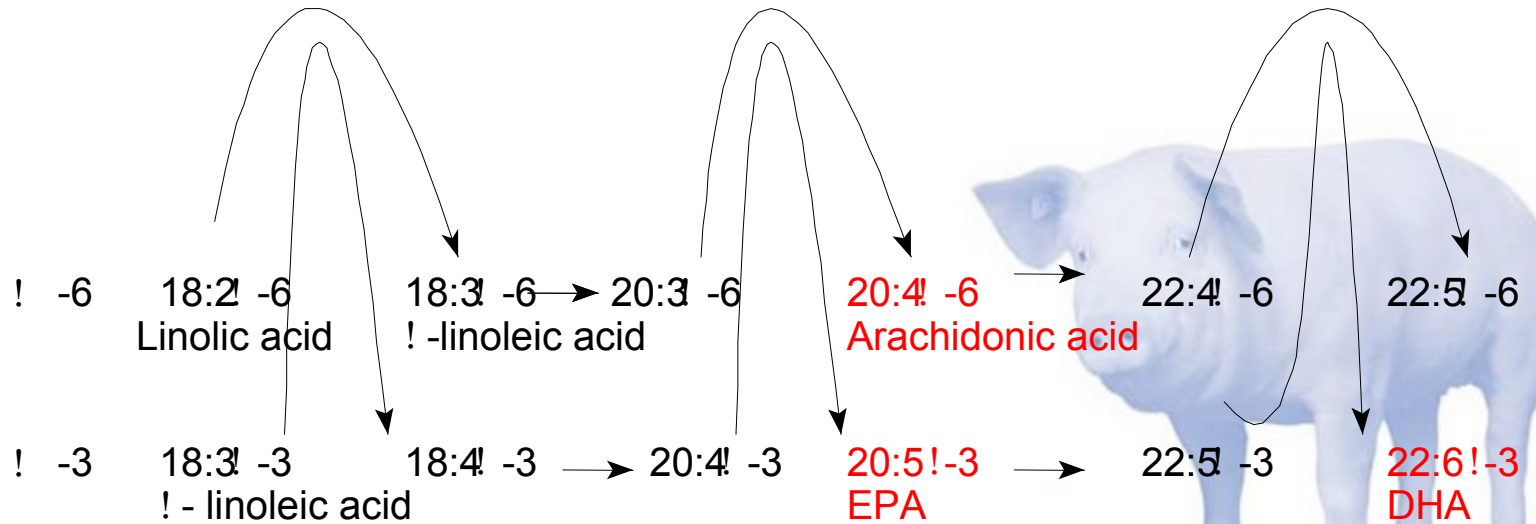


Fatty acid metabolism

Via dietary or autonomous synthesis



ONLY dietary





Lipofish 50

**To ensure sufficient
EPA and DHA
incorporation of total requirement
into feed is necessary:**

Possible via fish oil or
fish meal (contains 10% oil)

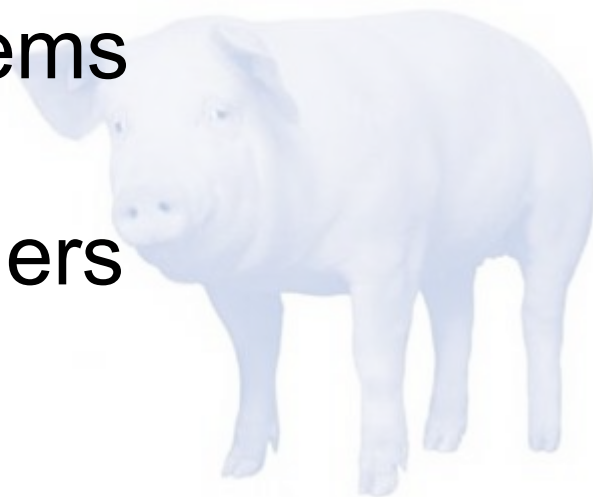
**Lipofish 50 contains 50% salmon oil
on a carrier**





