



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

SUSTAINABLE AGRICULTURAL DEVELOPMENT: THE ROLE OF INTERNATIONAL COOPERATION

PROCEEDINGS
OF THE
TWENTY-FIRST
INTERNATIONAL CONFERENCE
OF AGRICULTURAL ECONOMISTS

Held at Tokyo, Japan
22–29 August 1991

Edited by
G.H. Peters, Agricultural Economics Unit, Queen Elizabeth House,
University of Oxford, England
and
B.F. Stanton, Cornell University, USA
Assisted by
G.J. Tyler
University of Oxford

INTERNATIONAL ASSOCIATION OF
AGRICULTURAL ECONOMISTS
QUEEN ELIZABETH HOUSE
UNIVERSITY OF OXFORD

1992

Dartmouth

CSABA CSÁKI*
PRESIDENT ELECT

*Synoptic view***

We have come to the end of the 21st International Conference of Agricultural Economists. We have behind us eight busy, eventful days, full of rich impressions and experiences. We have been able to take part in an excellent, well-organized programme for which Professor Stanton and his team, and the Japanese organizing committee headed by Professors Yamada, Kawano and Imamura deserve our praise and gratitude, and we thank them for their thorough and painstaking work.

The 21st Conference is another important milestone in the history of the IAAE. Our members, and all of us present here today, can be justly proud of our Association's rich traditions. At the initiative of Leonard Elmhirst an international organization of agricultural economists was founded in 1929 as one of the first in the field of economics, providing an organized frame for international contacts. In the following decades the IAAE has won general recognition and prestige in international scholarly life. Its conferences are highly important events, acknowledged all over the world. In the 1960s the accelerated development of the various disciplines and the intensification of international scientific relations created a new situation in many respects for the Association. Regional associations of agricultural economists were formed one after another. The IAAE provided substantial help for the establishment of each of them. A whole series of international scholarly societies were also set up in related disciplines, including general economics and the agricultural sciences. The 21st Conference has shown beyond doubt that the IAAE has successfully adapted to new conditions, and has been able to work together with other societies and face the situation created by the new possibilities and forms of scientific cooperation. Our Tokyo meeting sets a new record for the number of participants. The membership of IAAE is expected to be higher than ever before in the 1990–3 period and will exceed 2000 for the first time in its 52-year history.

I am pleased to report that 1413 participants registered for the 21st Conference. The number of accompanying persons exceeds 200. The genuinely

*Budapest University of Economic Sciences, Hungary.

**In this traditional overview of the 1991 Conference the papers mentioned are to be found in this volume, or in IAAE *Occasional Papers, No 6* (the Contributed Papers volume). No further references are necessary. The author received valuable support in preparing the final version of the manuscript from Glenn Johnson, Michel Petit, Bernard Stanton, George Peters, Ferenc Fekete, Mária Sebestyén, Csaba Forgács and Bruce Greenshields.

global character of our congress is very gratifying; the delegates represent 61 countries, showing that the world organization of agricultural economists is present on all continents and in all the important countries of the world. I would like to express my special thanks to the host country, and the supporting foundations and institutions, for their help, which has been indispensable in ensuring that all regions of the world are appropriately represented at our event.

It is now becoming a tradition to evaluate our meetings in the spirit of our founding president. Leonard Elmhirst offers the following recipe for the holding of a successful conference:

A Recipe:

Friendshlp, Tolerance; Gravity;

Humour; Thought; Play

Mix Well and use freely while you are here.

I believe that we have followed our founder's advice with success in Tokyo. Old friends have been able to greet each other again and new friendships have been formed in a relaxed and cheerful atmosphere. There can be no doubt that we have enjoyed ourselves here in Tokyo Shinjuku, in the colourful bustle of this ultramodern yet attractive and human corner in the Land of the Rising Sun.

We will all take home with us the memory of pleasant suppers, real Japanese sushi and tempura, and informal conversations and excursions. However, it is not the principal task of the President-elect on this occasion to evoke pleasant memories and experiences before we set out for home. Our conference is first and foremost a scholarly event in which professional problems, papers and discussions, the 'thoughts' as Elmhirst called them, constitute the most important element. I am convinced that in the final analysis this is what will determine the opinion each of us forms of the meeting.

