



Food Animal Initiative

ENVIRONMENTS FIT FOR ANIMALS FIT FOR THEIR ENVIRONMENT

FAI Technical Datasheet G7 - High fibre feed and human health August 2005

There is often a parallel between improvements to animal welfare and improvements to human health and wellbeing. At FAI we have been concentrating for the past 4 years on providing high fibre diets to cattle, sheep and pigs as it is well known that the rumen needs fibre to function correctly and that 60% or more of pigs have been found to have gut ulceration at slaughter associated with feed type. Modern human diets contain low levels of certain types of fatty acids which are known to be beneficial to human health. This has occurred as human diets contain more vegetable fats and our animals are fed on high grain/low forage diets.

'the facts.....'

In the past 100 years there has been a rapid and unprecedented change in man's diet where the ratio of omega-6 to omega-3 (sometimes described as conjugated linoleic acid or CLA) has gone from being around 1:1 increasing to 20:1 or more.

Animal diets have also changed in recent years with a move from forage based diets to grain and other materials. This has produced a similar change in omega levels in animal diets.

Omega-3 fatty acids reduce inflammation and consequently are beneficial in conditions such as arthritis and heart disease whereas omega-6 fatty acids promote inflammation, blood clotting and tumour growth.

The levels of omega-3 and omega-6 are dependant upon dietary intake. Omega-3 is found in green leafy vegetables, animal meats, eggs and fish. Omega-6 is found in vegetable oils and grains (from which vegetable oil is made).

Many studies have looked at the ratios of omega-6 to omega-3 in grain fed animals compared to forage fed animals (dried or fresh grass) and in all cases the ratio of omega-6 to omega-3 is higher in grain fed animals.^{1,2,3.}

The rumen pH of grazing animals is about 7 whereas the pH of animals fed high grain diets is much more acidic and this allows different bacteria to proliferate resulting in the production of high levels of omega-6 in acidic environments and high levels of omega-3 at pH7 which is more neutral.



Montbeliarde calves in stable group

'.... the FAI response!'

At FAI we have been studying the provision of high fibre diets since 2001. High fibre diets are known to improve gut function in animals as they do in man and can be the cheapest and most controlled diets i.e. they are of known provenance - made on the farm.

The added benefits of improvement to human health make the provision of high fibre diets a potential source of additional income. Omega-3 levels can be directly tested in the final product unlike many other improvements such as increased space for animals.

Provision of high fibre diets for ruminants at grass is easy. The programme of work this winter will look at our ability to finish cattle indoors on high forage diets (a ratio of about 6:1 as fed as required by organic standards). The restricting factor is likely to be feed intake levels.

The diet currently provided for our pigs is 3:1 forage to grain as fed in the finishing period and funding is currently being sourced to compare levels of omega-3 in this pork compared to conventionally fed pork.

1. Published reports on omega-3 level www.wisc.edu/fri/clarefs.htm
2. AGRICOLA Government database www.nal.usda.gov/ag98/
3. Cornell University www.ansci.cornell.edu/ search conjugated linoleic acid



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