

Agricultural R & D

SIR — A recent publication¹ of the Organization for Economic Cooperation and Development (OECD) included a comment that “in the United States, Germany and France government spending on agricultural research and development is around one per cent of value added in the industry. The percentage . . . rises to over two per cent in the United Kingdom”. The same point has been taken up in the latest *Annual Review of Government Funded R & D*².

agricultural research and development but it can be argued that fishery research should not be. What is labelled as “agronomic” research in Table 1 derives from the collection of data on financial support for institutions rather than subjects; research from general university funds is shown under a separate category (promotion of knowledge) but this is then subdivided by subject area, one of which is agronomic research. Because, in West Germany especially, much agricultural

Table 1 Expenditure on agricultural research and development in European Community countries (1981) (£ million)

Item	Category	Ireland	Denmark	Belgium	Netherlands	France	UK	Italy	West Germany
1	Agricultural productivity and technology	11	13	15	48	143	129	34	78
2	Fishing and fishery products	2	(1)	1	1	13	7	1	6
3	Net agricultural productivity and technology	9	12	14	47	130	122	33	72
4	Food, drink and tobacco	2	(1)	2	(4)	18	3	5	10
5	Agronomic research	1	(4)	7	13	4	41	28	89
6	Bioscience	(3)	(4)	19	(11)	58	3	20	61
7	Total agricultural R & D	15	21	42	75	210	169	86	232

Values in parentheses inferred by interpolation on a £ per head basis.

A histogram is shown for France, Germany, Italy, Japan, the United Kingdom and the United States and it is suggested “that the UK spends, in GDP [Gross Domestic Product] terms, more than the other countries on agricultural R & D”. Combined with an earlier statement that, even if such indicators do not of themselves provide a basis for judgement, they do “indicate where questions over the balance of expenditure might be asked”, it would seem that publicly-funded agricultural research and development in the United Kingdom may now face yet another round of severe cuts.

How valid is this interpretation of the OECD indicators? An analysis based on Eurostat data³ for countries of the European Community suggests a rather different view. Essentially, the Eurostat data derive from the same primary sources as the OECD indicators and can be reconciled with them. The categorizations they use, however, enable a broad summary of agricultural research and development to be made (Table 1).

The OECD data are confined to item 1, “agricultural productivity and technology”. A more realistic estimate emerges, however, if, after eliminating a minor amount of fishery research and development, the national efforts on food, “agronomic research” and “bioscience” (which must include biotechnology) are included. The reasons for doing so are as follows.

Food research is normally reckoned as part of the remit of publicly-funded

research is carried out in universities, this effort fails to be captured by the OECD indicators. As is evident from Table 1, the effect is considerably to underestimate West German agricultural research and development.

There is a similar problem with “bioscience”, in that much UK non-medical work in this area is carried out in institutes under the general label of items 1 or 5. The UK bioscience effort in Table 1 is thus anomalously low, as will be evident to those familiar with this field. In a preliminary analysis, a temporary expedient is to count “bioscience”, for all countries, as agricultural research and development.

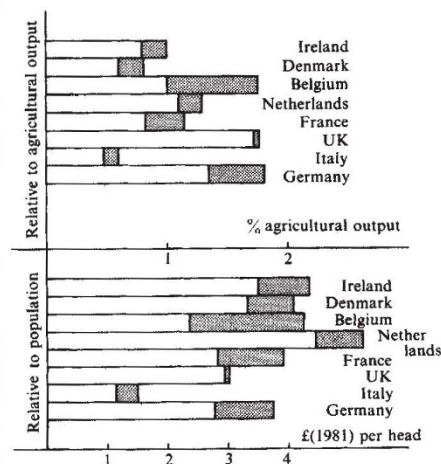


Fig. 1 Agricultural research and development for European Community countries relative to agricultural output and to population. The stippled area refers to bioscience.

The ambiguities inherent in the OECD indicators are illustrated by the transfer of funds in the “customer-contractor” arrangements. These were recorded as a rapid increase in expenditure on “agricultural productivity and technology”, a change which OECD itself pointed out was “more apparent than real”.

Relative to agricultural output, the UK level of agricultural research and development does not now appear greatly in excess of the levels in other countries (Fig. 1). (Italy is substantially below the others and does not provide an appropriate basis for comparison with the United Kingdom.) Moreover, relative to population (which could be taken as a proxy variable for national food consumption), the UK level of agricultural research and development is actually lower than in other Community countries. If substantial reductions were made beyond those already planned, the United Kingdom would begin to fall markedly behind the most important Community countries.

The whole subject needs wider and deeper analysis; meanwhile, the danger of putting too much reliance on empirical indicators is evident. In the end, agricultural research and development stands or falls by what it offers the nation; at a time when other countries are rapidly developing new technology based on biological resources (that is, agricultural research and development in the widest sense of the term⁴), it is disappointing that the *Annual Review* has failed to capture this spirit of enterprise.

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1. *OECD Science and Technology Indicators: Resources devoted to R & D* (OECD, Paris, 1984).
2. Cabinet Office. *Annual Review of Government Funded R & D 1984* (HMSO, 1984).
3. *Government Financing of Research and Development 75-1982; Basic Statistics of the Community* (Eurostat, Luxembourg, 1983).
4. *The Widening Scope of Agricultural Research: Constraints and Challenges, 5th Working Conference of Directors of Agricultural Research* (OECD, Paris, 1984).

Scientists' oaths?

SIR — Jonathon Howard in his letter (*Nature* 8 November, p.96) is very flattering to the medical profession, implying a superior code of ethics.

While not denying this, I would point out that it is far from routine for newly qualified physicians and surgeons in the United Kingdom to be required to swear either the Hippocratic oath or have the Geneva modernization. It would appear that the expectations of our peers are adequate to dictate our standards.

Why should the same not be true for scientists?

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