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GROUP 10 (*b*). ECONOMIC AND TECHNICAL RESEARCH CO-ORDINATION

Chairman: Hans Pilhofer, *Canada* *Secretary*: Lloyd Halvorson, *U.S.A.*

Consultants
Yen-Tien Chang, *Taiwan* Lawrence Smith, *U.K.*

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Tomas Breathnach, *Ireland*
Anatol Brzoza, *Poland*
R. A. Dias, *Brazil*
J. Mendes Espada, *Portugal*
Edgardo Gilles, *Uruguay*
Earl O. Heady, *U.S.A.*
M. B. Jawetz, *U.K.*
Erik Kristensen, *Denmark*
John A. Langley, *U.K.*
Henry B. Luxton, *U.K.*
Michael Murphy, *U.K.*
Arthur W. True, *U.S.A.*
J. F. van Riemsdijk, *Netherlands*

A higher degree of co-operation and co-ordination between economists and technical scientists can make a major contribution to agricultural development and the alleviation of the cost-price squeeze on farmers for the following reasons:

1. Economic analysis can indicate to research directors and workers those technical problems which should receive highest priority.

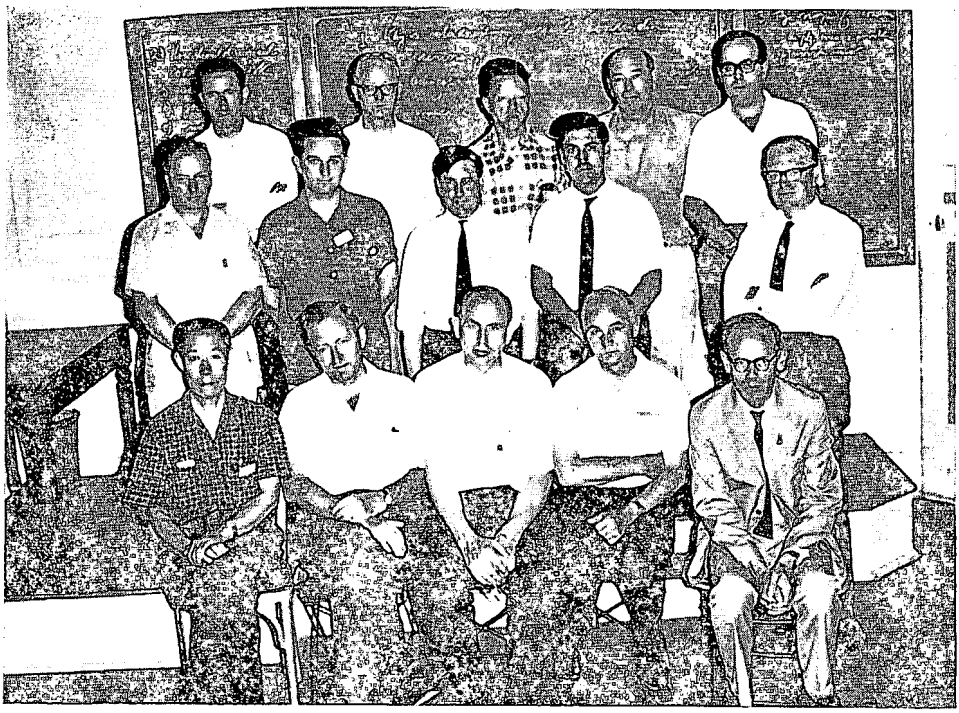
2. Research facilities will be more effectively used if technical experiments yield data which are suitable for inclusion in economic models as well as for technical evaluation.

3. Research progress may be hastened, and benefit passed on to society earlier, if economic evaluation of technological advances can proceed almost concurrently with the advance itself.

4. Technical scientists can provide economists with additional sources of input-output data which would otherwise not be available, thus improving the accuracy of econometric analysis.

5. Economic and technical co-ordination will encourage a more forward-looking attitude amongst economists by focusing attention on new and pending technological developments. At the same time the problems of obsolescence created by innovation can be better assessed by a joint appreciation of their likely effects.

6. Marketing research through consumer preference studies can provide technical scientists with qualitative and quantitative information and can provide it sufficiently in advance for new products or improvements to be developed and introduced on to the market at the right time, and in the right quantity and quality.



GROUP 10 (*b*). ECONOMIC AND TECHNICAL RESEARCH CO-ORDINATION

First row, left to right:

Yen-Tien Chang, *Taiwan*
Hans Pilhofer, *Canada*
Lloyd C. Halvorson, *U.S.A.*
Earl O. Heady, *U.S.A.*
Anatol Brzoza, *Poland*

Second row, left to right:

Henry Luxton, *U.K.*
John A. Langley, *U.K.*
Michael Murphy, *U.K.*
J. Mendes Espada, *Portugal*
J. F. van Riemsdijk, *Netherlands*

Third row, left to right:

Tomas Breathnach, *Ireland*
Erik Kristensen, *Denmark*
Arthur W. True, *U.S.A.*
M. B. Jawetz, *U.K.*
Edgardo Gilles, *Uruguay*

Such improvements in research data and approaches will lead to more accurate production functions, encompassing more variables and their interactions, possibly allowing significant advances in the determination of optimum levels of inputs and the most profitable combination of enterprises.

Discussions revealed that attainment of economic and technical research co-ordination is nearly a universal problem. This arises in large part from the departmentalization of research organizations and the difficulties of human relations. To facilitate research co-ordination it is suggested that:

1. In government and academic institutions a climate be created that is conducive to interdisciplinary research co-ordination. This is based on the general conclusion that contributions to joint projects come about easier and are most productive on a voluntary basis.

2. Where under the present structure the research functions operate in isolation, and voluntary co-ordination and co-operation cannot flourish, then the structure must be changed to make interdisciplinary research possible.

3. In such cases where co-ordination on a voluntary basis is non-existent or hindered by the research organization in which these functions operate, a committee should be set up to examine problem areas in which interdisciplinary research is desirable for effective problem solving.

4. Specific problems need to be identified and project responsibilities assigned.

5. Co-ordination can be fostered by educational training which emphasize interdisciplinary approaches.

6. Inter- as well as intra-institutional co-operation should be initiated.

7. A process should be created in which industry provides public institutions with data so that the impact of innovations can be evaluated earlier.

It should be remembered that a high degree of co-ordination can be achieved by social and intellectual contacts with technical scientists.

Whether or not interdisciplinary research comes about voluntarily, or through the organization that is created, productivity of such co-ordination will always be best assured when professional ethics are observed and co-workers are properly credited. In this way the fear of loss of individual eminence can be avoided.

The recommendations with regard to interdisciplinary research co-ordination need not be construed as an attempt to limit the freedom of research in any discipline. There remains a need for both individual and team research within a firm discipline.

The Group took note of the fact that problems and opportunities of research co-ordination are far more extensive at the macro-level than those which exist between economists and technical scientists at the micro-level. There is a very great need for co-ordinating the overall planning of technical research with macro studies of the social and economic impact of technological advance on the structure of agriculture and on the agricultural labour force. Even the impact on the national economy needs to be investigated. There is also need for co-ordination of economic research with other disciplines such as sociology, psychology, &c.

Furthermore, the need for co-ordination within economics itself, particularly at the international level, should not be forgotten. The Group noted that more research is taking place on international problems than ever before and that problems which once seemed unique to particular countries are now becoming recognized as being only dimensions of universal phenomena governed by universal laws. The first stage of international co-ordination for research effort should therefore be an improvement in the flow of research information, not only on completed research but also on research underway and in the planning process.

The second step might well be the creation of international technical research committees to tackle problems of world proportions. Committee members should not serve as government representatives but as respected objective scientists. The Group expressed the hope that this suggestion will command the attention of the IAAE during the next three years and at the next International Conference.