Our scientific programme was on a large, we could confidently say grand, scale:

- in the 7 blocks of the plenary and invited sections a total of 40 lectures were given, together with the Elmhirst lecture and the Presidential Address;
- those who became speakers in the contributed paper section had to prove their worth in very stiff competition: out of the 380 abstracts submitted, only 45 authors were invited to present their papers;
- the lecturers represented 45 countries and international organizations;
- the poster section has become a popular element in the programme; the majority of over 300 posters presented the latest achievements of authors representing the younger generation in our field, displaying a very high standard; it would appear that there has been no decline in the popularity of the Discussion Groups. Many were organized in the new framework of the mini-symposium. These sessions, for the most part held late in the evening, successfully competed with the enticements of the big city. It has been evident again that there is a demand among our members for the opportunity for more informal debates.

The last lecture was concluded only a few minutes ago. The professional experiences and impressions are still very fresh. In rushing from lecture to lecture, I have made every effort to prepare for the traditional task of the President-elect, to evaluate the contents of the programme. Obviously, I have not been able to make a full and thorough study of all the lectures and related discussions, and of the activity of the discussion groups. I shall therefore attempt only to sum up the content of the core of the scientific programme. I would like to share with participants my personal opinions and first impressions. I must therefore ask you from the outset to overlook any errors, oversights or possible imbalances, unfortunately the inevitable concomitants of such rapid and subjective summings up.

SOME GENERAL REMARKS

First of all, I note a few general observations on the scientific programme as a whole:

- (1) In keeping with its traditions, agricultural economics appeared basically as an applied science. The overwhelming majority of papers dealt with a concrete problem of agriculture and sought a concrete solution. The rules of the IAAE state our most important goal as follows: 'To foster the application of the science of agricultural economics in the improvement of the economic and social conditions of rural people and their associated communities.' I believe that this goal has been fully attained at the 21st Conference. The real problems of agriculture have been examined. Our programme has been imbued by the effort to achieve a more efficient agricultural economy, offering more for the farming population. A multitude of concrete proposals and ideas that could be put to direct use in practice on both macro and micro levels have been expounded. It is my conviction that the touchstone of the social sciences is usefulness, although that is not always an advantage among general economists. It is probably precisely this concrete nature and the results that can be put to direct use in real life which explain the favourable opinion which Professor W. Leontief held of agricultural economics. In a particularly interesting report of the president presented to the American Economics Association in the early 1970s, the Nobel-laureate professor summed up the achievements of the different branches of economics and reached the conclusion that especially good results have been obtained in agricultural economics. It would appear, on the basis of this meeting, that this concreteness and the effort to solve practical problems continues to be the strong side of agricultural economics. Our lecturers acted in the spirit of Professor Glenn Johnson: they undertook tasks they felt themselves capable of solving.
- (2) Owing to the characteristic features of the sector, agricultural economics is a multidisciplinary science. Agricultural production is one of the most complex spheres of economic activity, since the production technology is generally accompanied by special social relations. At this meeting the

interdisciplinary character of agricultural economics has found better expression than on earlier occasions. This year special emphasis has been given, above all, to technological and ecological aspects. It was encouraging to see agricultural economists think in terms of systems theory and to observe their familiarity with environmental and technological topics.

- (3) The congress has highlighted a great variety of problems, areas of investigation, approaches, methods of research and analysis. This has always been a characteristic of our discipline. The two decisive main trends in agricultural economics were also clearly and strikingly present on this occasion too. Again a major role was played by the Anglo-Saxon tradition based on neo-classical economics and quantitative methods, though the Continental European school has provoked attention with its precise formulation of problems and its greater sensitivity to social consequences. On this occasion, however, the difference between the two schools was far from being as striking as that perceived by Michel Petit at the 1985 conference. The demand for methodological perfection and the efforts to check hypotheses by statistical methods at all costs have become less marked. The approach that stresses methodology for its own sake has diminished. At this conference concrete problems quite clearly constituted the essence; however, most authors have used a wide variety of sophisticated methodology in their analysis. Greater scope has been given to research adapted to the direct service and requirements of agricultural development and at the same time authors were more pragmatic in methodology and ready to accept compromises.
- (4) The descriptive and the analytical approaches continue to be clearly distinct. There were also considerable differences in the papers in the level of abstraction and the depth of analysis. It would appear that in some regions, including my own, Central Eastern Europe, the analytical approach is not sufficiently deep-rooted. There are many reasons for this. Allow me to mention what is perhaps the most important of these. The over-proliferation of ideology and politics has never favoured the social sciences, and agricultural economics is no exception. Eastern Europe and the Soviet Union are now emerging from a period in which the conditions did not always exist for an objective analysis of social and economic problems. In many respects, agricultural economics was downgraded to a descriptive science and those in power expected it to serve day-to-day political interests. The change has now begun in Eastern European and Soviet agricultural economics and we are witnessing rapid renewal. I believe that the IAAE should also undertake a bigger role in this.
- (5) The complex and mutual interdependency of the problems and issues of concern to agricultural economists found strong expression at the congress. The fact that the phenomena of agricultural development are closely interrelated in time and space, and that ecological, biological, economic and social aspects all form part of the problems examined by agricultural economics, could be felt in the overwhelming majority of the papers. Most authors attempted to formulate conclusions based on a thorough

understanding of decisive interrelationships. The papers dealing with narrower questions, for the most part, also presented experiences that can be generalized and reached conclusions that can be applied in other situations, too. Michel Petit distinguishes macro-economic, market, technological and ecological–environmental components in agricultural economics. Looking back at our programme we can say that all of these have been included in the debates over the past week.

- (6) The problem of hunger and poverty continues to be of great concern to agricultural economists. To a certain extent the problem of poverty appeared in a new context at this conference. Our Elmhirst Memorial Lecturer, V.S. Vyas, brought much new insight into the subject. More generally, authors no longer interpreted poverty as a natural disaster or simply as the product of colonial oppression and exploitation but as an unequivocal development problem. In this spirit they approached policies leading to the elimination of hunger through an understanding of the mechanism that gives rise to it. As K. Parikh observed, hunger is a phenomenon which is closely interrelated with the mechanism of the world food system. Its elimination is not simply a question of production or finance. The roots of hunger are deeply embedded in the world food system and it cannot be expected that its mechanism will spontaneously eliminate hunger. Without the combined efforts of the developed countries, and international redistribution of access to income producing resources, it is not probable that hunger will disappear from the world in the foreseeable future. Efforts to eliminate hunger and poverty must also be one of the mainsprings of the reform of agricultural policy and of national restructuring of society at large in the countries affected.

TOWARDS A SUSTAINABLE AGRICULTURE

Focal points of our programme have clearly been determined by the main themes of our Conference. The debate over sustainability has dominated our discussions, having been based on the thought-provoking Presidential Address and Elmhirst Lecture and on a number of outstanding papers.

In the development of agricultural production technologies, the availability of cheap energy sources on a mass scale made major growth in agriculture possible, especially under conditions where the food needs of growing populations rose very sharply from year to year. It was easy to ignore the possible environmental harm this was causing. However, the growing number of ever more serious cases of environmental pollution is increasingly obliging us to reflect. It is not easy to draw some kind of global balance of the harmful environmental effects of agricultural production: even for individual countries only fragmentary data are available. We were able to learn of new cases at our congress. There can be no doubt that the increased use of artificial fertilizers has a serious impact on water management systems through nutrient enrichment and pollution of water with nitrates. Phosphate fertilizers represent a special danger to the quality of water in lakes. More than 70 per cent of the nitrogen entering surface waters originates in agricultural sources. We still do not have

a precise knowledge of the biological effects of herbicides and plant-protecting agents. However, two things appear to be more or less certain. One is that plant-protecting agents and herbicides accumulating in the human organism over a longer period of time can cause dangerous harm to health. The other is that the resistance of crops can be lowered through the use of these substances and there can be a change in the composition of flora and fauna, especially of insects.

It took a relatively long while from the recognition of the harmful environmental effects of modern agricultural production until the conditions ripened for a change in attitude and a shift towards a sustainable agriculture came within reach. It would appear that the first stage of debate on the interactions of agriculture and the natural environment has come to a close. No one any longer questions the significance of the environmental and ecological aspects of agricultural production. The debates over concepts and interpretations have also died down. Sustainable development which meets the needs of the present without compromising the ability of future generations to meet their own needs has become a goal in agriculture too. It is not by chance that the IAAE chose this problem as one of the main themes for the Tokyo meeting.

A sustainable agricultural development strategy strives over the long term to achieve harmony between the production activity of man in agriculture and the human and natural environment. It involves three things: a long-term perspective, equity between generations and understanding dynamic phenomena. Achieving sustainable agricultural development is a complex task which is only possible with harmonization between economic and ecological considerations. The papers presented at our congress examined the problems of achieving this goal. The human and research aspects of sustainability have been strongly emphasized, and it has been pointed out that sustainability represents a new challenge for research, education and administration.

From the conference discussions it appears that one of the most important conditions for sustainable development is the transformation of production technologies. Efforts are needed to achieve biologically more efficient solutions, more soundly based on concrete ecological endowments, and on understanding biological and natural processes. The possible paths of technological development which are now taking shape involve a great deal of uncertainty and their analysis also requires special expertise. There can be no doubt, though, that the first signs of this 'second industrial' or, if you prefer, 'biological' revolution within agriculture, are already very striking.

Present technologies can be divided into roughly three groups.

- (1) The first consists of present industrialized agriculture (considered to be conventional) guided by the principle of short-term agricultural rationality which maximizes profit and necessarily leaves out of account the external impacts of its operation and those that will be felt by future generations.
- (2) The second comprises organic agricultural technologies which stress the preservation of 'wholeness' of natural processes and strive to respect the ecosystems found in nature as well as the 'wholeness' of social structures and communities.

- (3) The third group is made up of applications of the most advanced technology, involving strict control of biological systems with the aim of achieving precise predictability and uniform quality. In their logic these methods essentially follow the present industrial methods but they use the latest findings of biological and genetic research for their implementation.

Among the future technological alternatives the congress discussed mainly the economic and social impact of wider use of the methods of biotechnology. It appears that they have much to offer both for developed and under-developed countries, though the potential remains far from fully explored! Other directions of technological development, including the question of organic or biological agriculture featured only in the programme of the Poster Section.

WORLD AGRICULTURAL TRADE IN THE PROCESS OF CHANGE

International cooperation has been the other main theme of our conference. The present system of international agricultural trade has long been the subject of criticism and debate in numerous international and scholarly forums. Exchange of views on this topic continued within the framework of our discussions.

The basis of the world food economy system today is a market mechanism which is being increasingly distorted by agricultural policy interventions applied independently of each other in different countries or groups of countries. The goals and instruments of national agricultural policy differ very widely in their nature and methods. However, intervention in the agricultural economy is often characterized by protectionism.

Naturally, different countries do not have the same possibilities. The policy of the developed countries is generally effective and usually offensive. The production stimulated by unrealistically high producers' and consumers' prices in the developed countries, coupled with the protection of the domestic market, results in the accumulation of vast surpluses. In the final analysis, these surpluses flow out onto the international markets at prices set unrealistically low, often covering only the storage costs. Since there is a limit to absorption capacity, this becomes one of the most important factors contributing to extremely depressed world agricultural market prices. The export of the vast, state-subsidized food surpluses of the developed countries undermines the market positions of those, otherwise efficiently producing, countries which are not willing or able to take part in price competition financed from the state budget. The world market for agricultural produce has increasingly become a competition of state budgets rather than a competition of agricultural producers. There are both losers and winners in this situation. The smaller, poorer countries are obviously on the losing side, while the rich importers are on the winning side. While it is not easy to find one's bearings in this situation, one thing that is quite clear is that, with the present practice, mankind is renouncing a very substantial part of the comparative advantages inherent in the rational regional location of agricultural production.

The protection of national agricultural markets and the support of agricultural producers created an especially serious situation on agricultural world markets in the 1980s. As the conference has shown, the main characteristics of the present contradictory situation can be summed up as follows:

- The world agricultural market has become destabilized and world market prices continue to decline.
- The support of agricultural producers' and export prices, through protectionism consumes vast sums in the countries concerned. In 1990, the total costs of agricultural support were US\$300 billion in the 24 OECD countries (A.de Zeeuw).
- The situation of the traditional agricultural exporting countries is becoming increasingly serious. Their rapid loss of position can be observed to be a consequence of price dumping by the protectionist countries which is achieved with the help of export subsidies.
- Agricultural trade is increasingly becoming the source of conflict between countries, an issue stressed by de Zeeuw and analysed very fully in contributed papers. The agricultural trade dispute and the subsidies war have been going on for years between the USA and the European Economic Community. Relations between the USA and Japan are also marked by sharp contradictions in the area of agricultural trade (for example, over Japanese beef import policy). The Cairns group has been set up to represent the joint interests of the agricultural exporting countries.
- The support of the agricultural sector and export subsidies are also the source of growing tensions within the countries concerned. The contradiction within the European Community in connection with the Common Agricultural Policy is well known, but the agricultural budget of the US administration is also a constant subject of debate.

This situation is increasingly untenable and demand is increasing for fundamental changes both in the international pattern of trade in farm products and in agricultural policies of individual countries. The idea and demand for liberalization of trade in agricultural produce have long been on the agenda. Many researchers have studied the possible consequences and effects of agricultural liberalization. Some of their findings were presented here. We are all closely watching the Uruguay Round of talks and we listened with interest to de Zeeuw and Warley and McClatchy. On the whole, a modest optimism emerged at the conference. I sincerely hope that these expectations will be confirmed in the near future, with successful conclusion of the GATT negotiations.

REFORM IN NATIONAL AGRICULTURAL POLICIES

The conference has made it clear once again that the reform in national agricultural policies is a major precondition for the restructuring of international agricultural trade. Today policy reform is in progress in practically all countries

of the world. Of course, as the papers also suggested, the motivations for, and depth of, the changes differ from country to country and region to region.

Changes in agricultural policies of developed countries

A number of papers dealt with the agricultural policy of the developed countries, above all of the EC and the USA. They showed that the most important lesson from the crisis in international agricultural markets in the 1980s is precisely that only changes affecting the majority of countries together can bring a solution. The key thus lies in the coordination of national agricultural policies. The experiences of recent years also suggest that international trade policy efforts will be ineffective if they are not accompanied by concerted reform of national policies.

Decoupling, a new concept that appeared recently in agricultural economics, indicates the new direction in the transformation of national agricultural policies in developed countries. The essence is the shift to trade-neutral policy measures; in other words, preserving the parity of agricultural incomes without simultaneous provision of incentives and support for production. A variety of different interpretations can still be encountered regarding the details of this concept. However, it is obvious that the developed countries are seeking new instruments to replace price supports, export subsidies, guaranteed prices, trade quotas and tariffs. A debate is being conducted on solutions that will ensure the attainment of the social, income and environmental protection goals of the present agricultural policies without exerting an unfavourable influence on the world market for agricultural produce or preventing the assertion of comparative advantages in that market. Several speakers pointed out that agricultural policy reforms directed at trade are often linked with measures to conserve the natural environment or are implemented in a form that also fosters environmental protection.

Structural reforms in the developing countries

Many countries in the developing world wish to pursue a new general development strategy. Comprehensive agricultural policy reforms are also being implemented as a part of this. The congress had the opportunity to learn about the experiences of a wide range of these reforms (in Africa, Chile, Morocco, Cameroon, Brazil and Ethiopia for example).

The majority of developing countries are characterized by a price and support policy that is unfavourable to agriculture. In the African countries examined by A. Valdés in his study, for example, the direct support rate for agriculture is minus 20 per cent, while the non-agricultural sector enjoys the benefits of positive support of 36 per cent. Price interventions unfavourable to agriculture lowered the agricultural GDP by around 28 per cent, while at the same time the positive effect of price subsidies provided for agricultural inputs was equivalent to 8 per cent of agricultural GDP. From papers pre-

sented, the frame of agricultural policy reform in developing countries consists of four main elements:

- (1) policy reforms to improve the economic environment for agriculture;
- (2) strengthening the public sector to support technology development and transfer, education in rural areas, and infrastructure projects supportive of agriculture;
- (3) encouraging opportunities for increased participation in the economy by historically disadvantaged small farmers and landless workers; and
- (4) promoting improved natural resources management.

Although, as we have heard from our speakers, some reforms introduced after suitable preparation have generally brought favourable results, opinions continue to differ sharply on some specific issues. Views are particularly divided over the role of the free market and the desirable manner and extent of state intervention. The criticisms expressed in connection with the operation of the market and the references to the extreme impacts of the market are based on unequivocal, concrete facts. U. Koester rightly notes that: 'There is much support for the hypothesis that markets are not efficient in directing agricultural development.' At the same time, it seems to me, in the light of successful reforms and especially the experiences of the Eastern European countries, that negative observations concerning the free market are often over-simplified. It is reasonable to speak of market failures only in the context of existing and operating markets.

What is needed first of all in the countries concerned is markets and it is only after they have been created that it is worth debating the necessary or desirable extent of state market interventions. The reservations or negative experiences of agricultural economists in the developed countries concerning the free market or the market in general arise from centuries of developed market economy practice. However, the history of the former socialist countries is a warning that nothing causes greater harm to the development of agriculture than the lack of a working market. Therefore it is not helpful to try to alarm countries striving to create an elementary market, right from the start, with the possible adverse features of a well-established, operating market.

Restructuring of agriculture in the socialist countries

The first economic reforms were carried out in the so-called socialist countries as early as the late 1960s. At the end of the 1970s, Chinese agricultural reform aroused attention. As our discussions suggested, the changes that have occurred in China still attract considerable interest among us. The events of the second half of 1989 and later developments turned the spotlight on Eastern Europe and the Soviet states.

The first wave of agricultural reforms in the socialist countries sought ways of making the system more efficient within the framework of the socialist economy. The aim of the Chinese agricultural reform and the earlier Eastern European reform attempts was to make the system more efficient and the

changes did not affect the basic elements of socialism. The political ferment that arose in Eastern Europe from economic difficulties brought a spectacular change of direction. Declining economic performance, the lag behind the mainstream of world development and the lack of success of the attempts at economic and political reform questioned the very foundations of the post-Stalinist economic and political system. Changes now under way in most of these countries have gone beyond the bounds of reform in the traditional sense and quite clearly point in the direction of the total rejection of the socialist-communist economic and political system.

In examining the restructuring of agriculture in Eastern Europe in the early 1990s, we must therefore clearly understand that the changes now under way constitute a process reaching far deeper than the reforms of earlier years. What has begun to emerge is a new agricultural structure based on private ownership and the market economy. This restructuring has already advanced beyond the first steps in the countries of Central Europe and similar changes can be expected in the Soviet Union. The main characteristics of the new system, and the critical points for the future, can only be traced in general outline as yet. Nevertheless, it is already quite clear that the most important tasks for the creation of the new agricultural structure are the following:

- restructuring of ownership of the means of production, including the land, and creation of marketable landed property;
- creation of a farming structure based on private ownership;
- creation of a mechanism of market regulation;
- establishment of the physical, organizational and institutional conditions for the operation of the market;
- shaping a new type of role for the government in agriculture; and
- creation of the legislative framework required for all this.

One of the biggest restructurings of agriculture in history is now taking place in Eastern Europe and the Soviet Union. This transformation involves far more than replacing central planning with market regulation. It is an unprecedented attempt to create a democratic market economy by peaceful means from the autocratic one-party system and the planned economy. It is regrettable that the agricultural aspects of this process were not discussed in their full complexity, since events of historical importance taking place during the days of the conference prevented our Soviet speakers from delivering their papers in person. One is to be included in the Proceedings volume. We are grateful to Dr Karen Brooks and Professors Fekete, Forgacs and Hunek for enabling us to have a very informative discussion of current developments.

FAMILY FARMS AND SMALL-SCALE PRODUCTION

The micro-sphere came to the fore again and was given a new profile in our discussions. It was particularly welcome since such topics can too easily become pushed into the background, either consciously or simply for a lack of interest. It is an extremely gratifying development and one to the credit of

those who planned the programme that the spotlight has been turned once again onto the problems of farms, and above all onto the present condition and future of family farms. It would appear that these are universal issues which are of concern alike to agricultural economists in the developed, the developing and the former socialist countries now undergoing transformation. It is not farm management that has been considered at our congress! It was the micro-economy which returned to the programme. A certain aristocratism, and an excessive macro-orientation, has often caused this area to be underservedly neglected. On this occasion we have had a rich selection of papers relating to part-time and small-scale farming. It was only in connection with cooperatives that I felt something to be missing. We devoted relatively little attention to them. The seminar to be held in Israel in March 1992 offers an excellent opportunity for detailed examination of this subject. I am convinced that the experiences of agricultural cooperatives are of exceptional importance for all countries. The transformation of the Eastern European kolkhoz-type cooperatives is perhaps one of the most exciting issues of micro-level agricultural economics at the present time. The paper by Brooks and Braverman provided an interesting overview, suggesting that the change might require more time and effort than is often envisaged.

GLOBAL AGRICULTURAL DILEMMAS ON THE THRESHOLD OF THE TWENTY-FIRST CENTURY

The IAAE congresses are always a good opportunity for an overview of the situation of the world food economy and the identification of its critical points for the future. Here in Tokyo the papers presented by N. Alexandratos and K. Parikh set the keynote for the discussion on this theme, although in the final analysis practically every paper contributed in some way to shaping the global picture.

The progress that has occurred in recent developments in world food production is one of the greatest achievements of mankind. Only a century ago, hunger and malnutrition were found in practically all areas of the world. The situation has now improved substantially. The per capita daily calorie consumption in the developing countries now stands at 2440 calories, in contrast with the 1950 of the early 1960s. And this progress has been achieved in a period when the population of the developing countries has grown by 1.6 billion; that is, by 77 per cent (N. Alexandratos data). As a result of this change, according to estimates by the World Bank in 1990, the proportion of those who suffer hunger and malnutrition has significantly declined.

However, the discussion at this congress indicates that this global picture inspiring optimism for the future hides very serious contradictions:

- (1) Hunger has not disappeared from the earth. A considerable part of mankind still does not receive sufficient nourishment. According to FAO estimates, in 1986–7 the daily calorie consumption of 54 per cent of the population of the developing countries (not including China), a total of 1471 million people, was less than 2200 calories per day. The fact that

the daily calorie consumption of such a substantial part of the population of the developing countries remains closer to the 2000 calorie per person per day level than to 3000 calories remains a cause for concern. In a considerable part of the world, agricultural production is having increasing difficulty in keeping pace with the growth of the population and the growth rate of agricultural production is steadily declining.

