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EDITORIAL NOTE: GENETICALLY MODIFIED FOOD

The two most recent issues of EAAP News carried Editorials on Genetically Modified Food (December LPS 62, 1999, 51-60; and April LPS 63, 2000, 159-164) which aroused considerable interest among readers. OECD held a three-day Conference on the Scientific and Health Aspects of Genetically Modified Food in Edinburgh. All interested parties and positions were represented from many parts of the world and from all sectors of society having an interest in the subject. EAAP was represented by Professor A. Aumaître, Member of EAAP Council. The Chairman was the Professor of Zoology in the University of Oxford, Professor Sir John Krebs. The
Report of the Conference is extensive. However, the Chairman wrote his own Summary which provides a thoughtful and balanced view of this controversial matter. He gives a positive and creative approach which recognizes that there are legitimate arguments on both sides of the debate which need to be addressed with light rather than heat. The Chairman points up the need for more precise clarification and evaluation of GM Foods from the viewpoint of the safety of human health and the care of the environment. Further he recognizes that decisions on the use of GM Foods must not be taken by one sector of the community in isolation. The process of bringing all the stakeholders into the evaluation and decision-making process, he says, needs new and public mechanisms.

The Chairman’s Summary is therefore reproduced here for the benefit of readers of Livestock Production Science.

GENETICALLY MODIFIED FOOD

OECD Conference on Scientific and Health Aspects of Genetically Modified Foods held in Edinburgh, 28 February to 1 March 2000. Summary by the Chairman of the OECD Conference, Professor Sir John Krebs, Professor of Zoology, Oxford University and Chairman Designate of the future UK Food Standards Agency.


FOOD SAFETY

8. World-wide, many people are eating GM foods (especially in North America and China) with no adverse affects on human health having been reported in the peer-reviewed scientific literature.

9. There could, in theory, be long-term effects on human health that have not yet been detected because GM foods have been available for less than ten years.

Decision-making, assessment and choice

10. In the future, policy decisions about GM food, as well as the assessment of their safety, should be more inclusive and open than has typically been the case in the past. People want to know how decisions have been reached and to be consulted. This process will help to remove suspicion.

11. Having said this, there was no clear conclusion on how attitudes and beliefs that might become apparent as a result of consultation should be incorporated into the assessment and communication of GM food safety. For many, safety assessment remains an essentially technical and scientific process.

12. Consumers should be allowed to choose. Labelling of GM foods is important, although there was no agreement on how far this should extend (e.g. to GM derivatives? To animals fed on GM?). It is important also to note that the labelling applies to the process by which organisms are created and not the food product, which in many cases is identical to its conventional counterpart.

The assessment of GM food safety

13. The assessment of the safety of any novel food, including GM food, involves a variety of kinds of evidence. One commonly used tool is the concept of “substantial equivalence”. The essence of this idea is that a comparison between the novel food and one already in the diet provides the basis for asking questions about the safety of the novel product. Substantial equivalence is not a quantitative criterion or a hurdle, but a framework for thinking. It is continually modified and updated, but it is timely now, after six years of using the tool, to undertake a more detailed review.

14. On two more technical issues, (a) there is no clear agreement about the importance of animal feeding trials (other than toxicity trials) in assessing the safety of novel foods, including GM foods; (b) The methods for testing toxicity and allergenicity of GM foods need re-examination.

15. Existing international bodies are working to achieve consistent standards and criteria for the assessment of food safety, and this is to be applauded. The precautionary principle is now beginning to be discussed internationally in relation to food safety, but it has not yet been translated into an agreed operational form.
GM technology in developing and developed countries

16. The majority of speakers from developing countries stressed the crucial importance of GM technology as part of the armoury for feeding their population in the future. In China, with 20% of the world’s population and 7% of the land surface, GM is already playing a major role in food production, and its importance was also emphasized by speakers from Africa and Latin America. However, the view was also expressed that the future application of GM technology in developing countries should be more explicitly tuned to the needs of local people rather than of multinational corporations.

17. In light of this last comment, GM technology for the developing world should be carried forward through a mixture of public and private funding.

18. Whilst it is essential that standards of safety assessment should be consistent and high throughout the world, the strongly expressed demand for GM technology in developing countries casts substantial doubt on proposals for a world-wide moratorium made by some participants.

19. The first generation of GM crops and foods are perceived as having brought little direct benefit to consumers in developed countries, but this may well change as new products appear with direct quality, health or price benefits.

Concerns about GM other than food safety

20. The principal concerns of the opponents of GM related less to food safety than to the broader question of why GM food is being produced at all. Most developing country speakers argued forcefully that GM technology is an essential part of their future food production (see paragraph 16), but this was rejected by some NGO speakers from Europe and North America. They argued, instead, for solving world food shortage by redistribution, better prevention of loss during storage and so on. They also pointed out, as did some developing country participants, that citizen engagement in decision-making and discussion (see paragraph 10) should be improved in developing countries.

21. A second concern about GM agriculture was the potential environmental impact. Although there have been many field trials and, in some parts of the world, large-scale commercial planting of GM crops, there has been insufficient work to fully assess environmental impacts, especially in the biodiversity-rich tropics.

THE WAY FORWARD

22. The most significant aspect of the Edinburgh Conference was that it included all sides of the debate surrounding GM foods and nevertheless identified certain areas of agreement. It also succeeded in identifying issues in which there is disagreement or uncertainty due to lack of knowledge, and in separating out issues which are subject to scientific analysis and those which are related to political factors, beliefs and values. Further detail is available in the rapporteur’s report.

23. The conference represents a new start in the global debate about GM food and agriculture: a more inclusive approach in which the protagonists discussed some of the key issues with each other. There was support for continuation of this process to deal with other parts of the debate.

24. I therefore recommend that an international forum be set up to continue the process started in Edinburgh. The aim of such a forum would be to provide governments with a state of the art assessment of scientific knowledge about GM technology, and to set this assessment in the context of broader concerns of society.

25. A model for such a global assessment is the IPCC (Intergovernmental Panel on Climate Change). This Panel allows governments to draw on worldwide expertise in climate science. It informs but does not make policy and it acknowledges the minority scientific views as well as the current majority view. It also updates its reports at intervals.

26. The forum I propose would have similarities to the IPCC, but it would include not only scientists but also other stakeholders.

27. The following suggestions indicate how the forum might be developed: (a) It should build on and interact with, rather than duplicate or replace, the work of existing international groups such as Codex Alimentarius. (b) It should be global in scope and not restricted to G8 countries or a subset thereof. In particular, a key message of the Edinburgh confer-
ence was the role of developing countries where application of the technology is proceeding rapidly. (c) It should be led by the world’s best scientific experts, but include a wider range of expertise and opinion than scientists. (d) Two initial themes for the forum would be food safety and environmental safety of GM in agriculture and food production. (e) There would be two kinds of outputs: (a) scientific assessments in the form of reports that inform policy; (b) an inclusive and global debate about the relationship between GM technology and society. It will be essential that governments take ownership of the forum and its reports. (f) The reports should be produced in a timely way so as to facilitate the assessment of rapidly emerging technologies.

**SUMMARY**

28. In summary, this proposed forum could serve two important functions by enabling a global debate and assessment of GM technology in food and agriculture.

29. First, it will allow the best scientific analysis of the risks and benefits of the new technology, as it develops, to be carried out in order to provide governments world-wide with appropriate expert advice. This advice will acknowledge the range of scientific opinion and uncertainties, as well as indicating the current majority opinion.

30. Second, it could create a better understanding of the relationship between technological developments, policy, and the concerns and aspirations of citizens. This would be achieved by widening the forum beyond purely scientific analysis, to include the broader issues that I have referred to in relation to the Edinburgh conference.

31. There is more than one way of achieving these twin objectives. One approach would be to have an expert panel, led by scientists but including other stakeholders, to carry out the scientific assessments. Draft reports of this expert panel could be used as the basis for discussion by a broader forum, along the lines of the Edinburgh meeting, in which the non-science issues are brought into the debate. The expert panel might choose to revise its report in light of this broader discussion.

32. I have deliberately left the details of implementation to others, because I want to sketch out the vision rather than the detailed mechanisms.

Professor Sir John Krebs,
Oxford University, UK.

**51st ANNUAL MEETING OF EAAP, THE HAGUE, 2000**

Shortly after publication of this Newsletter, the 51st EAAP Annual Meeting will convene from 21-24 August in The Hague, The Netherlands with the special theme “Interaction between Research and Innovation”. The meeting is the 2000 Joint Celebration Millennium Meeting of EAAP/ASAS/ADSA. Anyone wishing to register for the whole or for individual days may do so at the conference venue: The Netherlands Congress Centre located between the historic city centre of The Hague and the seaside resort of Scheveningen; or at Bernie Brilman PCO BV, Huygensstraat 1, 2271 BV Voorburg, The Netherlands. Tel: +31-70-387-0070, Fax: +31-70-386-3372. email: eaap2000@bpcou.nl

**Scientific Programme**

The Scientific Schedule may be found in EAAP News No.35, LPS 61 (August 1999), page 82 with an update on individual Study Commission sessions on pages 70-73 of EAAP News No. 36, LPS 62 (December 1999). Other details of the meeting may be found in EAAP News No. 36, LPS 62 in December 1999 on pages 67-68. Several Satellite Symposia are associated with the EAAP Meeting details of which are given in the Calendar of Scientific Meetings at the end of this Newsletter.

**Special Theme**

Two plenary talks will be on given on Monday 21 August following the Opening Session at 08.30 hours. The talks will be on the theme “Interaction between Science and Innovation”. The speakers are: Prof. Dr. G. van Dijk, Director of the NCR National Co-operative Council for Agriculture and Horticulture, The Netherlands on the topic of “Governance of innovation in animal production: New roles for science, business and the public sector”. The US
Speaker is Dr. Bobby D. Moser of Ohio State University on the topic: “Scientific information transfer as a source for new products to society”. Dr. Moser replaces Dr. H.D.Cleberg who is unable to attend.

FUTURE EAAP ANNUAL MEETINGS

2001. The 52nd EAAP Annual Meeting will be held in Budapest, Hungary from 26 to 29 August 2001. The new format of the EAAP Annual Meeting will be introduced for the first time. The Study Commission Programme is given in EAAP News No. 36, page 60 in LPS 62 (December 1999).

2002. The 53rd EAAP Annual Meeting will be held in Cairo, Egypt. This is the first time that the EAAP Annual Meeting will be held outside Europe. The meeting will be in the second half of September 2002.

EAAP NOTICES

New EAAP Working Groups

In 1999 the EAAP set up two new Council Working Groups: The Working Group on Alternative Productions is co-ordinated by Professor J-L. Tisserand (France); and The Working Group on Aquaculture is co-ordinated by Dr. W. Enright (Ireland). The EAAP Council have now set up a further Working Group: Ethics and Welfare in Livestock Production, co-ordinated by Dr. François Madec (France), which will meet for the first time at the EAAP Annual Meeting in The Hague in August 2000.

Wageningen Pers Scholarship

EAAP is pleased to announce that the first “Wageningen Pers Scholarship” will be awarded at the 51st EAAP Annual Meeting in The Hague in August 2000.

Wageningen Pers is a specialist publisher in the field of scientific publications on animal production and veterinary sciences. Its location within Wageningen University and Research Centre positions it close to a major source of animal research and science, as well as the world-wide scientific network. Founded in Wageningen in 1949, Wageningen Pers has been an independent organization since its inception.

The Wageningen Pers motto is “Giving people the freedom to develop by themselves”. By offering this Scholarship Wageningen Pers wishes to contribute to the development of young scientists. Wageningen Pers wants to move into the 21st century by encouraging the active involvement of clients in its activities. The Wageningen Pers Scholarship is one of the steps towards this goal.

FORTHCOMING EAAP AND ASSOCIATED SCIENTIFIC MEETINGS

15th Symposium on Energy Metabolism in Animals, 10-16 September 2000, Denmark

The 15th Symposium will be held 10-16 September 2000. Full details may be found in EAAP News No.37, LPS 63 (2000) page 169 Registration: Dr. K. Jakobsen, E-mail: kirsten.jakobsen@agrsci.dk or Fax: +45 89 99 11 66.

European and local livestock breeds: Fair 2000 at Rambouillet, France. 23 September to 3 October 2000.

During the Festival of Rambouillet, France a Symposium will be held on 27 September 2000 organized on Biodiversity of Local Breeds. Information: Mme. S. Lechevestrier, Pôle animal, Etablissement Public National de Rambouillet, Centre d’Enseignement Zootechnique, La Bergerie Nationale, Parc du Château, 78120 Rambouillet, France. Tel: +33-01-34-83-08-00. Fax: +33-01-34-83-07-54.


This Symposium, sponsored by EAAP and other organizations, will be held at Hammamet, Tunisia from 26-29 October 2000. The species to be included are: cows, buffalo, small ruminants, camelids. The farming systems of the Mediterranean are historically
established and vary from country to country. The options for intensification using introduced methods from more northern parts of Europe need careful evaluation. Milk consumption is increasing in the Mediterranean and co-operation between countries is vital from the point of view of producers, consumers, governments, trade, economics, environment, and rural development. All these issues will be considered at the Symposium. The Symposium is organized by l’Office de l’Elevage et des Pâturages (OEP) in collaboration with l’Institut National Agronomique de Tunisie (INAT), EAAP, CIHEAM and FAO.

Participants are welcome from areas outside the Mediterranean so that maximum input can be gained as the countries of the Mediterranean Basin share their wealth of experience, learn to co-operate in new ways and carefully consider the options for change.

The programme covers:

- Milk—a food, a raw material and a means of economic development, World and Mediterranean scale, history and development, markets;
- Milk marketing channels and production systems, farming systems, processing, integration and case studies;
- Alternatives for improving the sustainability of systems, environment, animal welfare, intensive systems, dual purpose, semi-extensive for small ruminants and others;
- Future perspectives: consumption, life-style, health, competition and new products, international market, regulations, unique Mediterranean milk products;
- Round Table and Discussion on all aspects and especially on co-operation in the Mediterranean sector for sustainable milk development.
- Field visits will take place on Saturday 28 October 2000.


The 4th African Conference of Animal Production will be held jointly with the 11th Conference of the Egyptian Society of Animal Production (ESAP) from 6 to 9 November 2000 in Alexandria, one of the most beautiful cities on the southern coast of the Mediterranean.

The theme of the Scientific programme is “Optimizing the Utilization of African Animal Production Resources”. The programme includes recent trends in scientific, technical and economic aspects of three main topics:

- Evaluation of Animal Production Resources
- Utilization of Resources
- Livestock Environment Interaction

The post-conference tours and the accompanying persons’ programme will include famous places around Alexandria and elsewhere in Egypt. Information at the ESAP Web-site, esap.org.eg or from the organizing committee at: Prof. A. H. Barkawi, Egyptian Society of Animal Production, Department of Animal Production, Faculty of Agriculture, Cairo University, Giza 12614, Egypt. Tel/Fax: 002-02-5683188.

International Society for Animal Ethology (ISAE)

The 34th International Congress of the ISAE will be held from 17 to 20 October 2000 in Florianópolis, Brazil on the topics “Promoting animal welfare in husbandry systems” and “Domestication and ethology of wild animals”. Florianópolis is the state capital of Santa Catarina located on latitude 27 parallel in the sub-tropics with a pleasant climate. The Congress will take place at the Federal University of Santa Catarina and at the Costão do Santinho Resort. Session topics include: Domestication and ethology of managed wild animals; Promoting animal welfare in husbandry systems; Free papers including behavioural studies on farm, companion, zoo and laboratory animals.

After Congress Tours will embrace scientific tourism. Original registration fees, which will in-
crease by 25% after 31 July, were US$140 for members, US$200 for non-members; US$50 for students and US$20 for accompanying persons. Registration forms can be downloaded from the Website or requested by mail. A variety of hotel prices is available.


RARE BREEDS INTERNATIONAL:
5TH GLOBAL CONFERENCE ON CONSERVATION OF DOMESTIC ANIMAL GENETIC RESOURCES

20-24 November 2000

The Fifth RBI Global Conference will be held in Brasilia, Brazil from 20-24 November 2000. The Theme of the Conference is Conservation and Biotechnology: a Balanced Approach for the New Millennium. The Conference is sponsored by Rare Breeds International (RBI) and by the local organizers, EMBRAPA/CENARGEN, Brazil.

Programme

- Monday 20 November: Arrival and Registration; Opening Ceremony and Welcome.
- Tuesday 21 and Wednesday 22 morning: Technical Sessions.
- Wednesday afternoon: Mid Conference Tour to the National Research Centre for Genetic Resources and Biotechnology-CENARGEN
- Thursday 23 and Friday 24: Technical Sessions
- Annual Meeting of Rare Breeds International and Closing Ceremony.

Main Topics

- In situ conservation, including National Reports and Inventories, Regional Reports, Case studies;
- FAO Global Strategy
- Biotechnology for Animal Conservation, including ex situ conservation
- New technologies as tools for animal conservation
- Genetic Characterization, including: Genetic Distances and Molecular Markers, Breed Identification, Quantitative and Qualitative Parameters.
- Utilization of Animal Genetic Resources, including: Breeding Plans, The Role of Native Breeds on Sustainable Agriculture Systems.
- Education and Promotion of Animal Genetic Resources, including: Farm Parks, Eco-Tourism. Teaching and Social Awareness.

RBI Website: http://www.rbi.it

Registration Fees (US$)
Participants (Accompanying Persons and Participating Students):
- Before 15 September $350 ($125)
- After 15 September $400 ($150)
Transportation from and to Brasilia International Airport per person: One way US$15; return US$20.

Papers:
- Short papers: Two pages extended abstract; Deadline: 31 July 2000
- Invited papers: Eight pages full paper; Deadline: 31 August 2000

Papers will be accepted only in English, but may be orally presented in English, Spanish or Portuguese. Simultaneous translation will be provided. Papers will only be accepted for publication on payment of Conference fees.

Conference Venue:
EMBRAPA Headquarters, Brasilia, DF, Brazil.

Pre Conference Tours:
Delegates may choose to visit Marajo Island (in the Amazon region) or the Pantanal (a flooded area with lots of wild species), located in the border of
Bolivia. In both places, EMBRAPA maintains conservation nuclei of domestic animals.

Post Conference Tour:
For participants interested in herds of Zebu (Bos indicus) cattle, a visit to Uberaba, the city where the strong Brazilian Zebu Breeders Association (ABCZ) is located (500 km East of Brasilia) can be arranged. From Uberaba, participants can go straight to São Paulo, the biggest Brazilian city, that is a hub for most of the intercontinental flights.

About the Host Organization, CENARGEN
Genetic Resources and Biotechnology (CENARGEN) is one of 39 units of the Brazilian Agricultural Research Corporation (EMBRAPA) and is located in the federal capital Brasilia. Inaugurated in 1974, following FAO guidelines, it aims to safeguard genetic resources for the sustained development of agriculture and livestock breeding, with a view to ensuring a secure food supply for the people. Since 1986, CENARGEN has included in its activities, research in biological control and biotechnology applied to the characterisation, evaluation, conservation and transformation of genetic resources for agro-industry and forestry.

CENARGEN has an advanced infrastructure and a team of 120 scientists and has been recognized internationally as a Centre of Reference for training personnel in genetic resources biotechnology and biological control.

About Brasilia
Brasilia, the new capital of the Federal Republic of Brazil, was inaugurated in 1960 and acts as a magnet for the development of the interior of the country. Its urban plan and the boldness of its main public building have made it internationally renowned and it has been declared a cultural heritage site for humanity by UNESCO. It is the only modern city in the world included among these heritage sites.

Information & Registration:
Dr. Arthur Mariante da Silva, National Centre for Genetic Resources, EMBRAPA-CENARGEN, Sain Parque Rural, PO Box 02372, BR 70849-970, Brasilia, Brazil. Tel: + 55-61-340-3507. Fax: + 55-61-340-3624. Email: marinate@cenargen.embrapa.br

EAAP CONTACT GROUP ON CENTRAL AND EASTERN EUROPE
The 7th Session of the EAAP Contact Group on Central and Eastern European Countries (CEEC) was held in Bled, Slovenia on 14 May 2000. The discussion centred first upon the 1999 experiences, the ongoing programme and plans for 2001. The future plans of the Group are built on positive experience from activities in 1999, such as: the Workshop on extension services for livestock production (Tallinn, Estonia, November 1999), where all participants actively contributed in discussions and outlining recommendations and proposals for the future work; and the Workshop on foreign investment in the animal production sector in CEEC (Berlin, Germany, January 2000), which focused on a well defined topic of specific interest to a group of countries. The important Workshop on protein problems (Rennes, France, June 2000) contributed to better understanding of the situation in the CEEC and to indicate options for actions at national and international levels.

The Group noted the positive trend of topics relevant to the CEEC in the EAAP Study Commissions and the EAAP Working Groups. During the 51st EAAP Annual Meeting (The Hague, Netherlands, August 2000) the Curricula Group plans to discuss the introduction of a credit system common to academic institutions in CEE countries as well as problems related to post-graduate studies. Several topics of particular interest for CEE countries have been placed on the agenda of the 52nd Annual Meeting (Budapest, Hungary, August 2001), namely: structural changes in the animal production sector in CEEC, quality of animal products, ensiled feeds and alternative horse production. These topics will be discussed at joint and separate sessions of the Study Commission and other Working Groups of the Council. The Contact Group for CEEC will be a part of the two joint sessions with the Cattle and the Management and Health Commissions.

The meeting was closely supportive of the FAO/ICAR/EAAP Workshop on the role of the breeders’ associations and animal identification and recording in CEEC (see report below). It is satisfying to note the involvement of several members of the Group in that Workshop as those in Tallinn, Berlin and
Rennes. Further and more even distribution of the workload and responsibilities is encouraged.

It was reported that EU PHARE will finance a co-operative project on strengthening producers’ and breeders’ associations in eight CEE countries. Breeders associations from three EU countries (Austria, Germany and Italy) will participate in the project. The Group commended the EAAP Secretariat for the way in which the experiences and output of the CEEC Group and the Task Force were transformed in an action-oriented project. The Group asked the EAAP Secretariat to put a short note on the EAAP Web Site giving the history of EAAP involvement in support of restructuring the animal production sector in CEE countries together with current activities of the Task Force/Contact Group.

Dr. Milan Zjalic, Croatia.

32nd ICAR SESSION & ASSOCIATED WORKSHOPS

The 32nd ICAR Session held in Bled, Slovenia, 14-19 May 2000 was an exceptional event in the history of the international co-operation in animal performance recording: 450 participants from 59 countries; the first ICAR session after its registration as an international non-governmental organisation; the first session held in Central-Eastern Europe; approval of the ICAR Strategy Plan; strong orientation towards quality and new fields of recording; organisation of two workshops covering specific problems of interest for groups of specific countries; clear signals from developing countries on the need for new recording methodologies and techniques for lower input animal production systems. The picture could not be complete without mentioning the excellent meeting facilities, the warm hospitality and the efficiency of the local organizers.

The session was structured in an opening ceremony with six keynote presentations, a plenary and three parallel technical sessions with some 40 technical papers and meetings of the three Sub-Committees, the Task Force and thirteen Working Groups; then the business meeting in the form of the ICAR General Assembly and two international workshops: one on recording for improved breeding and management of the buffalo; and the second on the role of the state and breeders associations in animal identification and recording in CEE countries.

Papers on guidelines and standards, managing a recording business and marketing and promotion of animal recording together with keynote presentations highlighted new technical achievements and research results as well as solutions and options in changing world.

Scientific contributions aimed at improving and updating ICAR standards and guidelines and focused, in general, on two fields: first, on methods to improve the quality of existing recording practices and facilitate the use of records for breeding and management purposes; and second new technologies for enlarging animal recording to cover more species and more economically important traits. In this respect, of particular interest were presentations regarding beef recording, as well as recording of sheep, goats and buffalo milk. The need for the development of technologies, guidelines and standards for animal recording in the lower input production systems was recognized in order to apply recording beyond the circumstances of developed countries. New production methods such as automatic milking systems, genetic evaluation for additional traits and increased requirements for high quality products represent new challenges and possibilities for development of animal recording. Technical innovations such as new methods of animal identification suitable also to trace animal products from pasture to consumers, new methods of milk analysis for management purposes, including pregnancy tests, and possible developments of records in new fields such as indicators of the status of the farming operations will certainly result in further research work and improvements in order to put them in practice.

All member organisations are confronted with the changes in the economic environment in which their clients’ operate: reductions in subsidies for animal products, globalization of markets, pressures to reduce costs of production including costs of recording. The exchange of experiences in managing a recording business and in marketing and promotion of recording illustrated ways and means of how to provide adequate services to clients by enlarging the
scope of recording and by offering to farmers additional information for farm management purposes; how to develop strategies for adaptation and a more economic use of existing software, and how to use the on-farm software and integrate on farm data bases into centralized systems.

The plenary technical session approved reports of Sub-Committees, Task Force and Working Groups. The general trend towards the quality of the whole process of animal recording and enlargement of the scope of recording was reflected in the development of five Working Groups: Quality Assurance; Conformation Recording; Sheep Meat, Fibres and Fertility Recording; Animal Recording Data; and Functional Traits. Their respective programmes of work in the preparation of recommendations and guidelines were met with strong support and approval.

The major item on the agenda of the General Assembly was the adoption of the ICAR Strategy Plan which defined ICAR’s mission, new organisational structure and an updated system of membership fees. The provision of benefits to its member organisations through providing information and services, guidelines and standards and being a body though which member organisation can work together to achieve shared objectives was declared as ICAR’s mission. New structure-integration of ICAR and INTERBULL membership and the possibility for both recording and evaluation organisations to become members of ICAR was reflected in the new membership fee structure. The Assembly approved minor changes in the Statutes, accounts for 1998 and 1999, and budgets for 2000, 2001 and 2002. Messrs. Jean Claude Mocquot (France) and Julian Bryan (UK) were elected members of the ICAR Board to replace Messrs. Douglas Batchelor (UK) and Brian Wickham (Ireland) both former Vice-Presidents of ICAR, who terminated their eight year term in the Board. Messrs. Andrea Rosati (Italy) and Mark Jeffries (New Zealand) are the new Vice-Presidents.

The Session had also rich cultural and artistic components: a show of local traditional costumes and folk culture, concerts of classical and folk music, exhibition of the Slovenian traditional breeds of livestock, visits to natural and cultural monuments. The presence of the Slovenian Minister of Agriculture at the opening ceremony and the active participation of representatives of farmers’ associations, including the Union of Country Women of Slovenia, both in the official and supporting activities contributed to the success of the Session.

Proceedings of the Session will be published by Wageningen Pers as EAAP Publication No. 98.

Milan Zjalic,
Croatia.

FAO/ICAR/EAAP Workshop: Role of Breeders’ Associations and the State in Animal Identification and Recording, Bled, Slovenia, 15 May 2000

The growing importance of animal identification and recording in Central and Eastern European Countries (CEEC) as well as the increasing role of Breeders’ Associations in providing services to its members provided the rationale for convening this special Workshop on the occasion of the 32nd ICAR Session. There were 120 participants from 28 countries from almost all continents due mainly to two reasons: first, animal identification has become essential in all countries participating or intending to participate in international trade in animals and animal products and second, animal recording in lower-input production systems and in small herds appears to be equally important as a farm management and extension tool and as a base for breeding work. These points apply both in CEEC and in a number of non-European countries.

Six invited and twelve country papers dealt with: national situations and perspectives, the ICAR mission and its importance for the CEEC, FAO programmes in support of the restructuring of the animal production sector in the CEEC sub-region, the current state of the milk production in CEEC and EU, constraints and perspectives of breeders’ associations in CEEC regarding animal identification and recording, and new developments in identification techniques. In addition, an EU funded project on restructuring of breeders’ associations in CEE countries was presented.

Participants agreed that the variety of country-specific situations imposes the need to implement general principles of identification, and in particular recording, taking into account local traditions and circumstances. In this respect, it was noted that in some CEE countries well organized and functional breeders’ associations carry out the recording busi-
ness, often enjoying the financial support from the state. However, in majority of countries, particularly in those with the great number of small farms, the state operates animal identification and recording directly or through state owned institutions. The third group of countries, where the farm support services still have to be established, require concerted international support of governmental and non-governmental organisations, such as ICAR, FAO, EAAP, to find adequate solutions in assigning financial and operational responsibilities to the state and private institutions in this field.

Noting that the productivity and the technical level in EU candidate countries lag significantly behind the situation in the European Union, the workshop underlined the need for technical modernization, updating of structures of the animal production sector and an increase in the quality of animal products. ICAR was invited to support development of the animal identification and recording in CEE countries both within its regular activities and special actions aimed at developing recording and evaluation technologies for medium and small-scale operations. These new technologies must be reliable, simple, cheap and appealing to farmers as the final beneficiaries. The later task is also in the interest of ICAR members and potential members in other parts of the world. The Proceedings of the Workshop will be published as ICAR Technical Series 4.

Milan Zjalic, Croatia.

BUFFALO NEWS

Report on the Joint FAO-ICAR Buffalo Workshop, Bled, Slovenia, 16-17 May 2000

The Joint Buffalo Workshop had the following objectives:

- Promote buffalo recording in the developing countries and make possible the comparisons of animal productivity across countries;
- Encourage international collaboration by networks for the development of buffalo production;
- Increase awareness of the value of appropriate recording systems for the management of buffalo genetic resources;
- Promote the use of records to assess the merit of animals, to improve farm management systems and to increase profitability of farming.

The main outputs of the workshop are Proceedings and Recommendations for international standardized guidelines of buffalo performance recording.

The workshop was attended by 30 participants from 17 countries. Eleven of these countries (Azerbaijan, Albania, Armenia, Bangladesh, Iran, Iraq, Nepal, Pakistan, Sudan, Thailand and Vietnam) had never attended any ICAR meeting in the past. The participants from Bulgaria, Egypt, Greece, India, Italy, and Turkey that are already ICAR member countries were specialists in buffalo development. FAO supported financially all participation expenses of the people from developing countries. The workshop was run in four session:

- Presentation of the seven existing country cases of buffalo milk recording systems.
- Discussion on "Justification and components of a functional milk recording scheme"
- Discussion on "Initiation and implementation of a sustainable recording scheme"
- Discussion on "Necessary components for a buffalo improvement programme".

The seven ongoing cases of on-field milk recording for buffalo are effective. The major features resulted as follows:

- The purpose of milk recording involves both improved farm management and selection decisions in four cases (Bulgaria, Italy, Egypt and Iran). Selection of breeding animals at national or regional level is the only purpose of milk recording in three cases (India, Pakistan and Nepal).
- Milk recording and selection activity is performed and controlled directly by the government through its own established structures and staff in three cases (Pakistan, Iran, Nepal); it was performed through the co-operative efforts of several institutions, including farmers co-operatives, in three cases (Italy, India and Egypt); it is performed directly by the government, but it is now moving
to the responsibility of farmers' association in Bulgaria.

From the discussion, the following conclusions were outlined: Animal recording is a prerequisite for any serious effort to develop livestock production at

(a) farm level
(b) industry level
(c) national level

Data collected through the recording activities can be used for:

(a) extension services (feeding requirements, reproductive patterns, pathologies) at farm and industry level
(b) estimation of breeding values, selection of bulls and bull mothers at farm level and national level
(c) once entered in a national database, these data are good tools for understanding the production systems and can contribute to making national strategies for buffalo.

Five major recommendations coming out from the Buffalo Workshop are listed:

1. At farmer level:
   Farmers need to be made aware of the benefits deriving from recording activities (meetings and discussions with the farmers can be organized by the government, co-operatives, research institutions). Farmers may be made aware that through the regular visit of the milk recorders, farmers can receive technical advice and extension services in management, feeding, reproduction and health. Farmers should be made aware also that no effective culling or selection decision can be done without milk recording.
   Because the great majority of buffalo farmers around the world have one to three buffaloes, they often consider recording of management information on their animals to be worthless since they already know everything. In this case, competitiveness between farmers can be stimulated by providing them the ranking list of milk productivity of each buffalo of the village (taking into account the village as the recording unit (instead of the herd). This allows farmers to compare with each other and helps them to make better husbandry, management and culling decisions.
   Provision of incentives to smallholders: free concentrates, vaccines, semen doses, is also a good means to promote recording activity

2. At national level
   Policy makers should be made aware that no improvements in genetic, production or health can be pursued in any country or region without milk recording activity. The government should provide the financial support for the implementation and maintenance of recording systems, at least initially. Financial support for the initiation of the recording activity might be also requested from International Agencies and through International Development Programmes. Farmers should be asked to pay for the recording and selection services only after they have been made aware of the benefits to them. In any case, direct payment by farmers is a hard expectation. The optimal solution is proposed by India, where the farmers that participate in the recording activity sell all their milk to a co-operative of milk producers for which the costs of the recording and selection activity are retained from the milk sold.

3. Recording systems
   Simplified, low frequency recording systems are essential to reduce costs; research trials can be proposed and verified.

4. Artificial insemination
   AI is fundamental to guarantee the distribution to the farmers of the semen of bulls that must be evaluated and to distribute the genetic merit of proven bulls; the organization must therefore establish a clear working programme with the AI Centre.

5. Nucleus herds
   When any of the above means are not or cannot be provided in the short term, a milk recording and breeding programme might be organized within nucleus herds where all stages of the genetic improvement strategy can be more easily performed. In this case, Research Institutions can be good promoters of the breeding programme because they can
offer scientific/technical expertise at all levels. It is recommended, however, that Research Institutions help to inform policy makers of the importance to the national economy of promoting and maintaining an effective genetic improvement scheme.

Dr. Bianca Moioli,
Istituto Sperimentale per la Zootecnia, via Salaria, 31, 00016 Monterotondo, Italy.

Buffalo Newsletter
The Buffalo Newsletter of the FAO Inter-Regional Co-operative Research Network on Buffalo for Europe and Near East is published several times a year by the Network Co-ordination Centre. The Editor is Professor Antonio Borghese and the Assistant Editor is Dr. Bianca Moioli. The Newsletter carries reports on buffalo from member countries of the Network. Examples of recent articles include: Progeny testing Nili-Ravi buffaloes; Effect of some climatic factors on Iraqi buffalo performance; Fatty acids, minerals and vitamins of water buffalo milk in Argentina; Buffalo milk marketing in small diary holders in central Punjab, Pakistan; Buffalo feeding in Turkey; Bizarom Buffalo Farm in Israel; El-Tahir Buffalo Farm in Egypt; Buffalo research around the world; Thermo-regulation in buffalo; Rice straw feeding; Coagulating properties of buffalo milk produced in farms of Latium, Italy etc.

A report on the Joint FAO-ICAR Buffalo Workshop held in Bled, Slovenia, on 16-17 May 2000 may be found immediately above. The Newsletter is available to interested readers from: Buffalo Newsletter, Istituto Sperimentale per la Zootecnia, via Salaria, 31, 00016 Monterotondo, Italy.

INTERBULL

Annual meeting held in Bled, Solvenia, May 14th – 16th, 2000
The 2000 Interbull meetings were held in association with the ICAR meeting in Bled, Slovenia in May 2000. In keeping with tradition an annual international seminar was held with a choice of themes closely linked to the development of genetic evaluations of cattle in member countries. At Interbull meetings both new scientific findings and experiences of their applications are shared. This year there were 150 participants and a record number of presentations.

Open Meeting
The first session, chaired by Brian van Doormaal of Canada, dealt with advances in methods for international evaluations. Papers covered mainly research related to improvement of currently applied methods and also research on the “next generation” of international evaluations, e.g. the use of individual lactation records for international genetic evaluation.

The second session dealt with developments in national genetic evaluations, chaired by Rex Powell of the USA. An important feature of Interbull meetings has been the short turn-around time, and therefore they have served as a useful platform to provide information on recent changes in national evaluation methods. Such topics were included in this session, and several contributions covered the application of test day models in various countries.

The third session, chaired by Jarmo Juga of Finland, dealt with conformation and other functional traits, reflecting the increased international interest in traits other than production. Most presentations covered fundamental research and national genetic evaluations of functional traits, e.g. calving ease and stillbirth. Studies on international genetic evaluations for Jersey conformation traits, somatic cell counts and clinical mastitis were also presented. The latter two traits look most promising for future inclusion into the Interbull evaluations and will be included in the forthcoming Interbull Technical Workshop in Verden, Germany.

The proceedings of the Open Meeting will, as usual, be published in an Interbull Bulletin; some papers are also available through the Interbull home page on http://www.interbull.org.

Business Meeting
The Interbull business meeting focused on:

- Activities since last meeting, and finances
- Strategic plan for ICAR/Interbull
- Nomination of new Interbull chairman and steering committee members
- Future meetings
Georgios Banos reported on the activities at the Interbull Centre. Since the previous meeting in Switzerland international genetic evaluation services have expanded to include 26 countries, of which Hungary, Poland, and South Africa are the newest additions to the routine evaluations of production. One full year of Holstein conformation evaluation has been performed under the contract between Interbull and a North-American consortium. The arrangement seems to work well and 13 countries are now part of the routine conformation evaluation.

The considerably increased capacity for research at the Interbull Centre, both in-house and in collaboration with other research groups, was evident in the report. Several areas were covered, but the work on new weighting factors and international evaluation for udder health deserves special attention since the results of the former will be applied during 2000 and results of the latter will be one of the topics at the upcoming Interbull Technical Workshop.

The expanded activities were reflected in increased services, R&D work, number of publications, and intensified work for communication via Internet. Our publications, summary of each evaluations, and the new Interbulletin, the newsletter of Interbull can now easily be found at the home page (http://www.interbull.org), which also gives directions to Interbull members and national genetic evaluation centres collaborating with Interbull.

Jan Philipsson, the Secretary of Interbull, reported on the Interbull Centre finances and budgets, the most significant changes for year 2000 and 2001 being income and expenses due to Holstein conformation evaluation and the change from Swiss Francs to Euro. Jan Philipsson also reviewed the staffing at the Centre, where the possibility of Georgios Banos leaving the Centre was the most prominent point. The activity and financial reports were approved with satisfaction.

Brian Wickham, Chairman of the Interbull Steering Committee since 1987, led the meeting through a discussion of recommendations arising from the work by ICAR on a joint strategic plan for ICAR and Interbull. The report contained two recommendations:

1. That Interbull membership becomes an integral part of the administration of ICAR membership;

2. That the Interbull Steering Committee be delegated by the ICAR Board to be responsible for the business and technical aspects of the Interbull Services. To safeguard the flow of pertinent information it was made clear by the President of ICAR (Dr. Joseph Crettenand) that the Interbull steering committee chairman would always be invited to attend the ICAR executive board meetings, and the President of ICAR is always invited to participate in Interbull steering committee meetings. The two recommendations in the report were endorsed unanimously by the business meeting and the report was thus brought to the ICAR general assembly for approval.

New members of the Interbull Steering Committee, since the previous business meeting, were Jarmo Juga of Finland and Reinhard Reents of Germany, replacing Lars Gjöl Christensen and Gottfried Averdunk, respectively. Jean-Claude Mocquot has also been proposed to replace Brian Wickham as chairman of Interbull after the Slovenia meeting. The significant and fundamental contributions to the development of international genetic evaluations by Drs. Wickham and Averdunk were gratefully acknowledged.

The next Interbull meeting will be a Technical Workshop in Verden, Germany, October 22nd to 23rd, 2000, focusing on questions pertinent to international evaluations and developments in Interbull services. One major topic for the workshop will be results of the Interbull survey of national evaluation methods for production traits and new Interbull recommendations. The necessity for such recommendations became evident by a summary of the survey by Hossein Jorjani, Interbull Centre, showing the large variation that exists in national procedures. The results of the survey have been published in Interbull Bulletin No. 24 (also available on the Interbull home page). The other major topic for the workshop in Verden will be the possibility of adding new traits to the Interbull evaluations. Focus will mainly be on experiences of international evaluation for udder health (somatic cell counts and clinical mastitis) and Jersey conformation traits, since these have been subject to substantial international research and pilot international evaluations.

The Interbull meetings in Bled were very well
organized and conducted in a very good spirit. Thanks are due to Drago Kompan, Franc Habe, and Marija Klopcic, who arranged the Interbull meetings according to the highest expectations and with good opportunities for informal discussions among the participants in a cordial atmosphere.

The next Interbull meeting will be in Budapest, Hungary on 30 and 31 August 2001 in connection with the EAAP Annual Meeting.

Ulf Emanuelson, Uppsala, Sweden.

WORLD ASSOCIATION FOR ANIMAL PRODUCTION (WAAP)

The Executive Board of the WAAP held a meeting on 19 April 2000 which was attended by Professor A. van der Zijlp (President), Professor In K. Han (Past-President), Dr. L. S. Bull, Dr. D. Yano, Dr. F. G. Gomez, Dr. J. Lopez, Professor J Boyazoglu (Secretary-General) and Professor Jong K. Ha. The meeting was held in Seoul, Korea one day before the International Symposium on Recent Advances in Animal Nutrition in honour of Professor In K. Han.

PERSONAL NEWS

Professor In K. Han
Seoul National University, Seoul, Korea

Professor In K. Han recently retired from the College of Agriculture and Life Sciences, Seoul National University, Suweon, Korea where he has been Professor of Animal Nutrition and Feed Science. Professor Han served for 40 years in teaching, research and administrative responsibilities. Internationally Professor Han is well known being currently Past-President of the World Association for Animal Production (WAAP) having served as President from 1993 to 1998. He has also been President of the Asian-Australasian Association of Animal Production (AAAP).

Professor Han has also been involved in many local and national scientific organizations concerned with research, agricultural policy, the environment, the agricultural feed industry and international cooperation. He has been President of the Korean Societies of Animal Science, the Korean Nutrition Society and the Korean Society of Nutrition and Feed. He is the author of many scientific papers and books and has been active in editing and publishing scientific journals. He holds distinguished awards from Korea and several other countries.

An international symposium on Recent Advances in Animal Nutrition in honour of Professor In K. Han was held at Seoul National University from 20 to 22 April 2000 (see pages XXX) with participants from 27 countries.

The Retirement Ceremony was held on 20 April 2000 in the Seoul Intercontinental Hotel and more than 300 people congratulated Professor Han and wished him and his wife a long and happy retirement.

AWARDS

Honorary Doctorate for Professor Jean Boyazoglu

The Executive Vice-President of EAAP and Secretary-General of WAAP and ICAR, Professor Jean Boyazoglu, was awarded an Honorary Doctorate by his alma mater, the University of Pretoria, South Africa. The degree was awarded at the University Graduation Ceremony on 8 December 1999 and was the only D. Sc. (Honoris Causa) in 1999. The University of Pretoria is the largest University in Africa with 70,000 students full and part-time.

Professor Boyazoglu took his basic training in the Faculty of Agriculture and in the Department of Genetics and combined Animal Husbandry with Genetics at graduate level. He worked in the then Department of Agricultural Technical Services and subsequently his path led far away from Pretoria, although he kept open communication in the scientific world.

Citation

Jan Georges Boyazoglu is an internationally prominent agricultural scientist and administrator. His career has been exemplified by his contributions to the discipline of animal breeding and genetics. He is a leader in agricultural development and administration. In recognition of his contributions and achievements over 37 years he has received numerous national and international awards.
Born of a prominent Greek family in Alexandria, Egypt on 29 November 1937, Jan Boyazoglu completed his secondary schooling at the Averoff Gymnasium of Alexandria and then emigrated to South Africa in 1956. Intending to register at the University of Pretoria he made a special effort to become fluent in Afrikaans. He graduated in 1960 with a BSc (Agric) in genetics. In 1962 he obtained an MSc (Agric) and in 1965 a DSc for a thesis entitled “A contribution to the genetic study of the dairy sheep populations of Southern France”. He obtained South African citizenship and married a Tukkie, Martie Badenhorst before leaving for France on a scholarship to further his studies at the INRA where he obtained a postgraduate state diploma in quantitative biology and animal genetics in 1963. In 1973 he graduated with a Diploma in International Commerce and Administration at the French Institute du Commerce International. In 1979 he presented his professional habilitation at the Aristotle University of Thessalonika in Greece with a thesis on “Population dynamics of the Sardinian sheep breed and their crossbreeding with the East Friesian In Italy”.

Jan Boyazoglu’s career extends from science to administration. He joined the Department of Agricultural Technical Services in 1960 as a researcher and in 1965 was appointed as South Africa’s first Agricultural Counsellor in Paris.

In 1986 he took up a position as the Secretary-General of the EAAP in Rome. Jan Boyazoglu has an impressive association with the international scientific and academic fraternity. He was President of the Scientific Advisory Council of the International Centre for Advanced Mediterranean Agronomic Studies from 1992 to 1996 and an alternate member of the Scientific Advisory Board of the National Agricultural Research Organisation of Greece. He is a member of ten scientific societies, including the French Academy of Agriculture.

He has been the inspiration of many students having lectured at universities throughout the world. He has been an Honorary Professor at the University of Stellenbosch since 1980 and is Professor at the Aristotle University of Thessaloniki. He has taught at the universities of La Tusca, Athens, Milan, Teheran and Lisbon and at the Polytechnicum of Lille and at CIHEAM.

His scientific contributions have been in animal breeding and genetics. Most of his projects have been in the Mediterranean region and he has been a leader in the optimal use of poor natural resources in marginal regions. Professor Boyazoglu has the ability to translate science into public programmes though administrative opportunities.

Professor Boyazoglu is the author of 260 scientific and popular papers. He is Editor-in-Chief of the European journal, Livestock Production Science and the Editor of the FAO/UNEP Animal Genetic Resources Information. He was instrumental in establishing the journal Small Ruminant Research to serve the small livestock sector as the official journal of the International Goat Association. Jean Boyazoglu established many useful contacts for South Africa through his international contacts and friendships.

Jean Boyazoglu has many interests beyond animal science. He is an authority on the wines sector and was prominent in drafting and implementing the legislation for the appelation of South African wines. He is currently Chairman of the Scientific Advisory Committee for Appellations of Origin, Geographic Denomination and Special Agricultural Products of the European Union. He is also an expert on ceramic art and has published 43 articles and books and participated in the preparation of catalogues for exhibitions of rural art, pottery and ceramics.

His most prestigious honour was the French National Order of Merit in the discipline Agriculture: Class Commandeur, 1998. This is the highest Civil Order of the French Government for outstanding contributions to agriculture, medicine, physics, chemistry and engineering. He has honours from seven other countries, including Man of the Year (1975) in South Africa and the Gold Medal from the South African Society of Animal Science.

In conferring this degree the University honours a remarkable man and alumnus.

IN MEMORIAM

Asher Ben-Zvi–Israel

We report with regret the death of Asher Ben-Zvi in Israel in March 2000. Asher Ben-Zvi was a leading Israeli livestock production scientist who served for many years as Secretary-General of the
Israel Cattle Breeders Association, a key organization in the development of the national cattle breeding, artificial insemination, milk production and milk recording programmes.

He led the organization with distinction and, together with co-workers including the late Dr. Reuben Bar-Anan, saw the Israeli Friesian outperform most other strains and rank near equal in genetic merit with the North American Holstein in the FAO International Holstein Strain Trial in Poland in the 1970s. While Reuben was often in the public scene, Asher was there behind the scenes making sure that the organization was thorough and efficient.

It was under his leadership that Israel applied for membership of ICAR, then known as the International Committee for Recording the Productivity of Milk Animals. This entailed an inspection of the Israeli system from field and laboratory to computer and use of the records for both breeding and management. ICAR sent its two Vice-Presidents in 1969, Dr. Otto Hartman (Austria) and myself (UK) to carry out this inspection. Asher Ben-Zvi proved his ability in organization and his knowledge by arranging all the details of the inspection in the two main types of dairy farms in Israel which have very different management systems, kibbutzim and moshavim. Israel was granted the Milk Recording Official Stamp and joined ICAR.

Asher Ben Zvi was a popular participant at ICAR and EAAP meetings over many years, always asking the direct and important questions and contributing to their solution.

He died suddenly and peacefully aged 78 on his kibbutz Hazorea where had also made a significant contribution over many years as a servant leader. He was still actively involved in daily tasks with the cattle. EAAP and ICAR extend our sympathies to his wife, Rita and son Amram at their sudden loss.

John Hodges

NEWS FROM MEMBER COUNTRIES

First Joint Meeting of University Departments of Animal Sciences of the Balkan Countries, 6-8 June 2001

The University Departments of Animal Science of the Balkan countries will meet together for their first meeting from 6 to 8 June 2001 at Tekirdag, Turkey. The meeting will be organized by the Department of Animal Science of Trakya University, Turkey. Tekirdag is located on the Marmara sea coast of Turkey 130 km west of Istanbul, 150 km east of the Greek border and 170 km from the Bulgarian border and can be reached by Ataturk Airport in Istanbul.

The aim is to explore the possibilities of multi-lateral co-operation in animal science among the Balkan countries. Items to be discussed include the following as affecting the Balkan countries: animal production efficiency; animal production research; possibilities for symposia on animal production; reports on current research programmes in animal science.

The meeting will hold scientific sessions and Abstracts are invited for presentation at the meeting, preferably in English. These must be submitted by 1 January 2001. Notice of acceptance and call for the full papers will be 1 March 2001.

The Organizing Committee is chaired by Professor Dr. Sabahattin Ogun, Head of Department of Animal Science at Tekirdag University. The Registration Fee is US$50 for Delegates and Accompanying Persons and US$40 for students. Registration should be before 15 March 2001.

Professor Dr. S. Metin Yener who is the Turkish Co-ordinator for EAAP for Turkey has invited the participation of EAAP.

Information: Meeting Secretariat, Trakya University, Department of Animal Science, 59100 Tekirdag, Turkey. Tel/Fax: +90-282-2931-479. Email: animal science@turk.net

EUROPEAN UNION NEWS

The new variant of Creutzfeldt-Jacob disease

A review of new variant Creutzfeldt-Jacob Disease is given in a recent publication by the Office International des Epizooties (OIE) entitled “An update on zoonoses”. Revue Scientifique et Technique, Volume 19 (1), April 2000. ISBN 92-9044-512-2. The review paper is entitled The new variant of Creutzfeldt-Jacob disease by M. Zeidler, Department of Clinical Neurology, and J.W. Ironside, National United Kingdom Creutzfeldt-Jakob Disease Surveillance Unit—both at the Western General Hospi-
tal, Crewe Road Edinburgh, UK. Their summary of their paper on page 98 of the publication is reproduced here with acknowledgement to the OIE and the authors.

New variant Creutzfeldt-Jakob Disease (nvCJD) is a novel human transmissible spongiform encephalopathy which was first identified in 1996 in the United Kingdom (UK). Subsequent scientific studies have revealed that the strain of the transmissible agent responsible for nvCJD is identical to that of the bovine spongiform encephalopathy (BSE) agent, and the disease has been considered as “human BSE”.

By 31 December 1999, 52 cases of nvCJD had been reported (49 cases in the UK, two cases in France and one case in the Republic of Ireland). All these cases were under 53 years of age and all those tested were methionine homozygotes at codon 129 of the prion protein gene. The number of cases of nvCJD likely to occur in the future is impossible to estimate because of multiple uncertainties, in particular the disease incubation period, the degree of exposure to the infective agent and the susceptibility of other genetic subtypes. Continued surveillance of both BSE and CJD is required in the UK and in other countries to ensure that the scale of this potential epidemic is adequately monitored and that all possible steps are taken to prevent further human exposure to the BSE agent.

**EU Compulsory Labelling System for Beef**

Regulation (EC) No. 2772/1999 set up a compulsory labelling system for beef to operate in two stages: first consumers are to be given information readily available at the point of slaughter; then, as of 1 January 2003, the beef label will have to include additional information on where the animal was born and reared. Given the time required for adopting the regulation, the existing Regulation (EC) No. 820/97 on voluntary labelling (which Member States may make obligatory for domestic production) is prolonged until 1 January 2001. OJ L 334, 1999.

**EU Genetically Modified Foodstuffs**

Regulation (EC) No 49/2000 enhances legal certainty for operators, consumers and mass caterers by introducing a *de minimis* threshold value of 1% for genetically modified ingredients (soya, maize).


**EU Organic Farming**

Following the reform of the Common Agricultural Policy (CAP) in 1992 and the implementation of the agri-environment regulation, support programmes for the agricultural environment now cover some 20% of EU farmland at a cost of 4% to the CAP budget. Organic farming has been growing in importance, accounting today for 1% of holdings and 2% of agricultural area in use, which means that organic holdings are above average size. In general, livestock farming followed by fruit and vegetable growing attract organic farmers more than arable farming. From EU publication: Agriculture environment, rural development - Facts and figures - a challenge for agriculture.

**The agricultural situation in the EU in 1998**

This EU report indicates that in 1998 the agricultural market grew in some sectors such as cereals due to good weather conditions and higher yields. Production in other sectors, such as wine and milk remained stable. Internal demand also remained unchanged. International trade was disrupted by an international financial crisis leading to a decrease in world demand for agricultural products, particularly in south-east Asia and Russia. 40% of the EU’s beef and pig meat was exported to Russia so that the cut back in exports to this country had particularly adverse effects on the markets in beef and pig meat. The fall in income in the pig sector was dramatic. In 1998 the Commission’s reform package for *Agenda 2000* paved the way for a competitive agricultural sector based upon environmentally-friendly production methods. *From: the Agricultural Situation in the EU, 1998: Cat: CM-19-98-811-EN-C.*

**Detection of Genetically Modified Organisms (GMO)**

Detection of Genetically Modified Organisms is nowadays an important quality criteria for agricultural products. With biotechnology development in the agricultural field and with controversy and pressure coming from consumer groups against transgenic food, GMO detection is inescapable.

During a recent meeting of the International
Standards Organisation (ISO), resolution No. 263 was taken on the determination of genetically modified organisms (GMO).

The French member body will prepare for circulation a questionnaire to identify the requirement of individual member bodies and also to determine if they consider this topic should be adopted for the ISO/TC34/SC work programme.

The French member body has therefore asked members of the ISO whether this new subject of GMO detection and quantification should be instigated in the next work programme.

INTERNATIONAL NEWS

International Symposium on Recent Advances in Animal Nutrition in Honour of Professor In K. Han on his retirement 20-22 April 2000, Seoul, Korea

An international symposium in honour of Professor In K. Han (see page XXX) who recently retired from Seoul National University was held 20 to 22 April at Seoul National University, Seoul, Korea. 299 delegates from 17 countries participated. Two key-note speeches were delivered by Professor A van der Zijjp (President of WAAP) on Role of Global Animal Agriculture in the 21st Century and by Professor J. Boyazoglu (Secretary-General, WAAP) on Interaction of Breeding and Nutrition for Efficient Animal Production. 33 main papers and 21 abstracts / posters were presented. Symposium topics included: Ruminant Nutrition, Swine Nutrition, Poultry Nutrition, & Feed Processing Technology.

A closing reception by the organizing committee chairmen, Prof. In K. Paik and Prof. Jong K. Ha was attended by 150 symposium participants. Also a one-day city tour was provided to all foreign participants.

The papers and abstracts/posters have been published as a special issue of the Asian-Australasian Journal of Animal Sciences (AJAS). Limited copies of the symposium proceedings are available for sale at AJAS publishing office. Fax: +82-2-502-0758; e-mail: inkhan@kornet.net

Professor Jong Ha,
Seoul National University, Korea.

SAVE Foundation Update

SAVE (Safeguard for Agricultural Varieties in Europe)

SAVE is an umbrella organization for Conservation in Europe. The following extract is taken from the Newsletter SaveNews published four times a year and provides background and latest information on the SAVE Organization in an article entitled: European reflections.

European Network of Rescue Stations

Recently the SAVE project office completed the pilot study on the project “European Network of Rescue Stations”. Many partner organizations from different countries helped with this preparatory study. The purpose of the project is to establish an inventory and evaluate establishments which are appropriate for the short and medium term caring of breeding groups of endangered domestic animals. One aim should be the creation of an infrastructure for urgent short term actions to save last herds of endangered breeds across national borders. This must be planned within a more general concept still to be elaborated. This pilot study was financed by the Avina Foundation and aimed to analyse different types of institutions and their potential as rescue stations. The report is written in German language only.

The following points were evaluated:

- Which establishment in each country is concerned with saving domestic breeds?
- In which category can they be classified?
- How appropriate are they as rescue stations (advantages and disadvantages)?
- How can they be integrated into a strategy (experience of each country)?

As expected, there were big differences between groups of countries depending on their cultural and economical background. It is important to note that rescue stations may have to be differentiated between reception and transit stations for urgent situations (“rescue stations” strictly speaking) and breeding stations for long term conservation.
Forthcoming SAVE event: Rare Breeds Show in Belgium

On 20 August 2000 the Belgian Rare Breeds Association VBZH (Vereniging voor het Behoud van Zeldzame Huisdierrassen) will organize its 5th Rare Breeds Show. All old breeds of Belgian farm and husbandry animals will be present at the show: Belgian draught horses, Flanders cattle, Belgian white-blue mixte, old Belgian breeds of sheep and goats, typical Belgian breeds of dogs, rabbits, poultry, ducks, turkeys, . . . Some foreign rare breeds, such as Shire horses, belted cattle, . . . will be on exhibition as well. During the afternoon of August 19 and 20, VBZH will arrange for rams of old breeds of Belgian sheep to be admitted to the flockbook. Both events take place in Balegem-Oosterzele (Pontslag) near Ghent, Belgium. Information: Fax 32-16-44.31.67, e-mail: staf.vandenbergh@bbl.be

Annual meeting of SAVE Foundation, Thessaloniki, Greece. 28-30 September 2000

The annual meeting of the SAVE Foundation will take place this year on 28-30 September in Thessaloniki, Northern Greece. This year’s meeting is particularly important since all the members of the SAVE bodies will be elected (end of three year mandate). New vacancies must be filled on the Board of Directors as well as in the Commissions. Partner organisations will also be able to have their word over these matters. The dates have been fixed so that the participants will be able to visit the Zootechnia Fair taking place in Thessaloniki. According to the organizers, this Fair will have two special exhibitions this year: one on indigenous Greek farm animal breeds and the other on dog breeds. A day excursion to the Kerkini Lake with a visit to the buffalo herds in the wetland area is also planned. Furthermore, a visit to the University farm with a nucleus herd of Skyros Ponies on the mainland (see our special report in the SAVE report of Spring 2000), a visit to the Greek plant genetic material bank, as well as a presentation of different projects from SAVE Greek partners organisation “Workshop for Ecological Practice” on the topic of protection of Mediterranean cultivated plant varieties will be organized. e-mail: office@save-foundation.net

Further information on SAVE is available from:

Hans-Peter Grunenfelder Vice-Chairman Save Foundation. Project Office, SAVE, Schneebergstr. 17, CH-9000 St.Gallen, Switzerland. Tel. 0041-71/222 74. email: office@save-foundation.net Or from SAVE PR-Office, Box 701, A-6852 Dornbirn, Austria.

Symposium on Developmental Strategies for the Sheep and Goat Dairy Sectors. Nicosia, Cyprus. 13 and 14 April 2000

More than 100 participants from 18 Mediterranean countries, the Middle East, North and Eastern Europe and New Zealand reflected and exchanged views on the future of the sheep and goat dairy sectors. This symposium was organized by the International Dairy Federation (IDF/FIL) in association with CIRVAL (Centre International de Ressources et de Valorisation de l’ Information dans les Filieres Laitieres des Petits Ruminants), European Dairy Association (EDA), FAO, EAAP, Cyprus Milk Industry Organization (CMIO) and the Cypriot Ministry of Agriculture. The CMIO honoured this meeting with exceptional support. The aim was to confront ideas and people from the sheep and dairy sectors from industry, research, professional and public organizations and from international organizations. Participants came from Croatia, Cyprus, France, Greece, Israel, Italy, Jordan, Netherlands, New Zealand, Norway, Portugal, Spain and Syria.

The symposium had four round-tables with the following themes:

- commercial strategy
- raw material, production systems, milk quality and payment system
- processing and merchandising legislation
- technology and innovation

Although there were some difficulties in communication due to many languages plus some modesty in presenting perspectives from many different institutions and geographical locations, the symposium proved to be a positive forum and brought the sheep and goat sectors into such public debate – perhaps for the first time.

Despite the inevitable presentation of some routine ideas, nevertheless common ground was identified, often surmounting differences and alternative positions. The number and variety of participants gives
the conclusions a legitimacy to define concrete actions.

**Milk Products**

The four round tables achieved consensus on a number of topics. A top priority is recognition of the unique nature of the sheep and goat cheese sector which is the main source of income from milk. Sheep and goat cheese can benefit from a clear commercial promotion of precise products of known quality in the market.

Due to the lack of organization in the context of the PAC and Codex Alimentarius, sheep and goat milk characteristics cannot be taken in account nor the sector’s interest defended. The customer needs to be informed about goat or sheep milk products, their nature, characteristics and composition by clear and precise product labelling and marketing. Currently the positive image of these cheeses is often usurped by cheeses containing variable and non-specified proportions of cows milk, which has a negative effect upon consumer recognition of their quality. This problem particularly concerns those products that are described as “goat/sheep” even with a low content (about 15 to 20%) of milk from those species. The composition of “specialities” of goat or sheep milk, milk serum, or their constituents, also deserves a closer look.

**Cheeses**

The variety of cheese heritages constitutes another strength. Recognition of this heritage in the setting of an AOP/IGP classification should obviously be encouraged, while probably avoiding the AOP containing milk mixtures from several species or by negotiating more rigorous specifications, in particular defined by the geographical origin of milk without additions or additives.

The identity of traditional home and farm processing must also be recognized by changes in the laws taking in account the health and hygienic level differences from the industrial sector. The advantages include no mixing of milk from large flocks, easier supervision in a production line, better product identification and sorting etc. Farm production could be the answer to consumer demand by avoiding the commercially negative measures which rarely add value. Generally the commercial dairy sector is preoccupied with themes like raw milk or “farm milk” which is not acceptable in many countries.

Research has identified some precise nutritional and dietetic characteristics specific to sheep and goat milk (anti-oxidant effects, fatty and amino acids content etc.). These results must communicated seriously and efficiently.

**Traditional systems**

In numerous Mediterranean regions, innovative growth in a field which remains very traditional with a strong cultural dimension is a recurrent problem. Traditional methods are threatened because the “hygienist model” is often imposed rather heavily. This goes against the clear changes in consumer life styles with an increase in eating out. This tendency among consumers could be advantageous. Typical traditional cheeses, nicely processed and packaged to satisfy this change in consumer demand can be presented as pre-cut, ready to eat dishes, salads etc. The consumer will probably also be prepared to pay higher prices appropriate to the added value of these milk products. Animation, information and taste education can be used to encourage a clientele of connoisseurs to appreciate the diversity and organoleptic qualities of traditional cheeses.

The symposium discussed technological innovations including:

- Use of local milk enzymes and characterization of their effects for producing typical products;
- Conditions for the use of ultrafiltration techniques;
- Biologic milk development perspectives;
- Sheep and goat milk plotting techniques (concentrated milk, frozen curd, UHT milk, powder etc.) to create new products and replace production seasonality.

**Organization**

Research has an important role as it has to address lack of knowledge in this traditional field which is different from more industrialized processes. The weak links between professionals has a retarding effect upon development in the sheep and goat dairy sector. The advanced structure found in France is an exception and cannot serve as a model since it emerged because of favourable conditions seldom
found elsewhere. Nevertheless “organisation innovation” must be a priority to create lines of communication between professionals, producers, processors and others with mutual interests.

The stakes are important and various:

- Milk quality is an important condition for increasing competitiveness. There is difficulty in establishing quality standards for sheep and goat milk following the EU 92/46 regulations due to the physiological particularities and the seasonality of sheep and goats. There is the danger of negative legislation damaging the sector’s development.
- Establishment of training techniques to make the sector professional.
- Collective approaches to the marketing; a professional overview is needed.
- Preservation of diversity of production systems including management and genetic improvement of local breeds and avoiding the introduction of poorly adapted foreign breeds.
- Better management of locally available feed and grazing.
- Rational improvement and overview of animal performances.

It was unanimously recognized that these changes will be achieved only by better organization. In many countries some physical infra-structural problems add to the socio-economic and technical difficulties: conditions and cost of milk collection in mountain areas with low population density and small flocks; inadequate access, roads, water, electricity. Innovations are needed and FAO’s role was underlined: development of lactoperoxidase as an efficient means milk conservation in under-equipped hot regions or to improve and help home farm production (Jordan).

Future meetings

It was decided to hold multi-disciplinary symposia of this type every three or four years on the initiative of the International Dairy Federation (IDF/FIL). An Organizing Committee will ensure follow-up and seek to provide for organisational innovation, closely associated with the active organizations (CIHEAM, CIRVAL, EDA, FAO, EAAP etc.). It will function as a working group (action team) in partnership with the permanent “political and dairy” Committee. Informative notes will be prepared based upon this symposium.

Dr. Jean-Paul Dubeuf, Scientific Director CIRVAL, Centre International de Ressources et de Valorisation de l’Information dans les Filières Laitières des Petits Ruminants. Corsica. (Translated from French by Sonja Boyazoglu).

U.N. CONVENTION ON BIOLOGICAL DIVERSITY BIOSAFETY PROTOCOL

The Convention on Biodiversity was accepted almost unanimously by Governments of the world at the Earth Summit in 1992 in Rio de Janeiro, Brazil. (The USA has not become a Party to the Convention). EAAP has sent representatives to some of the meetings, in view of the importance of genetic diversity in livestock and because the Convention has an impact upon animal research and use of biotechnology with animals and animal products.

At their regular meetings since 1992, the Governments have tried to agree a Biosafety Protocol to be a legally binding international agreement and procedure on Biosafety. It has been a difficult process, partly because of the position taken by a few countries known as the Miami Group (including USA, Canada, Argentina, Brazil) which are already growing large quantities of genetically modified food and animal feed for export. A special attempt by the Parties in Cartagena in 1999 failed.

After hard negotiating and through the night from 24-28 January 2000, agreement was reached in Montreal, Canada on the Final Text of the Agreement which focused on transboundary movement of living modified organisms resulting from application of modern biotechnology techniques in agriculture. The document will be known as the Cartagena Protocol on Biosafety to the Convention on Biological Diversity.

The preamble of the agreement plus the topics covered in each article are given here. The full text
may be found at the Website of UN Convention on Biological Diversity.

Preamble

- Being Parties to the Convention on Biological Diversity, hereinafter referred to as the “Convention”;
- Recalling Article 19, paragraphs 3 and 4, and Articles 8 (g) and 17 of the Convention;
- Recalling also decision II/5 of 17 November 1995 of the Conference of the Parties to the Convention to develop a Protocol on biosafety, specifically focusing on transboundary movement of any living modified organism resulting from modern biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity, setting out for consideration, in particular, appropriate procedures for advance informed agreement;
- Reaffirming the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development;
- Aware of the rapid expansion of modern biotechnology and the growing public concern over its potential adverse effects on biological diversity, taking also into account risks to human health;
- Recognizing that modern biotechnology has great potential for human well-being if developed and used with adequate safety measures for the environment and human health;
- Recognizing also the crucial importance to humankind of centres of origin and centres of genetic diversity;
- Taking into account the limited capabilities of many countries, particularly developing countries, to cope with the nature and scale of known and potential risks associated with living modified organisms;
- Recognizing that trade and environment agreements should be mutually supportive with a view to achieving sustainable development;
- Emphasizing that this Protocol shall not be interpreted as implying a change in the rights and obligations of a Party under any existing international agreements;
- Understanding that the above recital is not intended to subordinate this Protocol to other international agreements;
- Have agreed as follows:

The text of the Protocol contains 40 Articles which deal with the subjects shown.

1. Objective
2. General provisions
3. Use of terms
4. Scope
5. Pharmaceuticals
6. Transit and contained use
7. Application of the advance informed agreement procedure
8. Notification
9. Acknowledgement of receipt of notification
10. Decision procedure
11. Procedure for living modified organisms intended for direct use as food or feed, or for processing
12. Review of decisions
13. Simplified procedure
14. Bilateral, regional and multilateral agreements and arrangements
15. Risk assessment
16. Risk management
17. Unintentional transboundary movements and emergency measures
18. Handling, transport, packaging and identification
19. Competent national authorities and national focal points
20. Information sharing and the biosafety clearing-house
21. Confidential information
22. Capacity-building
23. Public awareness and participation
24. Non-parties
25. Illegal transboundary movements
26. Socio-economic considerations
27. Liability and redress
28. Financial mechanism and resources
29. Conference of the parties serving as the meeting of the parties to this protocol
30. Subsidiary bodies
31. Secretariat
32. Relationship with the convention
33. Monitoring and reporting
34. Compliance
35. Assessment and review
36. Signature
37. Entry into force
38. Reservations
39. Withdrawal
40. Authentic texts

Annex I. Information required in notifications under articles 8, 10 and 13
Annex II. Information required concerning living modified organisms intended for direct use as food or feed, or for processing under article 11
Annex III. Risk assessment.

BOOK REVIEWS


This book begins by focusing on Dolly the sheep, and concludes with a challenge: livestock can bring great benefits to humankind, provided they are seen as potential contributions to building community and not the means of enriching one part of society at the expense of another.

How can this be done? Where will the requisite ethical leadership come from? The world food system is becoming progressively more centralized and globalized. In the USA, just four firms now control 50% of the broiler industry, four some 80% of beef production, and four about 80% of soya. Animal farming has become more efficient, requiring less labour. But is it better for animals and the environment?

“Livestock, Ethics and Quality of Life” is a welcome new book setting out fundamental questions and some solutions in the world livestock system. The editors, John Hodges and In K Han, have assembled an impressive list of contributors from many different disciplines, who address such broad-ranging topics as animal biotechnology, welfare, agri-business, alternative ethics, consumer viewpoints, development, poverty issues, quality of life and trade. The geographic scope is also wide, addressing issues in both industrialized and developing country contexts.

Great changes are occurring in farming systems world-wide. With world population expected to exceed eight billion in the next 20-25 years, and a currently extraordinarily poor capacity to feed everyone now, the changes may have to come even faster. And yet, people’s concerns about food safety, human health and quality of life for both humans and animals grow. Can these concerns be recognized with the need substantially to increase food production, or might we have to worry rather less about biodiversity, climate change and water pollution; about ethics and equality, so that we can all eat?

The first step is to understand clearly the nature of the processes driving change, and then to make informed choices. And again, this is where this book excels. It sets out why changes at both the macro and micro scales are coming, and then addresses how we might merge more ethical and equitable systems of production and consumption that could mean benefits for the environment too. It setting out these choices, the book is strong in some areas and weaker in others. It is strong on animal biotechnology – but one suspects that a consumer or environmental organisation would give a rather different perspective. It is comprehensive on the pervasive and extending role of agri-business, but weaker on the external costs of modern livestock systems. Internalising such costs into prices makes such systems look much less “efficient”.

But no single book can do everything. Strength particularly lies in the treatment of ethical issues – and these sections should be read by every scientist in the food system. As Gary Comstock indicates in his chapter “we now breed food animals that cannot perform the biological functions characteristic of their species, such as turkeys that cannot fly and cows that will not care for their calves . . . we have created artefacts, animals more like machines than like wild animals.” Where does such practice lead us? To genetic experiments on mice in Germany and the USA that removed key genes and produced limbless mice in the one experiment, and headless mice that could not breathe in another. “How could
such experiments be conceived, much less performed?" asks the author.

Further chapters provide valuable information of grain demand, livestock production and consumption in Asia, Latin America and Africa, but these tend to address the core ethical and moral issues rather less directly. This is a welcome book that deserves wide attention, though its disappointingly high price may mean many readers will have to search out libraries for their copies.

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The costs of diseases to animal production have remained for the last ten years at about 10-20% of the total production value. The various measures available for controlling infectious agents, such as vaccines, quarantines or importation restrictions have often failed, and the application of prophylactic programmes is sometimes impossible, especially under extensive animal husbandry conditions. On the other hand, attempts to improve genetic resistance to diseases have been reported for a long time. This special issue of Revue scientifique et technique de l’Office International des Épizooties (OIE) is a particularly welcome review of the present situation in this domain of genetic resistance to animal diseases.

The book is made up of five sections, covering (i) general mechanisms of defence, (ii) genetic resistance to various infectious agents, (iii) conventional breeding programmes, (iv) marker-assisted selection and identification of resistance traits, and, finally, (v) more futuristic approaches such as targeted disruption of gene function and transgenesis.

The most important section is devoted to mechanisms of defence, which occupy a quarter of the book. The two chapters on constitutional and adaptive immunity set the general landscape, dominated by complexity and diversity of the mechanisms involved. Significant gaps in the present knowledge of Ig genes of large farm animals are pointed out. Four chapters are devoted to the major histocompatibility complex (MHC) in various livestock, fish and poultry species. A contrasting situation appears between poultry and ruminants on the one hand, where several MHC associations with diseases have been well documented, and pig and fish on the other hand, where implications of MHC in specific disease resistances apparently remain to be shown.

The section on genetic resistance covers parasites, bacteria, viruses and prions. The coverage is extensive in most cases, and the reader is offered several significant examples of genetic variation for resistance, ranging from nematodes in sheep to Marek’s disease in poultry. Surprisingly perhaps, the prion chapter is limited to a study on resistance in mice using transgenesis.

Improvement of disease resistance by breeding is addressed in the two sections on conventional breeding and genomics, the latter including a chapter on the cataloguing of inherited disorders. The Swedish experience in dairy cattle and the Australian Merino case are good examples of how unfavourable genetic correlations between disease resistance and production traits may be circumvented through well-designed breeding programmes. With genomic approaches, there is a shift from phenotypic to DNA information. An extensive chapter gives the details of the steps needed for a successful implementation of such methods, leading to potentially very effective programmes of marker-assisted selection or introgression.

The last two chapters deal with transgenic technology, considering its two opposite aspects, either deletive (knockout) or additive (gene transfer). This technology has proven to be a very powerful tool for analysing gene functions, and particularly genetic resistance in mice. The potential also exists in large animals for removing susceptibility genes, or for adding beneficial ones, such as genes encoding for immunoglobins specific of given pathogens. The last sentence of the book, however, reminds us of the many obstacles still on the road. As the authors say, « time, money and public acceptance will determine the feasibility of such an undertaking ».

The whole book offers a very comprehensive and
up to date overview of the present knowledge on genetic resistances in farm animals, each chapter being followed by an extensive bibliography. The book is well organized and successfully meets the challenge of avoiding major overlaps between its 27 chapters. There is unfortunately no subject index, which would have made access easier to specific topics of interest.

The book also raises an interesting issue on the place to be given to the murine paradigm in the context of large farm animal species. While it is claimed in one of the four chapters devoted to Mus that species such as mice are « ideal », owing in particular to their well-known immunological characteristics, another author (page 61-62) warns us that the mechanisms which are used by large farm animals to develop their adult antibody repertoire may not follow the paradigm established in laboratory mice. We are also warned (page 43) that T helper response has not yet been shown to correlate with antibody response in farm animals, contrary to the murine leishmaniosis case for instance, which is presented page 176-187 as a model.

Overall, the material presented and the general orientation towards future developments to be expected in the field of genetic resistance make this book a highly valuable tool for students, researchers, teachers and the animal industry. The Director General of OIE, J. Blancou, is to be congratulated for having managed, with the assistance of the coordinators M. Müller and G. Brem, to put together with great coherence contributions from 59 recognized experts in the field. This book should remain as a reference for many years to come.

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This book consist of the Proceeding of the 2nd World Congress on Alternatives and Animal Use in the Life Sciences held in Utrecht, The Netherlands, 20-24 October 1996. The book contains the full papers presented at the plenary and platform sessions, the point/counterpoint sessions and most of the workshops, but not the poster presentations. It is an extensive book with a total of 166 papers presented within 11 main topics, 5 workshops and 3 points/counterpoints.

The book is valuable for all people working within the laboratory animal research area, and for those involved in the animal welfare debate. The book would be most valuable for people working on legislation issues and with public opinion. Although the papers are written as scientific papers several are on a more general level making them understandable to a broader public than only researchers. Several papers are written as one would imagine they were presented at the congress, and this gives an impression for the reader of taking part of the conference.

The general outline of the book shows on one hand the possibilities with alternative methods to the use of animals, but on the other hand the problems with exchanging animals to cell cultures. In some types of research, for example in drug kinetics and metabolism it is almost impossible to get reliable results without having the complex function of a whole body. However, the book gives many examples on alternative methods in toxicology testing. There is also a relatively large section on how transgenic animals can help in reducing the number of animals used in research.

One of the topics deals with animal welfare and refinement. If we can not replace all animal experiments, there are several ways in which we can reduce the pain and distress of animals, for example, by improving housing and handling of them, recognising and assess adverse effects of treatments and avoid or alleviate pain. There are also ways of re-using animals in research, and thus reducing the total number of animals used. The book also takes up the important aspect of educating researchers about the alternatives, but also on how to design a good experiment according to the available knowledge within statistics.

The book also deals with the intensified debate on the use of animals in research over the last couple of years. This can be seen in more rules concerning the use of animals, especially in Europe. However, making laws on animal welfare may sometimes be quite complicated as for example in the USA having so many States. Animal ethics committees exist in many countries, but have quite different roles and
composition in the different countries, and this is discussed intensively in the book. There is a section about databases and communication in the book, and it may be worthwhile to use the address given in the papers and found out what is available on the World-Wide Web.

Papers in the book bring up the differences between the use of farm animals and the use of laboratory animals, because in the latter case researchers deliberately inflict pain and suffering on the animals, whereas this is not the case for farmers. For the farm animals we can make rules and regulations that force them to keep and treat the animals according to good animal welfare concern. Within laboratory animal welfare the 3 Rs have greatly influenced the debate over the last decade, even though it was published already in 1959 by Russell and Burch. This book is dedicated to Rex Burch who died during 1996. The 3 Rs stand for Reduce, Refine and Replace.

The book ends with a large section on validation and acceptance of alternatives. The question is how alternatives can be validated, and which tests new substances must go through in order to be approved by the authorities.

The 3rd World Congress on Alternatives and Animal Use in the Life Sciences was held in Bologna, Italy during August 1999. It remains to be seen from those Proceedings if new areas have been developed since the Congress in Utrecht. This book is a valuable piece of literature for those who want to know more about the arguments for or against the use of animals in research.

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The book deals with the origin of today’s livestock breeds, genes, genetic codes and genetic variation, strategies for genetic improvement, factors determining genetic response to selection, prediction of breeding values, and new (molecular and quantita-

This is a book that animal science students (undergraduate and graduate) should borrow from the library. The book gives a good overview of practical breeding in cattle and sheep, outlining the principles and showing how these principles are used. Modern breeding is described in the perspective of historical developments of changes in science and society. An example is the anecdote on prices paid in 1789 for animals from the herd of breeding pioneer Robert Bakewell. The book is easy to read and well illustrated. The writer has made ample use of the breadth of current production systems in Britain and the rich British history in livestock breeding. With a minimum of mathematics the writer succeeds to bringing across many ideas. Throughout the book, very thorough explanations of terms are given, and the glossary of technical terms is very useful. After each chapter a good summary of the contents is given, and references are given for further reading. Addition of self-study problems on ‘things to remember’ would make the book even more useful for use a study book.

The book should be ‘at hand’ for all practitioners in cattle and sheep breeding organisations. The book gives a well-structured framework for genetic improvement strategies. Attention is given to the structure and organisation of breeding industry. With many descriptions, individual animal characteristics are chosen as the entrance point, which makes the book easy to access for practitioners. The book is up to date both in terms of methodology and current problems (and challenges) in society and, more specifically, in livestock breeding. For example the book deals with ethical implications of new technologies, the evaluation of animals across herds, breeds and countries, and marker-assisted introgression. Because of this, and because of the useful attention for operational aspects, the book provides many opportunities for possibly improving current strategies. For technicians, the book has a specifically appealing feature in that it provides a description and a discussion on the relationship between social structure and genetic improvement strategies. As an example, when describing the three major processes leading to genetic changes in a population (drift, natural selection and artificial selection), the writer
correctly emphasizes the role of social circumstances in directing artificial selection.

The book is certainly very useful for scientists in genetics and applied livestock breeding. For this group of readers it is especially to be mentioned that the book uses an original structure in presenting all different aspects of genetic improvement strategies. Moreover, the book contains a number of original ideas.

Dr. A.F. Groen

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This book focuses on the application in liquid form of micro-ingredients, which are sensitive to damage by heat and processing during production of compound feeds. However, heating is important for good hygiene, for safe feed and quality food as demanded by end-users and consumers because using high temperatures during processing decreases microbial contamination. The application of liquid additives in a post-pelleting application may be an alternative technological solution to prevent heat damage of the additive, to reduce cross-contamination and to guarantee almost 100% recovery of the additive in the animal feed. Moreover, such a system benefits feed manufacturers since it provides more flexibility in meeting the demand for special custom-build feeds. The authors also describe a number of requirements of the feed and equipment which are critical for implementation of liquid additive systems.

Quality as defined in ISO-standards and GMP-codes receive attention as does the measurement and statistics around uniformity/homogeneity or distribution briefly in Chapter Two. The authors present the literature associated with the liquid additives in Chapter Three. A table of micro-components that can be added in liquid form is shown, as well as a table indicating available thermo-stable enzymes and their applications. Nutritive additives such as amino acids, vitamins and non-nutritive additives (enzymes, antibiotics, and pre- and pro-biotics) are dealt with in relation to the possible problems in the application.

In Chapter Four there is an overview of the post-pelleting equipment. Low dose is a problem with most vitamins, trace elements, antibiotics, pro-biotics and enzymes, when added in a proportion of 0.1-0.002% of feed. Accurate dosing and mixing of such small proportions requires high standard technical equipment. The authors describe essential aspects of the equipment design is several situations (spraying system, continuous addition, batch system). They also pay attention to the positioning of liquid addition in a production line, the requirements for the equipment concerning factors such as the number of sprayed pellets in the mixture, number of droplets, mixing method, segregation of feed particles and the additive content of fines, allergic reactions to sensitive people etc.

The analysis of feed quality in Chapter Four is a difficult affair with the small doses and the usual low accuracy of the analytical methods. Effects of sample size, the sampling method and the number of samples play a role in determining the confidence interval for calculated standard deviations. Also help with a tracer instead of the additive may improve the results or reduce costs of the analyses. Finally recommendations are given for further research on the recovery as well as distribution and homogeneity in the equipment suitable for this applications.

The book is of interest to process engineers, nutritionists, researchers and students interested in post-pelleting applications of additives.

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This volume has the great merit of summarizing four wide lines of research each of marked scientific
importance: Biochemical basis of meat quality; Production and harvesting factors affecting meat quality; Microbiological quality of poultry meat and meat products; Quality aspects of poultry meat products.

Topics are covered in separate chapters by some of the well-known names in the world of scientific research, are brilliantly presented, and are of easy access for the reader to gain a good understanding, despite their vastness and complexity. This work is, indeed, of a great help for those working in food science research, both at the academic and industrial levels. Also under-graduates and graduates involved in biological sciences could benefit their knowledge base with updated state-of-the-art information.

The first part of the book elucidates on a biochemical basis, the features associated with meat quality, focuses on the complex structure of muscle, its development, and the relationship with texture, colour and flavour. The dynamic state of research in the factors affecting meat quality during production and harvesting is covered and includes: production, nutrition and pre- and post-slaughter.

Microbiological quality of poultry meat and meat products is examined in the third part of the book, stressing in particular the production environment, hygiene during transport, slaughter and processing, methods for decontaminating meat and for extending shelf-life.

The final section covers poultry meat products where contributors examines the quality aspects of harvesting by means of properly organized taste panels, and new technologies.

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The authors state that the costs associated with feeding constitute approximately 50 percent of the costs of milk production. Furthermore, the milk price depends on the levels of the major milk constituents, with protein currently being the most valuable milk component. Hence, feeding systems that allow the farmer to manipulate the level of the various milk components are needed. According to the authors the current systems for diet formulation in the UK, which are based on the ARC metabolizable energy (ME) and AFRC metabolizable protein (MP) proposals are unable to satisfy such a need. Because they use “a factorial assessment of the cow’s nutrient requirements to calculate the supply of energy and protein that must be provided in the diet to meet those requirements”, but do not take into account:

- how the cow responds to changes in the nutrient supply,
- how dietary constituents interact in their effect on the processes of digestion and metabolism,
- how diet affects the partitioning of nutrients between milk production and body gain and between the major milk constituents, at different stages of lactation.

The authors emphasize that the current systems are not inaccurate, but merely fail to accommodate the future needs of milk producers. Therefore, a Working Party under the auspices of the former AFRC Technical Committee on Response to Nutrients was commissioned to write a report on this topic. However, due to a lack of support the report was not finalized, until support from CAB International and the Ministry of Agriculture LINK project “Feed into Milk” enabled completion of the report, resulting in the book that is the topic of this review.

The book is logically divided into 10 chapters, starting with a Summary and Introduction. The book then proceeds with a chapter on the current feeding systems and their limitations. A comparison is made with current systems in the US and other European countries. Although all systems are very similar, there are small but important differences between them. One can not help but wonder how nice it would be to adopt one common system between countries; this would greatly facilitate the communication and collaboration between scientists internationally. The next chapter outlines the three main elements of a new system: nutrient supply, nutrient use, and characterization of the state of the cow. Each of these elements is dealt with in detail in the
following three chapters, describing the current state of knowledge for each. Following a brief chapter with Conclusions, a very useful chapter follows with recommendations for future research in order to fill the gaps in information that is needed to develop the proposed nutrient response system. The final chapter outlines possible approaches to the prediction of a response in milk constituent output from a nutrient supply; reference is made to several existing mathematical models. The book also contains an Appendix in which a brief outline is given of a possible model of metabolism in dairy cows, based on the work by France and Thornley (1984).

The authors point out that it was not their intention to write an extensive comprehensive review of all available information, but rather provide a summary of a review of several major areas of ruminant nutrition. Unfortunately, this brevity and the fact that in certain sections of the book the text is rather tedious and not always easy to follow, may make the book less suitable for students and professionals with little or no expertise in ruminant nutrition. However, for those with more experience in this field the book provides a good overview, albeit brief, of the underlying principles, the challenges, problems and requirements for a nutrient response feeding system. The book points out that such a complex system can only be achieved with the help of computer models. Over the years several groups, world-wide, have been increasingly successful in trying to model processes such as feed intake, nutrient utilization and absorption, and mammary gland function. The challenge that lies ahead is to improve those models, to develop new ones where necessary, and combine them into a robust system that is able to predict the output of individual milk constituents from a certain supply of nutrients with a minimum of input variables. This will be a formidable task, which due to its complexity and size can only be achieved through collaboration of national and international groups of scientists with not only modelling expertise, but also with expertise in physiology, biochemistry and endocrinology, in order to close the gaps in existing knowledge, which is necessary for the development of the appropriate models. Indeed, the authors rightly point out that while the practical application of the nutrient response system may still be a thing of the future, existing models, however limiting they may be, already serve a useful role in pinpointing gaps in our biological knowledge about processes of nutrient utilization and metabolism, and thus aid in targeting essential areas of biological research.

Finally, while the book describes the need for a new feeding system in Great Britain, the contents of the book is equally relevant to students and professionals in other countries. After all, despite differences in feed stuffs used and in milk production and milk composition between different breeds, the principles of the underlying biological processes on which the system will be based, are very similar if not identical in most places.

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This book is the first volume of a two-volume series, the second being on forage seed production from tropical and subtropical species. The book’s justification is: firstly, the vital importance of grasses and legumes in grazed pastures and conserved stands as foundation feeds for ruminant animal production; secondly, that increasingly, more non-agricultural uses are being found for the so-called ‘forage’ grasses and legumes – amenity purposes, landscaping, erosion control, industrial land reclamation, biomass energy, medical/pharmaceutical products to name a cross-section; thirdly, that the seed production sector of the world agricultural economy has been relatively neglected from a research and development perspective; fourthly, to issue challenges to researchers and seed producers to achieve the seed yield potentials of the different species by classifying and optimally integrating the physiological responses of seed crops to management factors.

The book comprises two parts; part 1, with 11 chapters which make up 70 per cent of the book’s text, covers all the aspects relevant to seed pro-
duction, the dominant areas overviewed being: plant morphological structures and physiological mechanisms; improvement of seed yields and quality standards; seed crop management; seed harvesting and processing; the international seed trade. Part 2, with 11 shorter chapters, presents practical case studies from eight countries on the seed production of the main species sown in temperate grasslands and traded internationally; namely, six grass species from four genera (tall fescue, red fescue, Italian ryegrass, perennial ryegrass, smooth-stalked meadow grass, cocksfoot) and five legume species from three genera (birdsfoot trefoil, lucerne, red clover, white clover, subterranean clover). There are 43 contributors, 27 being involved in the Part 1 chapters and 16 in the Part 2 chapters. Authorship is international, with circa 50 per cent from seven European countries, 20 per cent from New Zealand, 20 per cent from the United States of America and 10 per cent from four other countries. Part 1 is liberally referenced with the nine mainly scientific/technological chapters averaging 116 references per chapter. In part 2, with its emphasis on the practicalities of seed production, the average number of citations per chapter is just 13. The book is particularly well-indexed.

Seed production of temperate forage plants is a relatively new industry, tracing its roots back to the nineteenth century. However, the greatest advances in cultivar improvement and hence production of certified seed of high quality were from the 1920s onwards. Notwithstanding, seed yields from individual species are still highly variable and many seed multiplication issues identified in the early years have still not been fully resolved. The part 1 chapters make significant contributions to the science and technology of these issues. Notable pivotal chapters are those dealing with: reproductive development and establishment of potential seed yield; components of seed yield; pollination, fertilization and pollinating mechanisms; harvest and postharvest management of seed crops. The chapter entitled “The Forage Seed Trade” emphasises the important role of international trade and the international regulatory bodies such as the Organisation for Economic Co-operation and Development (OECD) and the Federation International du Commerce des Semences (FIS0). There are 20 grass and legume genera whose species are usually accepted as temperate in nature. Thus, in concentrating only on the 11 species from seven genera because of their international significance, the book admits to the omission of many species – Phalaris and Bromus grass species, and Onobrychis and Vicia legume species, for example – which are of importance in some countries or regions of a country. As such, these species represent a challenge to the seed trade to meet market demands since they are needed for differing environments, but the demand for seed is not always met because of a low payback. Arguably, a book or booklet of case studies of such species would be valuable.

In conclusion the book’s first and main part is essentially a scientific/technological treatise with an international emphasis. It provides a valuable source of information and references for kindred researchers involved in the seed production of temperate grasses and legumes, and for agricultural science lecturers and their advanced students. Researchers will appreciate the gaps in knowledge identified and so will be able to formulate future experimentation. In the second part the practical aspects covered in the case studies for the 11 most important temperate forage species will be of particular value to progressive seed producers, advisers and seed trade personnel.

Dr. John Frame, formerly of the Scottish Agricultural College, Auchincruive, Ayr, Scotland.


This 130-page book collects the reports that were presented at the Reading University symposium on the initiative of the Minister of Agriculture, Fisheries and Food. It sums up our knowledge on the effects of some secondary components of plants that are used in animal feeding. After going through all the substances that may have an anti-nutritional or a positive role in animal production, the authors detail tannins, trypsin inhibitors and lectins.

Concerning tannins, the different kinds are first
presented, then their positive or negative effects on animal production are discussed in relationship with their chemical composition, their amount in the plant and the type of animal studied. The same is done with protein inhibitors whose negative effect mainly appears in young animals and with lectins which are dangerous when ingested in high quantities but can have a positive effect on the animal which has eaten them in some circumstances.

The consequences of these effects are then brought up to suggest possible selection schemes for the concerned plants. This makes an in-depth study, which includes the names of plants, of complex problems linked to the chemical nature of molecules in each substance category, backed by a particularly well-documented list of bibliographical references.

The discussion opens up some interesting possibilities for future research works which could allow one to transform negative effects into positive ones. An index makes it possible to look up the paragraph dealing with the topic one is interested in very quickly.

The very clear presentation with many experimental results makes it an invaluable work for those who were willing to understand these intricate mechanisms and to contribute to improving their effects on animals.

Professor J-L. Tisserand
Établissement National d’Enseignement Supérieur Agronomique de Dijon, (ENESAD), Dijon, France.


This book consists of the edited and refereed papers presented at the 5th International Symposium on Poisonous Plants (ISOPP®5) which was held at San Angelo, Texas, USA in 1997. The internationality of the proceedings, though limited if judged by the number of countries represented, grew out of an initial American/Australian dialogue started in the 1970s. The main objective of the symposium was to present and exchange new information on the effects of poisonous plants on livestock in different regions of the world. Contributors are from a diverse group of professions and disciplines and include veterinarians, physicians, botanists, chemists, biochemists, agricultural scientists, extension agents and representatives of regulatory bodies. The scientific presentations range from the fundamental to the applied and, in essence, deal mainly with plant toxins in relation to animal health and productivity, and to a much lesser extent with the safety of food production for humans.

The symposium papers are formatted as 110 individual chapters. These are grouped under nine subject area headings which are listed in the table of contents though not in the body of the text. A further two chapters contain obituaries of the scientists, W. Binns and J.W. Dollahite. The group headings and their respective numbers of chapters are: regional and epidemiological issues (13); cardiopulmonary system (19); diagnostic/treatment issues (18); miscellaneous topics (8); the reproductive system and the embryo (12); public health and herbal medicine concerns (5); the musculoskeletal and the neurological system (13); mycotoxins and mycotoxicoses (9); detoxification, digestion and elimination (15). Unusually for a symposium, there are no overview plenary papers and so the chapters average only five pages each. The multi-disciplinary nature of the work on toxic plants and collaboration involved is illustrated by the multi-authorship of individual papers, with sometimes as many as 8, 9 and 10 being associated. There are 430 contributor names for the papers, the majority from the USA and Australia, but some authors contribute to a number of papers; also 17 countries are represented in the authorship. American workers dominate the sections on epidemiological issues and public health while Australians dominate the section on mycotoxins. In general the papers are liberally referenced, averaging 13 per chapter and totalling over 1400 citations, though some appear in a number of papers. There is a detailed subject area index but not an author index.

The book contents make it clear that toxic plants and other natural toxicants play important roles in animal and human health, and so involve the many interrelated disciplines exhibited in the work reported. While economic aspects per se are not presented the editors note that estimates of the economic impact on livestock have ranged in the
millions of dollars (US) in countries such as the USA and Australia, let alone other countries. The production of safe, healthy food is increasingly a priority subject of public debate, particularly in so-called developed countries and this is inducing governments to undertake ever-closer regulatory surveillance and action. Thus the book makes a significant up-to-date contribution on the subject insofar as the aspects of poisonous plants, mycotoxins and herbal intoxications are concerned. Adverse effects, from illness through to fatality in livestock, are well described as are the identification, biochemistry and modes of action of the chemical compounds responsible but also, importantly, the protocols for their management, eradication or amelioration.

In conclusion the specific subject areas covered in the book are wide ranging in nature yet individually still specialized. Therefore, the publication is for browsing and dipping into selectively by workers in the different fields of toxicology dealt with. The book expresses the current state of play of research and development in plant/animal toxicological matters, particularly on problems, their detection, treatments and solutions, provides a rich source of references and hopefully, inspiration for work into aspects not yet fully understood.

Dr. John Frame, formerly of the Scottish Agricultural College, Auchincruive, Ayr, Scotland.


The objectives of the conference organized by INRA (France) are clearly laid out in this 477 page book of proceedings. The objectives are to improve understanding of change in the farming sector and especially the effect of change on Farming System Development. Further objectives are new approaches in methods in farm diagnosis, micro-economic modelling and the contract between farms and the natural and economic environment. The 24 papers highlight specific experiences and approaches presented by authors from many European countries. They are concerned mainly with European systems but also some African farming systems. 13 papers are in French with an English summary and 11 are in English with a French summary. In general the work is categorized by the various relationships between farms and their indigenous and exogenous environments. These include down-stream relationships between farms and the community role as well as up-stream focusing on the interaction between farms and the farming industry. The book clearly demonstrates the need to consider the changing environment and its impact on the technical and economic functioning and organisation of farms.

These objectives allow topics to be grouped around six trends: Farm management and internal operation; diagnostic methods and approaches of farm systems; micro economic modelling of decision and behaviour; negotiation of contracts between farms and their partners; assessment of evolution in farming systems; and the responses to change and the perspective for multi-disciplinary studies on farming systems. Three papers on farm management operation deal with understanding functions and decision-making processes at farm level. The specific originality of the contribution is associated with the assessment of improvements at the farm enterprise level and its effect on overall farm operation with the aim to improve overall efficiency. Four papers deal with diagnostic problems of farm systems. A strong focus is brought to the need to include the infrastructure, economic and natural environment with their interaction to farm development and farming practices. Two contributions pay particular attention to the positive effects of interaction between extension services and farmers and the involvement of farmers in development dynamics. The two other papers concentrate on the interactions between farm operations and environmental issues within farm and the expanding role farms play in maintaining landscape grasslands. Trends in micro-economic modelling to support decision-making at farm level are highlighted in three papers, with a common characteristic to integrate technical factors and factors of the socio-economic environment in a modelling exercise. The system-oriented micro-economic modelling aims to support decisions for new agricul-
tural policies. The use of micro-economic modelling for decision-making within farms is also demonstrated by two papers concerned with dynamic planning of cropping systems and of organic farming and their evolving interactions between farmers, the environment and political regulations.

Negotiation of contracts between farmers and other stake-holders in society is a growing issue in farming systems concerned with supplying consumers with quality products and with the environmental interaction of the farming process. Several papers follow the principal-agent theories. Several papers indicate that constraints in external changes create need and desire to obtain new competence and knowledge for farm managers. Another set of papers deals with contracts between farms and industrial enterprise to secure market outlets and standard product quality. