
Concluding Remarks

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Concluding remarks

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So late at the end of two intensive days of discussion I am sure that no one will wish me to embark on a review of the 17 excellent papers. I will instead attempt to take up very briefly some of the broader issues which arose during the meeting and to reply, at least briefly, to the question as to whether a strategy for research is under study.

Dr Cooke opened this meeting by reminding us that British agriculture is a major national success story and that the better farmers are not only using scientific advice but are waiting impatiently for the next round of research results. The last 2 days have indeed reminded me of a recent report of a Presidential Advisory Committee in the U.S.A., which described American agriculture as ‘close on the heels of the research workers’.

Dr Blaxter pointed out that British agriculture is very big business indeed – with a bigger annual outturn than we can expect from North Sea oil at the peak of production. We are, nevertheless, importing one third of the types of food which we can grow on our own farms. In the present difficulties with the exchange value of sterling he regarded our ultimate ability to feed ourselves as a valuable measure of national insurance.

Dr Dexter could find no evidence of insurance policy in the agricultural outlook of either Britain or of the E.E.C., but stressed that farmers produce crops to sell and that their main aim was to remain fully competitive: in this they had little choice. Any farmer who did not use the improved inputs offered by science and industry ceased to be competitive with his neighbours and with his Continental rivals. Market forces steadily eliminated those who did not compete. Dr Dexter gave us striking examples of the flexible response by British farmers to the changing market for livestock over the past 4 years.

The national result of this free enterprise response both to market forces and to scientific improvements of inputs has been a 75% increase in production, over the 20 years 1955–75 to reach a total of over £4000 M. This has been achieved in spite of a loss of over 1 million ha of agricultural land. Manpower on the farms has halved in that time, although, as we were reminded from the floor, there has been a heavy increase in the manpower employed by the many supporting industries.

Thus the nation has had a very good response to the money spent on agricultural research and development which was currently £60 M p.a. with a further £20 M on advisory services. £80 M p.a. is indeed a great deal of money, but it must be considered in the context of a production total of £4000 M, imports of another £4000 M and value added by the processing industry, to food from both sources, of £3000 M. Thus the £80 M of scientific and technical expenditure should be compared with an agriculture and food turnover of £11000 M. In comparison with the research and development (R. & D.) budgets of very much smaller industries the expenditure is modest.

In the discussion earlier Mr J. Maddox said that he would like to be assured that there was an overall strategy for British agricultural research. The first requirement was well illustrated

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by the papers read in the past 2 days which were an expert commentary on the very wide range of inputs to agriculture for which R. & D. is needed. Agriculture has to advance on a hundred or more fronts simultaneously. A keen manager on a large mixed farm will have a dozen or more questions arising every day to which his response is based on a long term investment in research, development and advice. He will rarely be aware of how the information reached him.

As a result of Lord Rothschild's introduction of the customer – contractor relation there has been a systematic attempt to bring experienced farmers, advisory and development specialists and research workers together, with the help of economists and administrators, to thrash out national priorities for research. Three years of work on a national scale by an able and hard-working assembly of boards, committees and specialist working parties of the Joint Consultative Organisation had produced a large number of recommendations, which illustrated the very many fronts on which advances were needed to keep British agriculture competitive.

Our overall targets are clear enough. We are spending £1700 M p.a. of precious foreign exchange on agricultural produce which we are able to grow ourselves.

We have the very large gap, illustrated by Professor Monteith and by other speakers, between our best yields and our average yields, for which we have little or no scientific explanation. We have a published Government policy in the White Paper *Food from our own resources*, stating clearly the national intention to grow more of our own food, and giving first priority to the development of our grassland and forage production. We have an immediate target of reducing our annual imports of 6 Mt of feedstuffs. To this the drought has added an increased awareness of our need to develop water supplies for agriculture. Too much fresh water has been discarded into the sea, while, as the discussions today have recognized, water stress is frequently a limiting factor in crop production.

On production techniques the meeting has emphasized the wide gap between the best and the average yields in crop and livestock production. This is not explained by measuring of single factors and would need both multidisciplinary scientific study and more understanding of management techniques. This gives us a further major research target.

Research targets in agriculture are for 10 years ahead, and the world food situation at that time interval is a relevant consideration for an island people importing half of our food supply. A recent report by a new body, the International Food Policy Research Institute, set up by the Ford, Rockefeller and Kellogg Foundations, and backed by the full information resources of the World Bank and F.A.O., has re-examined the data which has been produced for the World Food Conference, together with that for the subsequent 2 years. Their analysis indicated an even earlier expectation of major food deficits in the tropical world, involving more than half of mankind.

I therefore share Dr Blaxter's opinion that the ultimate ability of the British agriculture and food industries to feed the nation from our own resources is a valuable form of insurance. As a consequence for research strategy, I share Dr Postgate's view that our present prosperity gives us a valuable opportunity to apply science to further increases in production towards closing the gap. Prosperity may sound an odd term for today's financial anxieties, but no one who frequently visits the less fortunate countries can fail to be impressed afresh, on each return to Britain, by our advantages in standards of living. We must use our scientific ability to good effect in helping to raise world food production as well as our own.

Finally a word of caution, about the basis of our thinking for the future. British farming has

CONCLUDING REMARKS

301

become highly specialized to take advantage of regional characteristics of soil and climate. In some ways the more closely we match these conditions the less flexible is the system to meet major and sudden climatic changes. Disturbing but convincing evidence is accumulating to suggest that the last century has been particularly favourable in agricultural climate and that the long term climatic history of this planet is much more concerned with less pleasant climates than with our present happy state. The more intensive our agriculture, the more sharply it is fitted to the expected patterns of seasonal weather. This year's violent disturbance of the long established pattern has caused considerable stress on our farms. A change to wetter autumns and mild winters which forced us out of winter wheat and into late spring sown crops would have severe and damaging effect on agricultural output and would require the re-equipment of arable farms to sow very large acreages of cereals in a very short period of the spring. Our thinking for long term research planning must therefore include an element of preparation for change. We must not lose the skills of mixed farming, which is, in the long run, the farmers' traditional insurance against change.