- (2) At the same time, vast food surpluses have accumulated in many countries and a number of countries in the world, including also developing countries, are struggling to cope with the problems of over-production of food and how to sell the surpluses. The over-production faced by the EC and the USA are well known. However, it is also worth mentioning that foodgrain stocks of 21 million tons accumulated in India in 1991, while at the same time there was no appreciable decline in the number of those suffering from hunger (K. Parikh).
- (3) Protectionism has become the general characteristic of agricultural trade. The equilibrium of the world food market has been lastingly upset. Supply regularly exceeds the actual demand and as a result there is a steady decline in the relative world market prices for agricultural produce.
- (4) Food has to be produced for an increasing number of people per unit of land. The area of arable land per capita fell rapidly, from 0.24 to 0.15 hectares, between 1950 and 1986. The forecast for the year 2000 is 0.12 hectares per capita. The stagnation in the area of land under cultivation is accompanied by a relatively rapid deterioration in the quality of the soil.
- (5) In recent years the development of agricultural production has been characterized by the replacement on an ever greater scale of human labour and natural biological processes by the use of energy of a non-agricultural origin. The utilization of energy and artificial fertilizers and of the different plant-protecting agents and herbicides is now increasingly decisive in the growth of agricultural production. All this is undoubtedly further aggravating the contradictions between agriculture and the natural environment, heightening the ecological and biological concerns regarding modern agricultural production.

All these phenomena clearly show the symptoms of the sickness of the global food economy. Reflection on all this raises a host of questions:

- If the development is as dynamic and spectacular as a number of speakers at this congress also noted, how is it possible that, despite this, hunger has not disappeared, since the quantities required to eliminate under-nourishment appear to be marginal compared to the scale of the development?
- The rapid development of production could easily have provided the possibility of eliminating hunger. The fact that signs of over-production – large stocks and relatively low prices – appear simultaneously with hunger gives cause for thought. If there is lasting over-production, how can there be hunger at the same time?

- Not only is there over-production, there is also growing, or at least stubborn, protectionism. How is it possible that, although attempts are repeated practically every year to dispose of the almost unsaleable, vast stocks of food (such as in the countries of the European Common Market), protection has nevertheless not declined, not to mention disappeared?
- If such a combined pressure arising from the growth of the world population and over-production weighs on the arable land of the world, why is it that over-production does not stop? Why do we waste the resources that will have to play such a big role with the anticipated population growth? What is the secret of the vicious circle of over-production, protectionism and hunger?
- If the environmental problems arising from the energy shortage and the present technologies are as serious as a number of speakers have shown them to be, why has all this not acted more strongly in the direction of technological change?
- If the present technologies already clearly reveal the seeds of present and future conflict, why are the new technologies about which we have heard so much here in Tokyo being introduced so sporadically, slowly and with such delay?

We have received a satisfactory reply to only some of these questions here at the conference. Answering the majority of them remains a further task for agricultural economists and not least of all for policy makers.

CONCLUSIONS

I have reached the end of my review. I am afraid that I risk exhausting your patience, although there are still many other issues which could be raised. I have made no mention of research, consultancy, the achievements of the international research institutes, the experiences of rural credit, the effectiveness of product marketing and efficiency of production systems. These were all valuable elements in our scientific programme of the congress but, unfortunately, for lack of time, I have not been able to refer to them.

In conclusion, I would like to stress the words of Dennis Britton, President in 1981, who said, 'the IAAE is neither a pressure group nor an action group. We have not come ...to pass resolutions, nor to organize some dramatic piece of world-wide collective activity.' The agricultural economists of the world once again came together, here in Tokyo, as independent, autonomous experts, to debate the problems of world agriculture. As our conference has again demonstrated, none of the many possible forms of scholarly contact can replace personal face-to-face encounters and the thought-provoking experience of participation in scholarly debate.

We have debated major themes, and more detailed questions, of world agriculture. There can be no doubt that as we approach the twenty-first century, agriculture throughout the world faces new challenges: the problem of hunger must be solved once and for all; a new, globally more harmonious, order must be established for national agricultural policies and for international trade of

agricultural products; and real, substantive, progress must be made in the direction of sustainable agriculture,

These are very big tasks for the agricultural economics profession and for our Association. Their accomplishment requires even more mutual understanding than in the past, with international cooperation and a world less marked by tension than in the past. At the end of the 1934 conference, George Warren said much in one final sentence 'I think this has been an excellent conference' as a stimulus to science and to friendship – two things badly needed in this sick world.'

I think it would be difficult to add anything to that. Ladies and gentlemen! Sayonara!