Positive effects ! -3 fatty acids

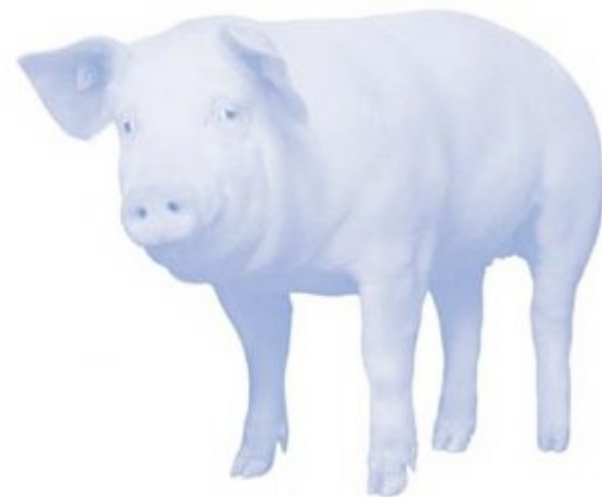
- Less infections
- Improved growth and feed efficiency
- Improved embryonic development and therefore birth weight
- Improved uterus contractions
- Positive for bone mineralisation
- Less skin- and claw problems
- Improved fertility
- Improved immunity in broilers
- Tranquilizing





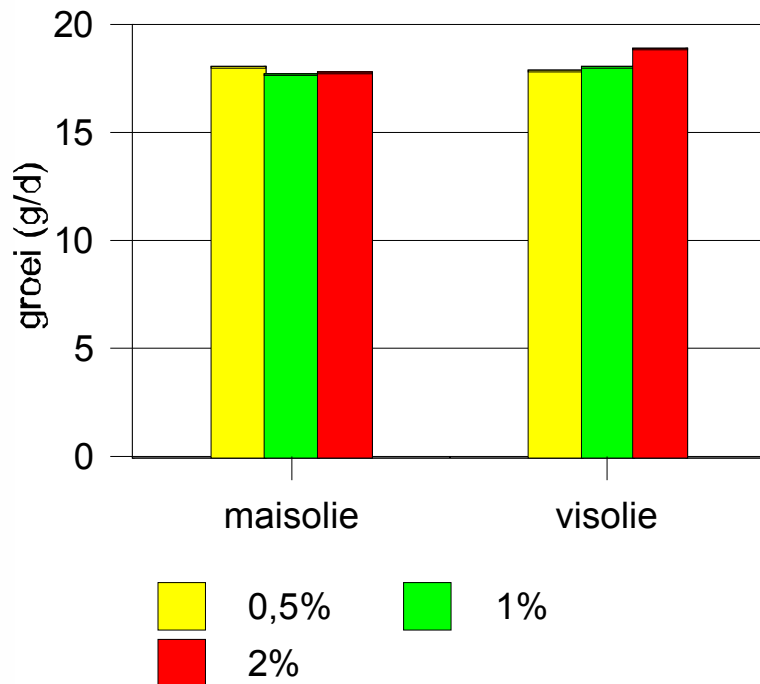
Research on ! -3 fatty acids

- Poultry
- Swine

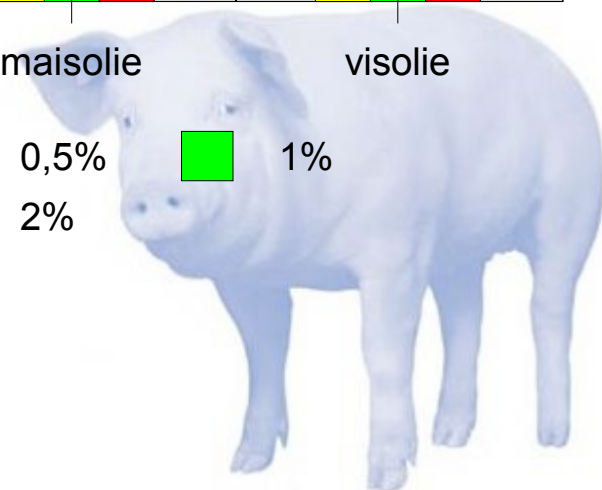
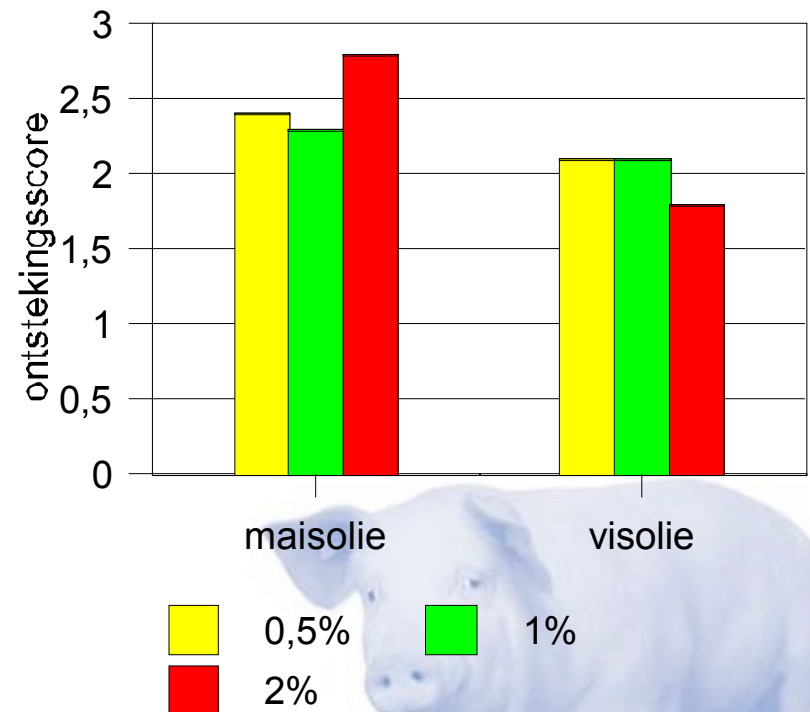


Fish oil versus corn oil (broilers)

effect op groei

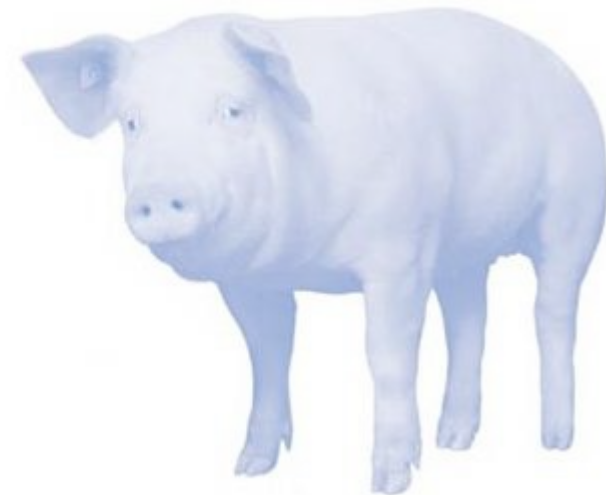
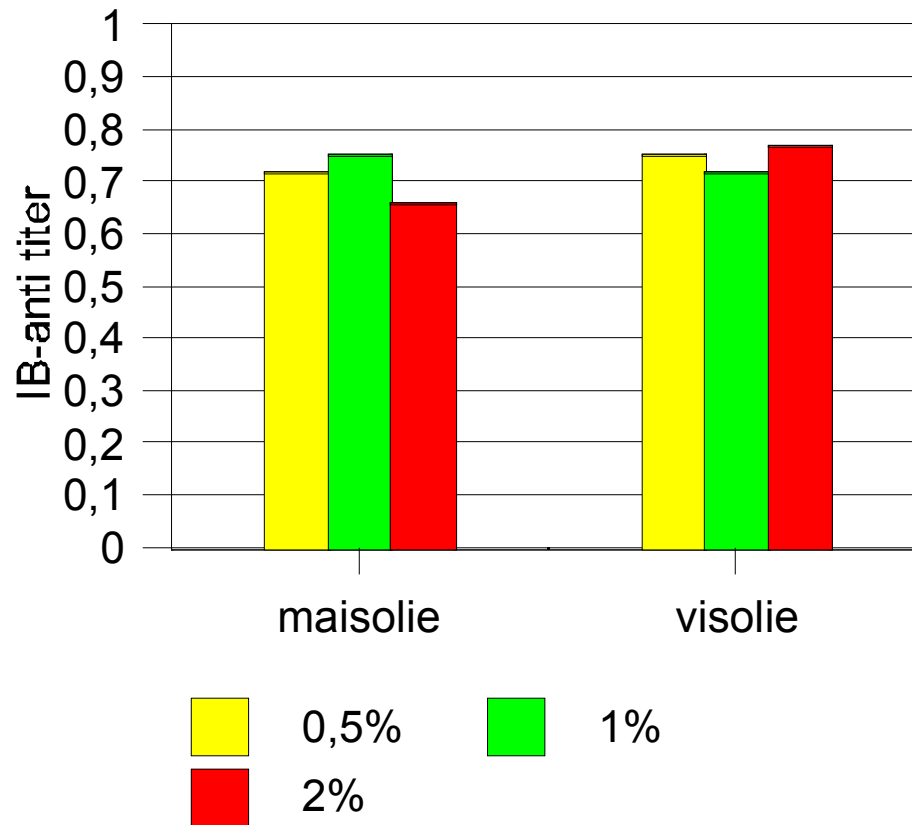


effect op ontstekingsreactie



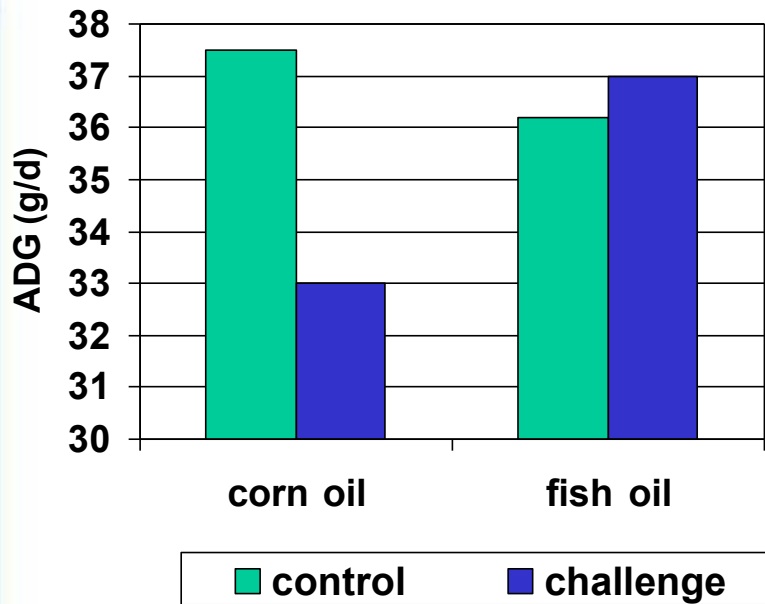
Fish oil (IB infected broilers)

Anti IB in broilers

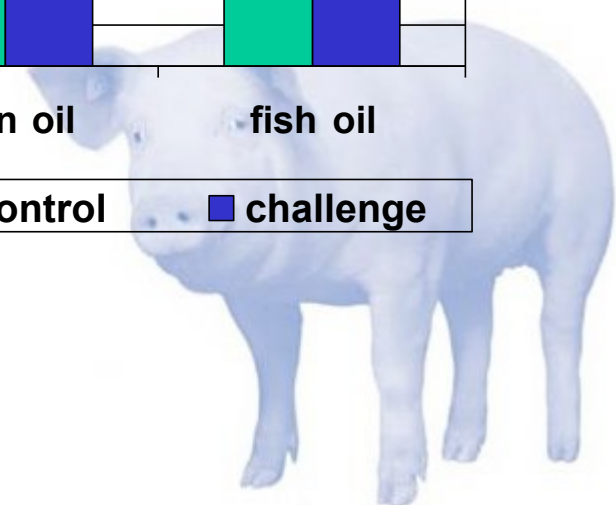
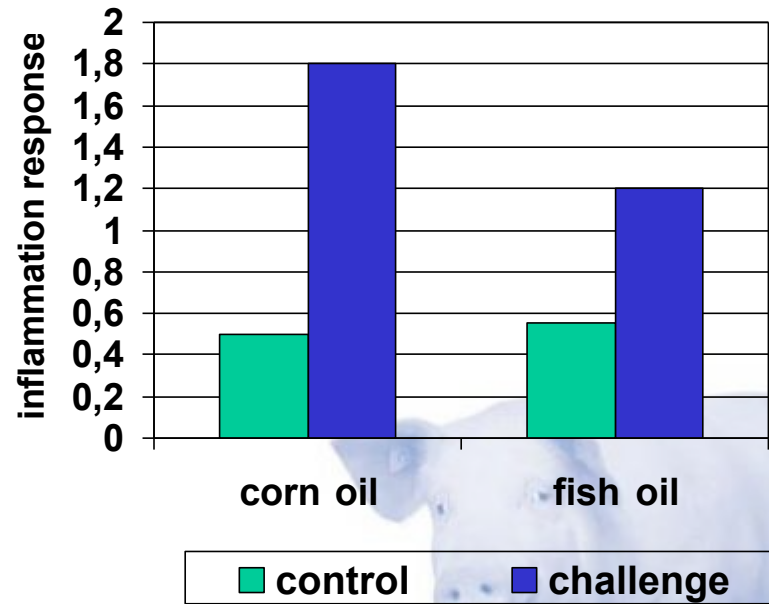


Fish oil (coccidiosis in broilers)

Effect on growth

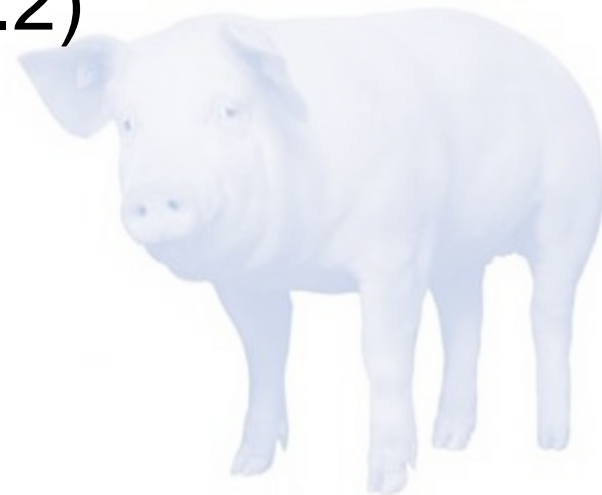


Effect on inflammation response



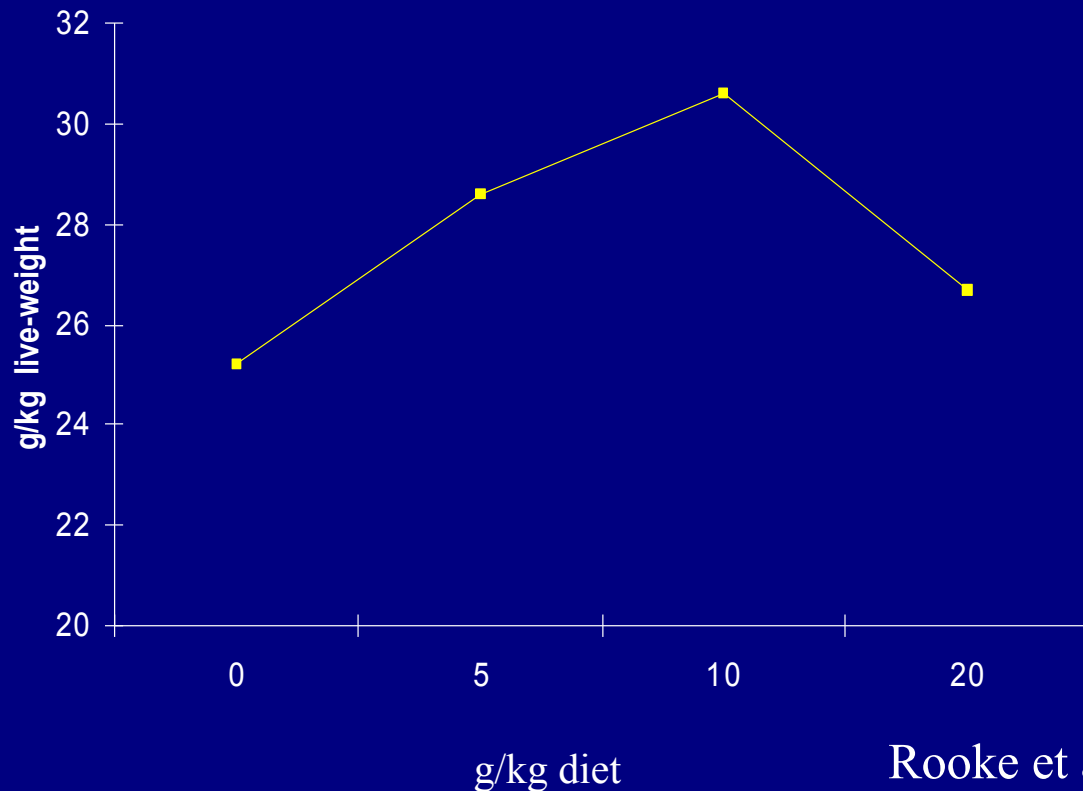
Fish oil in sow diets

- Improved birth weight (1.46 kg vs. 1.29 kg)
- Improved weight at 21 d (330 g)
- Improved milk fat content (1.2 vs. 0.2%)
- More weaned piglets (10 vs. 9.2)



Effect fish oil on piglets

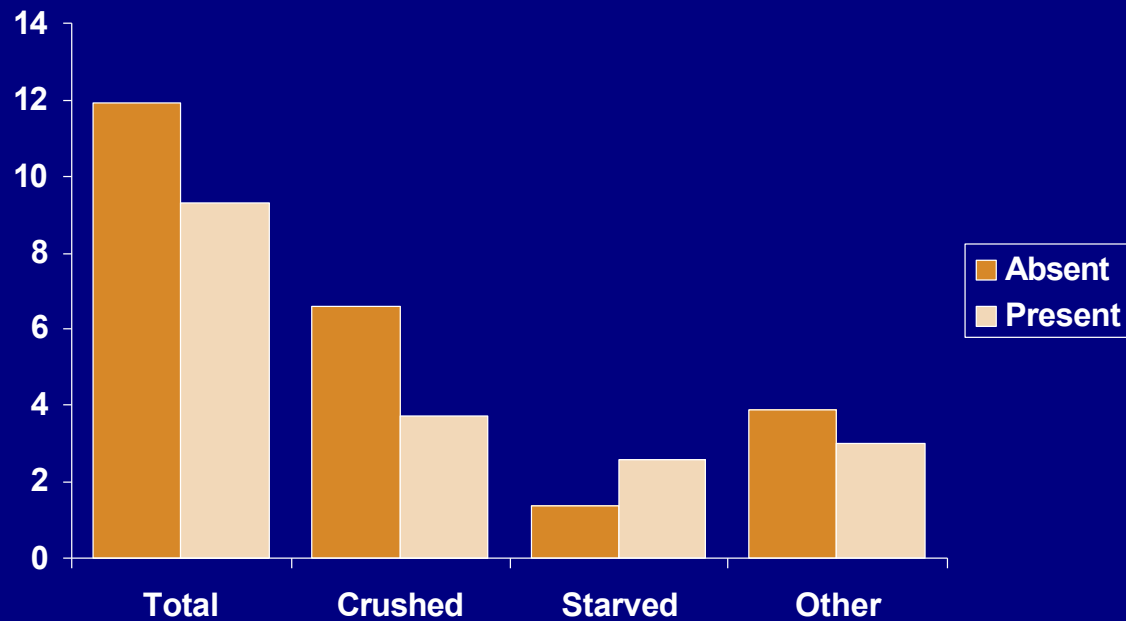
Piglet Brain Weight and increasing Maternal Fish Oil Intake



Rooke et al 2001

Effect of fish oil on mortality

Fish Oil and Mortality Causes of Mortality by Diet



Rooke et al. 2001

Lipofish 50

- Guaranteed animal protein free
- Guaranteed ! -3 fatty acid content
- Cost reduction with Lipofish 50:
 - Low cost compared to fishoil from fish meal

