



**Ministry of
Agriculture
& Fisheries**

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LAB OF PHYSIOLOGICAL
HYGIENE

Our Ref:

Your Ref:

Ruakura Animal Research Station,
Private Bag, Hamilton, N.Z.
Telephone: 62 839 *New Zealand.*
Telegraph "Agfarm, Hamilton"
15 November 1977

Dr Henry Blackburn
Laboratory of Physiological Hygiene
School of Public Health
University of Minnesota
Stadium Gate 27
611 Beacon St S.E.
Minneapolis
Minnesota 55455
U.S.A.

Dear Dr Blackburn,

Many thanks for your letter of 4 November, 1977 and the request for information, via John Scott of Auckland Medical School, on our "extensive researches on modified lean beef". I think John may have overstated the case because as a meat scientist, I see the matter as being one of common sense rather than extensive researches.

From the purely animal production point of view, it makes little economic sense to overfeed animals to lay down excessive fat on their carcasses when consumer research suggests people desire less fat in their meat than is commonly on offer. From an animal nutrition point of view it makes no sense to feed animals sufficient roughage (pasture or range feeding) or worse still, grain to make animals excessively fat when we know butchers will have to trim some of that fat off and it takes several times as many calories to produce a kilogram of fatty tissue as it does to produce a kilogram of lean tissue which is the central item in consumers preference for meat as well as being a nutritionally highly desirable foodstuff. Your American feedlot feeding of beef has only been sustainable because of cheap energy in the past and has enabled the production of fat animals. Defective meat technology has encouraged the production of fat animals. It has been known that fat animals tend to produce more tender carcasses. It is now known that this is because immediately after the slaughter of animals, the muscles are still living and will respond to stimuli such as an electric shock or exposure to low temperatures. Chilling and even freezing after slaughter is the normal method of storing meat. A muscle exposed to cold will contract and the more contracted it is when the carcass goes into rigor mortis the tougher the meat will be. A good covering of fat on a carcass insulates the underlying muscles from the cold until they go into rigor and so tends to produce more tender meat. Methods of preventing cold shock are now established which can maintain the tenderness of beef without the need for a massive cover of fat on the carcass.

From a human health point of view there is some evidence that a high caloric intake and possibly a high consumption of saturated fats may be associated with the heart disease problems in Western societies. Because of the fact that meat, particularly from ruminant animals, can contain high quantities of saturated fats, members of the research community, particularly in your country, have suggested that the amount of meat in your diet should be reduced as a means of reducing the intake of saturated fats. While this is one approach to the problem, it seems to me that if the problem is really saturated fats, then it makes equal sense to just reduce the saturated fat content of meat (which also makes animal production sense). I know of very little evidence to suggest that lean

valuable food as a source of several components not to mention having a satisfactory amino acid balance. It is a food liked by people. In fact few dietary trials have specifically evaluated meat as a main variable, as far as I am aware.


In this regard, I would be most grateful if you could indicate to me any dietary trials which have included meat as a major component of the diet independently from being included as an important source of saturated fats?

Because of what we believed to be an absence of information in this area, we were happy to co-operate with John Scott in a human dietary trial which included lean meat as a major component in comparison with polyunsaturated meat. As I understand the results, it appeared that a lean meat (lowered saturated fat diet) was as effective as a polyunsaturated diet in reducing blood cholesterol in people with initially high levels.

Thus from many points of view I believe that the production of leaner meat than is currently the norm, particularly in your country, is highly desirable. As a meat scientist, I am doing what I can to encourage this trend.

I am sending one or two reprints, under separate cover, surface mail.

Yours sincerely



A.H. Kirton
(Meat Section)



UNIVERSITY OF MINNESOTA
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November 22, 1977

Dr. A. H. Kirton
Meat Section
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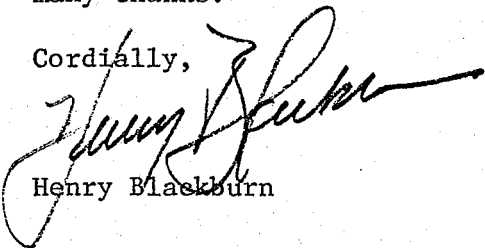
Dear Doctor Kirton:

Many thanks for your 15 November letter. Your analysis of the meat issue agrees in all respects with the findings of this Laboratory and its recommendations, along with many others, for the most effective way to reduce mass hyperlipidemia in man, i.e., the reduction of saturated fats in the habitual Western diet. There would surely be no problem whatever with regard to the nutritional qualities of meat if its saturated fat content could be significantly reduced.

I hope you won't mind my sending a copy of your thoughtful letter to the beef researchers of our Minnesota Institute of Agriculture who share many of your views and who are making important contributions to the reduction of obesity in animals, both in the cover and in the intramuscular fat.

Though the matter has not been sufficiently investigated, we share your view that variation in protein, including lean meat, has little relation to blood lipids (or atherosclerosis) independent of its saturated fat content. Again, many thanks.

Cordially,



Henry Blackburn

HB:msh
Enclosure

pc: Gene Allen
E. Caldwell
L. Henderson