

**Distr.
GENERAL**

**CES/AC.61/2001/29
10 August 2001**

Original: ENGLISH

**STATISTICAL COMMISSION and
ECONOMIC COMMISSION FOR
EUROPE**

**CONFERENCE OF EUROPEAN
STATISTICIANS**

**Joint ECE/EUROSTAT/FAO/OECD Meeting
on Food and Agricultural Statistics in Europe
(Geneva, 17-19 October 2001)**

**COMMISSION OF THE EUROPEAN
COMMUNITIES (EUROSTAT)**

**FOOD AND AGRICULTURAL
ORGANISATION (FAO)**

**ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT
(OECD)**

**METHODOLOGICAL ISSUES IN AGRICULTURE INCOME MEASUREMENT
IN THE EU**

Invited paper submitted by the United Kingdom*

Summary: Key issues are brought together that relate to the ability of statistics on agricultural incomes to meet needs in the evolving conditions of the early 21st century. These include a re-examination of what constitutes agricultural production, the coverage of salaried workers in income measurement, and the basic unit in economic accounting. Elements of a strategy are proposed that should enable the statistical system to cope with these and other issues.

Keywords: income, farm, agriculture, household, policy, concepts, statistics

* Prepared by Mr. Berkeley Hill, University of London, Imperial College, Wye, Ashford, Kent, TN25 5 AH, United Kingdom.

I. Introduction

1. The term “methodological” is interpreted here rather broadly, and in accordance with the Shorter Oxford Dictionary, to encompass issues that are associated with the application of method (procedures) in the provision of information on agricultural income. This paper is an opportunity to bring together a number of themes that have been previously identified, to put them into context and, by taking a broader view, to try to synthesise a strategy for future development of income measurement. Though professional statisticians are probably in the best position to know about methodological details and their associated problems, the perceptions of an outsider can at times be helpful when larger issues are concerned. Questions may be asked that might be difficult for someone intimately concerned with the production of statistics to raise.

2. The issues considered here relate to seven main areas. They can be thought of in terms of a pressure-state-response model, in that they reflect the need for agricultural statistical system to respond to changes in the structure of agriculture and the information requirements of the rural world. Particular attention will be given to methodology applied in the EU and its Member States, though parallel situations are often found in other OECD countries. A justification for this EU focus is that the EU’s methodology is often disproportionately influential though being adopted as a basis for developing other sets of statistics; the OECD’s activities in the area of aggregate accounts for agriculture is a prime example.

3. Statisticians regularly face a host of minor methodological issues that are important within the context of particular situations. Examples are the distinction between subsistence and hobby production for own consumption within the EAA, the rate of turnover of the sample within surveys of farm accounts, and techniques for updating within the household sector accounts. Focussing on this level of detail risks losing the interest of non-specialists. This paper is concerned with somewhat broader matters that have implications for a greater number of statisticians. Even for specialists this contextual view has benefit, since by confining themselves to details there is a danger that some of the larger, and ultimately more important, questions fail to be asked.

II. Seven issues

Issue 1: What is “agriculture” in income statistics – people, activity or both?

4. The most fundamental methodological issue, which has consequences for many others, is what “agricultural” means when qualifying “income” and therefore which methodology should be employed to measure it. Two approaches are possible – the residual rewards to the fixed factors of production from an activity – in this case of goods and services that can be labelled as belonging to agriculture – or the personal incomes of people who are deemed to be members of the “agricultural community”.

5. The Common Agricultural Policy (CAP) is concerned both with production and with the incomes of the agricultural community. However, within the legislation giving the objectives of policy there is no mention of assurance being given to factor rewards. What there is in abundance in official texts is a concern with the living standards of the agricultural community, and by implication the incomes that give rise to these standards. Independent policy analysts, including the OECD, (summarised in (Hill, 2000a), have no difficulty in identifying the centrality of this income objective.

6. For historical reasons, the main EU official measures of agricultural income are activity based; this applies to both the aggregate income indicators developed from the “Economic Accounts for Agriculture”, a satellite of national accounts (Eurostat’s former Indicators 1, 2, and 3 and now the revised A, B and C) and to farm level measures coming from the Farm Accountancy Data Network (FADN/RICA). Of these Indicator 1 is probably the most influential on policy decisions because of precedence and annual timeliness. However, the concept behind it (Net Value Added by the “industry” in agricultural production in real terms and expressed per unit of labour input) is very far from being even an approximation for the personal incomes of the agricultural community.

