

# Better beef and lamb

There is much anecdotal but little scientific evidence that grass-fed beef and lamb are superior in quality to that produced intensively on grain-based diets. **Jeff Wood**, Professor of Food Animal Science and his team in the School of Clinical Veterinary Science examine the facts.



This is why it's called red meat – a clear difference in colour develops between grass-fed (left) and grain-fed beef during retail display.

Jeff Wood

The new emphasis in European agriculture is on the environment and the consumer. Farmers are looking for ways to farm less intensively and produce higher quality products. The use of grass for beef and lamb production is non-intensive and intuitively one expects the meat to be of a higher quality, but is this true? Researchers in the Division of Farm Animal Science at the Department of Clinical Veterinary Science, in collaboration with colleagues at the Institute of Grassland and Environmental Research at Aberystwyth, and the University of Reading, have examined the composition and quality of beef and lamb produced by animals fed on different diets.

A striking finding is that grass-fed beef retains its fresh red colour for longer during retail display than grain-fed beef. The colour difference is linked to higher levels of the antioxidant vitamin E in the muscle of grazed animals. Another clear result was that grazed cattle had higher levels of omega-3 fatty acids than those cattle fed on grains. These include alpha-linolenic acid, which is present in grass and becomes converted to the longer-chain omega-3 fatty acids once inside the animal. Among these fatty acids were the types found in oily fish.

Researchers acknowledge that the levels in beef are much lower than in fish but believe they are still significant nutritionally and that their presence counters the commonly held view that red meat is unhealthy. Research indicates that omega-3 fatty acids, a form of polyunsaturated fats, reduce inflammation and help prevent certain chronic diseases such as heart disease and arthritis.

The omega-3 fatty acids are relatively unstable and the team believes that the presence of vitamin E in the grass and in the animal itself protects the

acids from oxidation. During cooking however, the fatty acids are broken down and the products of oxidation contribute to flavour. Very clearly in lamb, but not so strongly in beef, a trained taste panel found that grass-fed meat has a more intense and less 'abnormal' flavour. The taste panel are a group of people from outside the University who are trained to recognise the characteristics of eating quality.

Researchers believe that these results provide an objective basis for 'brands' for meat produced from grasslands. They are working with national bodies such as the Meat and Livestock Commission and locally with Meat South West to develop these ideas. ■

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