We continue our series looking at the effect of modern farming on the quality of our food.

In this magazine a year ago we highlighted the loss of essential minerals – calcium, magnesium iron etc – from our fruit and vegetable supply.

The figures made alarming reading. Comparing the mineral levels in the 1930s with those in the 1980s showed that modern fruits and vegetables were typically depleted in minerals by 20%. The fact that modern fruit and vegetables contained more water could only explain some of the losses. Intensive farming on exhausted land was likely to be the major cause of the decline in the nutritional quality of the food, along with the selection of varieties for qualities other than nutrition.

Now researcher David Thomas has analysed data on meat and dairy foods, comparing their levels in the 1930s (published by McCance & Widdowson in 1940) with the most recent government tables, published in 2002. Once again, the figures make alarming reading.

As we show on this page, the mineral content of popular meats and milk products has fallen significantly. Looking at 15 different meat items, Thomas found the iron content to have fallen on average 47%, with some products showing a fall as high as 80%. The iron content of milk had dropped by over 60% while for cream and eight different cheeses the iron loss was over 50%.

The calcium loss from milk was only slight, but from cheeses it averaged over 15% – and in high-value Parmesan cheese the loss was an extraordinary 70%, implying a considerable dilution of the original highly concentrated recipe for this cheese, or some other significant shift in ingredients to account for this change.

Copper and magnesium, essential for enzyme functioning, also showed losses in meat products (typically 10% fall for magnesium and 60% fall for copper) and dairy foods (typically 25% fall for magnesium and an extraordinary 90% fall in copper).

Should we worry?

We live longer than ever, and we have access to abundant food supplies, so are these changes in nutrients any reason to be concerned?

We believe so. Minerals and trace elements play a major role in our physical and psychological well being. The recent changes in dietary habits towards highly processed foods means we are likely to be over-fed yet malnourished in terms of these micronutrients. Medical science may help keep us alive longer, but we are not necessarily healthier, nor happier. As Thomas concludes, ‘minerals are what we are made of (to quote the Bible: “ashes to ashes, dust to dust”) and it would be very difficult to underestimate their importance as a catalyst for developing and maintaining good health’. *

The recent National Diet and Nutrition Survey of adults showed that young women, particularly, were likely to have diets seriously deficient in essential minerals. Up to 8% were below the Lower Reference Nutrient Intake (LRNI) for calcium, 20-22 percent were below the LRNI for magnesium, and 40% were blow the LRNI for iron. LRNI is the amount of a nutrient that is enough for only the small number of people who have low requirements (about 2.5% of the population). The majority need more.

These women were the key age group for childbearing, and so, to continue the biblical analogy, the sins of our agricultural practices may yet be visited many-fold upon the next generation.

* D Thomas Commentary on tables showing changes in mineral composition. Unpublished. David Thomas works as a researcher and nutrition adviser and mineral supplement supplier. Contact him by email: david.mri@btconnect.com

"Frankly, Mr Thomas, I'm not happy"