7. The real issue here is thus. Activity accounts are needed for a range of purposes. However, so too are accounts that relate to the personal incomes of farmers and their households, but these are either relatively poorly developed (at sector level) or almost totally absent (microeconomic). Given that there is an obvious and large information gap in the EU statistical system, why has it been allowed to persist for so long? What are the forces (bureaucratic, political, practical) that have prevented it being filled? How long will it be, in a world in which the diversified nature of farm businesses is widely acknowledged and encouraged, until senior decision-makers label this information as urgent?

Issue 2: What is agricultural “activity”

8. The boundaries of the activities that are deemed to comprise “agriculture” can be varied according to circumstance. In the EU the list adopted for the satellite EAA (based on NACE¹. Rev 1) is marginally different from that of the treatment of agriculture in national accounts, a change made on the grounds of increasing the relevance to agricultural policy-making (Eurostat, 1997). If the diversification of farms into activities that are outside the current list (including vertical integration) alters the perception of what agriculture is, then adjusting the list is more a technical matter (though needing an agreement to achieve harmonisation) rather than a major issue.

9. Coping with the “multifunctionality” of agriculture is far more problematical. The NACE is concerned with economic activities - transaction in goods and services for which a payment is made. Multifunctionality is strongly associated with non-market outputs of a public good nature that is a joint products of more conventional commodity production (OECD, 2001). Where no such goods and services are supplied (incentive to NOT do something) the payments do not easily fit within an activity account. This is taken up in a separate paper on “green accounting”. Of course, if the account relates not to an activity but to the resources flowing to and from real institutional units (such as agricultural households) there is no problem including them in the account, though at which line may be open to discussion

Issue 3: What should be the basic unit of agricultural income accounts?

10. The EU's aggregate EAA uses the concept of the agricultural "industry" comprised of fictitious agricultural Local Kind of Activity Units (LKAUs)(Eurostat, 1997). In some situations this LKAU may correspond to the agricultural holding (or farm business), though in many cases it will not, especially where the farm household also engages in non-agricultural activities (on-farm or off-farm). Similarly, at microeconomic level the "agricultural holding" (or, in UK terminology, the "farm business") used by the farm surveys that comprise the Farm Accountancy Data Network (FADN/RICA) is a fictitious unit that only relates to agricultural activities; the outputs and inputs relating to other activities that may be undertaken by the farm have somehow to be separated off, a task that may be both theoretically objectionable (such as with interest charges) and practically difficult.

11. There have been calls internationally for agricultural accounting at both levels to be based on real institutional units for a mix of technical and interpretative reasons (FAO, 1996; Hill, 2000b; Offutt, 2001). Within the structure of EU agriculture at present the main form of institutional unit is the household that operates its associated holding as an unincorporated business. The other is the corporation. Basing accounts on data collected from entire real business units would (a) avoid the arbitrary decisions involved in carving out a fictitious agricultural unit, (b) be more comparable with what happens in other industrial sectors and permit a general system to be developed that looked at businesses in rural areas, (c) enable results to be produced that are easier to interpret by non-specialists, (d) permit a better integration of macro and micro statistics, (e) improve the ability to explain business behaviour (viability, investment levels, land use etc.) and (f) enable a complete series of accounts to be calculated, including meaningful balance sheets. The importance of this last point is that the series for the households sector could both measure the output of farm commodities (to be supplemented by that from companies) and show the disposable income that households could spend on consumption and/or saving. This would be valuable in generating statistics relevant to the "living standard" aspect of agricultural policy, such as the degree of dependency of farm-household-firms on farming, vulnerability of disposable income to fluctuation in income from farming, the distribution of income levels once both farm and other incomes are taken into account, the incidence of low (total) incomes etc.

12. There is a continuing need for aggregate activity accounts, at least up to the level of calculating NVA. The issue is to how to develop a parallel system based on real institutional units. Two main tasks are involved. Firstly, to refine the methodology dealing with, for example, the set of rules used to separate business units that are agricultural from those that belong to some other sector, the boundaries of the household-firm, the definitions of disposable income and so on. Eurostat's Income of the Agricultural Households Sector (IAHS) statistics has gone a long way to providing methodological solutions (Eurostat, 1996; Eurostat, 2000). The second is to modify the data system to allow the methodology to be more completely put into operation. At microeconomic level, following research on the feasibility of a new farm return (Abitabile *et al.*, 1999) FADN/RICA is in process of expanding its coverage to include diversified activities on the farm and activities outside the farm, but this will only be on a voluntary basis and does not represent a paradigm shift to a whole-business approach in income measurement.

Issue 4: Are salaried workers part of the "agricultural community", should their incomes be monitored, and how might it be done?

13. Just over a quarter of labour input to agriculture comes from salaried (hired) workers (28% in 2000) though there are wide variations among Member States. In three countries more than a third is salaried (UK 35%, Netherlands 36% and Italy 39%) whereas in Ireland, Austria and Finland it is less than 15%. Within the EU there is no system in place within agricultural statistics for annually reporting on the earnings of hired agricultural workers with anything like the prominence given to the incomes of self-employed farmers.

14. The CAP has an ambivalent stance towards hired (salaried) workers and to covering them in income statistics. Measures of activity income (NVA at “industry” or holding levels) are usually expressed divided by the *total* labour input (hired and non-hired together), even though the two types differ greatly in economic nature (responsibility for risk bearing, framework determining terms and conditions of work, how their levels of incomes are determined etc.) and often in socio-economic characteristics (ages, training, income and wealth levels). On the other hand, measures of residual entrepreneurial income (the aggregate Indicators B and C and FADN/RICA’s Family Farm Income) obviously exclude them. Eurostat’s Income of the Agricultural households Sector (IAHS) statistics also uses a definition of an agricultural household that, in effect, excludes those headed by hired workers. Perhaps this was done primarily for practical reasons of data availability. However another interpretation is that (a) such households were not seen as being beneficiaries of CAP support - very little (if any) spending under the CAP is directed specifically at the hired labour force; (b) the income situation of households of hired workers was the matter of national rather than EU concern, and (c) countries with significant numbers (such as the UK) often have national mechanisms in place to monitor incomes among hired agricultural workers and, where necessary, to provide support.

15. An additional source of confusion is that in the EU until recently, statistics on labour have assumed that no family workers were hired (in the sense of receiving regular wages under a contract of employment). This has turned out to be an over-simplification. At least some family members have a relationship to their family employers that approximates to normal employment.

16. Unease about the treatment of hired labour in income measurement has been brought to a head by the need to adapt EU statistics to the agricultural structures of countries in central and eastern Europe who are candidates for EU membership. The large agricultural units there contain a significant number of workers. They have a scale and division of responsibilities that is very different from the “family farm” model that underlies many EU income statistics, rendering invalid the simplifying assumption (as happens in many farm surveys) that there is one farmer and spouse per business. A variety of legal structures are encountered that determine what the resources flowing to the households are called, in some cases without altering the fact that payments are all derived from the same business. Some may be co-operatives where part of the payment to the members is as a wage and part related to the unit’s performance, which might be regarded as entrepreneurial reward and thus make the recipients “farmers” in the traditional EU sense. However, these co-operatives may also employ workers who are not members, and payments may be made to former members who now take no active part in production. Some units may be organised as joint-stock companies, in which (technically) the labour is all hired but some of whom may also be share-holders; IAHS methodology would not include the households of this labour as agricultural. A change in the unit’s legal status might cause exclusion or inclusion.

17. In addition to payments received from the large agricultural unit, workers may also undertake substantial production on household plots that is more in the nature of subsistence farming than a hobby,

though the demarcation is inherently fuzzy. Where this output is *not* marketed, its treatment is important both to the classification of households (as agricultural or not) and to the measurement of income.

18. The detailed treatment of labour on large co-operative units has implications that go beyond IAHS statistics. They are relevant to the calculation of entrepreneurial income in the EAA and FADN/RICA, to labour input and farm structure statistics. At present their treatment in the various EU agricultural income statistics has apparently not yet reached an agreed and co-ordinated solution.

19. What is reasonably clear is that households working on large units are usually considered by candidate countries, from a national perspective, as part of their agricultural community. On that basis, provision should be made for treating them as (*quasi*?) agricultural households. Grounds for doing this might be that the Treaty of Rome, Article 39, states as an aim to “ensure a fair standard of living for the agricultural community, *in particular by the increasing of the individual earnings of persons engaged in agriculture*” (emphasis added). But to open up coverage of incomes to these workers on large units would force a reconsideration of why the incomes of similar workers and their families in EUR15 should still be excluded.

20. Statisticians are thus faced with some questions relating to this issue: Should provision be made for monitoring the incomes of the quarter of the present labour force not covered? Or should special treatment be devised for the households found on large agricultural units of a co-operative nature, so that they become *quasi* self-employed?

Issue 5: How can the various approaches to income measurement and levels of aggregation be better linked?

21. The fifth issue concerns the inter-relationship between various levels of income statistics. As Fred Vogel has pointed out for the USA (Vogel, 2000), each level and approach has its own measurement issues. At present EU measurement of the income from agricultural activity takes place at the levels of the “industry” (the EAA), with some regional disaggregation, and of the farm business (FADN/RICA). Each has its own well-established methodology and the “industry” and “holding” levels are not part of an integrated system, though their basic units have moved somewhat closer since the EAA shifted from the Unit of Harmonious Production (UHP) to the LKAU, which permits the inclusion of inseparable secondary non-agricultural activity in the calculation of output and value added. Disparities remain. This problem might be reduced if the basis of accounting were to be shifted to the institutional unit, as advocated above. The aggregate would then refer to a sector comprising complete real businesses.

22. In the EU the (disposable) incomes of agricultural households are measured at sector level (IAHS statistics) though this methodology is relatively new and Member States vary widely in their abilities to provide up-to-date results. At present there is no problem with integrating with microeconomic statistics as there is no specifically agricultural system of monitoring farm household incomes, though the potential exists in some countries (Denmark, Germany, Ireland, Netherlands, Austria, Finland, Sweden) or is being developed (France, United Kingdom). Even so, some differences in concepts might be expected that would need careful treatment. For example, payments to voluntary associations and churches are deducted in the calculation of disposable income in the household sector accounts within national accounts (and hence in the EU’s IAHS statistics), but would be regarded as an item of consumption expenditure (paid out of disposable income) in household budget surveys.

23. The absence of harmonised household-level data on agricultural incomes is a major gap in the EU information system. As the OECD has found, the great variability between countries in the methodology (and quality) of their agricultural household income data makes authoritative analyses and inter-country comparisons of distributional characteristics very difficult (Blandford, 1996; OECD, 2000). It seems odd that, when EU agricultural policy is concerned with low income farmers, that it is not possible to indicate with any high degree of confidence the numbers of low income cases, the types and sizes of farms on which they are found, and the regions in which they most occur.

Issue 6: Are capital accounts and capital balance sheets necessary adjuncts to the measurement of current income?

24. Assessment of the economic situation of an industry that relies only on current accounts is missing some important parameters. While capital consumption has to be deducted in the calculation of current income, other flows into and out of the capital stock are also of relevance. In the short-run, gross capital stock is a major determinant of productive capacity, and in the longer term net capital stock performs this role. In a policy context, net fixed capital formation is a useful indicator of the economic health of an industry.

25. The capital balance sheet (including land) is of particular significance in agriculture, for three main reasons

- There is plenty of empirical evidence CAP support has been capitalised into land prices (the factor of production least elastic in supply). Real capital gains (and losses) form part of personal incomes, but these are not captured in measures of current income. Where farm operators are NOT also the owners of their land, the benefit goes to the landlord; this is not likely to be the intention of policymakers.
- Levels of indebtedness vary widely between Member States, as do the interest charges faced by farmers relate to them. This affects income estimates and vulnerability to financial downturns and movements in costs of borrowing. An international comparison of income levels on the basis of NVA can show a markedly different picture from one based on Entrepreneurial Income (after interest deduction)(Hill and Brookes, 1993)..
- The net wealth of farmer households is commonly ignored when assessing their economic situation, which concentrates on their current incomes. Yet studies from many countries show that farm operator households are among the most wealthy groups in society, mainly because of the land assets they hold. Thus agricultural support turns out to be a system of transferring resources from relatively asset-poor consumers and taxpayers to asset-rich farmers. Attempts to combine income and wealth into a single measure ('economic status') involves annuitising net wealth and summing it with current income (and real gains where appropriate)(see literature reviewed in (Hill, 2000a)).

26. Aggregate balance sheets are not yet estimated to stand alongside the EAA, though some Member States do this for national purposes, and they are part of FADN/RICA. Such calculations are worrying. While it is possible to value assets used in the activity of agricultural production (though for items such as a farm car it may be difficult to separate the agricultural from the consumption good

aspects), there are more substantial problems on the liabilities side. The basic units of both the EAA (the agricultural LKAU) and FADN/RICA (the agricultural holding) are not legal entities and therefore cannot contract for loans. Liabilities can only be incurred by real institutional units, which means households and companies. Where these units engage in both agricultural and other activities (as is increasingly the case in a pluriactive sector), or consumption in the case of households, no clear barriers exist between the use of credit for the different purposes. To try to carve out “agricultural liabilities” from the rest is both theoretically objectionable and practically difficult. Explanations of the behaviour of the farm-household-firm are likely to be unsatisfactory if only partial coverages of the assets or the liabilities are achieved. Any balance sheets that only purport to represent the “agricultural situation” at “industry” or “farm business” levels are likely to be misleading in terms of both the assets and liabilities sides.

27. The solution to the balance sheet problem is clear. Such sheets should only be drawn up for the complete household-farm-firm and for a sector comprising them, supplemented by equivalent calculations for agricultural companies. This reinforces the point made earlier about basing series of accounts on these units.

28. Questions relevant to this issue are as follows:

- Do statisticians agree that complete capital accounts and balances sheets should be calculated only for real units?
- Should measures of economic status be developed that, for farm households, cover income from farming, from other activities and annuitised net worth?

Issue 7: What could be done to improve the data systems that support agricultural income statistics?

29. The collection of data about agricultural incomes is often costly and frequently politically sensitive. The act of developing data is sometimes not regarded highly within the research community (Bonnen, 1989). Yet high quality data (relevant, timely, accurate, complete etc.) is a prerequisite of good statistics. Progress with many of the issues above within income statistics depends on making changes to data collection by the “traditional” sources and on making use of the increasing volume of “non-traditional” sources, such as administrative data and remote sensing.

30. Fragmentation of data sources is a characteristic of the EU. While harmonised income measurement methodologies are agreed between Member States and Eurostat, most data collection relies on national statistical systems that have their own ways of operation. Some countries had systems of aggregate accounting for the agricultural sector that pre-dated the EAA and long histories of collecting information about farm incomes from surveys. Others have set up systems at both levels only since joining the EU. Some countries have always collected data on all the income received by the farmer (and spouse) while for others this is new or not politically acceptable even now.

31. Some of the proposed developments in income measurement imply going beyond data sources that measure the reward from agricultural activity. Gaining access to unfamiliar data and seeking collaboration from staff in other institutions has been known to present problems. A few countries (the Scandinavians) have the tradition of co-ordinating records from different surveys and administrative registers, thereby creating a rich data bank capable of being analysed in many different ways, including

by the household's main source of livelihood (e.g. showing farmers as a subgroup) and by location (facilitating rural/non-rural breakdowns). However, for others, such linking is technically difficult, prohibited or would at best be of high political sensitivity and thus discouraged.

32. The main issue here is how the processes of revising existing data sources and forging potential links with new sources are managed at EU and national levels. Radical proposals (such as a EU-wide tax-based system) are political non-starters, so the attention must focus on incremental change. One important element within this might be to re-examine the legal basis of income statistics. While some areas of statistics (such as the FADN/RICA) are supported by a legal framework, in which the variables to be collected is part of the legislation, for many others (including the EAA and IAHS statistics) the supply of data is a matter of "gentleman's agreement". Perhaps this is no longer a satisfactory arrangement.

III. Synthesising a strategy

33. In a paper to the CAESAR 2001 World Conference, I attempted to use a political economy approach to explaining some of the characteristics of agricultural statistics in the EU (Hill, 2001). Prominent in the argument was the need to be aware of the bureaucratic structure behind the statistics, in particular that institutions (and individuals within the institutions) have their own agendas and goals. There will be a tendency for bureaucracies to resist change and to allow conceptual obsolescence to spread insidiously. Among users there will be an element of imperfect knowledge that carries the implication that they alone are not the best judges of the statistics they need.

34. Three elements were suggested as being required for the statistical system to be responsive to change pressures. One was the regular and frequent tripartite discussion between the suppliers and users of statistics and members of the "inquiry system" (consultants and outside experts). The second was a culture of change among the suppliers of statistics. The third was the adequate provision of resources for the change process.

35. In designing a strategy to enable the statistical system to meet the issues covered in this paper the following may be help.

- *Setting up international consultations on methodology.* In particular, there is need to agree a common approach to defining the farm household-firm unit, the measurement of income appropriate to this institutional unit at sector and microeconomic levels, and a common approach to balance sheets. For analytical purposes a common measure of size and a polity-relevant common typology may be useful (the latter perhaps using the USDA's system as a model).
- *Establishing more international databases.* OECD already collects and publishes aggregate activity accounts (EAA) for its Members using a common (EU-based) methodology, thereby facilitating access and comparisons. Similar databases could be established for farm-level accounts (a sort of super-FADN, of which a prototype exists) and for agricultural household accounts, both at the sector and microeconomic levels.

- *Promotion of regular consultations between a wide spectrum of users, experts and suppliers.* Though politicians and agricultural civil servants are important consumers of income (and other) statistics, there are many other present and potential users. Greater awareness of and involvement with these other stakeholders would increase awareness and usage, reveal where changes needs to be made, and help demonstrate the justification for the cost of statistics.
- *Further develop a vigorous electronic dissemination policy, preferably free.* This accompanies the previous points. However, results must be accompanied by metadata and warnings about what the results can and cannot be used for. This would help focus the demand for appropriate statistics and reduce the mismatch between policy aim and available statistics that now characterises the EU system.

Specifically for the EU the following might be considered as part of the strategy

- Embed agricultural/farm income statistics within general rural statistics. The growth of policy interest in rural development suggests that there is an emerging need for statistics on rural businesses, of which farm-firms would be a subset. Agricultural statisticians already have experience in data collection and developing business typologies based on socio-economic characteristics.
- Establish a legal basis for more agricultural income statistics. In the current period of worsening resource scarcity, a lower priority will be given to data that relate to what the national statistical authorities deem to be the most marginal. IAHS statistics have suffered of late in this respect. To protect the independence of statistics (from undue influence of agriculture departments) and to enable adequate resources to be provided, a shift to a legal basis may be necessary.

NOTE

¹ Nomenclature statistique des Activités économiques dans la Communauté Européenne.

References

- Abitabile, C., Beers, G., Bonatie, G., Bont, K. de, Del'homme, B., Larsson, G., Lindén, H. and Poppe, K. J. (1999). "The feasibility of a new farm return for the FADN", Agricultural Economics Research Institute, The Hague.
- Blandford, D. (1996). Overview of microeconomic results in OECD countries and policy interests: characteristics of incomes in agriculture and the identification of households with low incomes. In "Income Statistics for the Agricultural Households Sector", (B. Hill, ed.), pp. 119-31. Eurostat, Luxembourg.
- Bonnen, J. T. (1989). On the Role of Data and Measurement in Agricultural Economic Research. *Journal of Agricultural Economics Research* **41**, 2-5.
- Eurostat (1996). "Manual of the Total Income of Agricultural Households (Rev.1) Theme 5 Series E", Theme 5 Series E, Eurostat, Luxembourg, ISBN 92-827-5227-5.
- Eurostat (1997). "Manual on the Economic Accounts for Agriculture and Forestry (Rev.1)", Eurostat, Luxembourg.
- Eurostat (2000). "Income of agricultural households sector: 1999 Report", Theme 5, Office for the Official Publications of the European Communities, Luxembourg, ISBN 92-828-8759-6.
- FAO (1996). "A System of Economic Accounts for Food and Agriculture. FAO Statistical Development Series 8", Food and Agriculture Organisation of the United Nations, Rome.
- Hill, B. (2000a). "Farm Incomes, Wealth and Agricultural Policy - Third edition," Ashgate, Aldershot, ISBN 0-7546-1132-9.
- Hill, B. (2000b). Linking the established subsystems of economic statistics to provide a rounded view of agriculture. In "Proceedings of the 7th IWG-AGRI Seminar - Agricultural Economic Statistics (FAO/OECD/ECE/Eurostat) (ISBN 92-894-0281-4)", (P. Pauli, ed.), pp. 46-74. Eurostat (for the IWG), Luxembourg.
- Hill, B. (2001). Developed country agricultures: preparing statistical systems for the policy needs of the new millenium. In "CAESAR 2001 World Conference on Agricultural and Environmental Statistical Applications". ISTAT, Rome.
- Hill, B., and Brookes, B. (1993). "Farm Incomes in the European Community in the 1980s,," Document Series, The Commission of the European Communities, Brussels.,
- OECD (2000). "Low Incomes in Agriculture in OECD Countries (draft report AGR/CA/APM)," Organisation for Economic Co-operation and Development, Paris,
- OECD (2001). "Multifunctionality- towards an analytical framework", Organisation for Economic Co-operation and Development, Paris,
- Offutt, S. (2001). What Is Agriculture. In "CAESAR 2001 World Conference on Agricultural and Environmental Statistical Applications", ppV1-8. ISTAT, Rome.
- Vogel, F. and. Johnson, J (2000). Measuring agricultural income with the changing face of agriculture. In "Proceedings of the Seventh IWG-AGRI seminar", (P. Pauli, ed.), pp. 257-284. Eurostat, Luxembourg.
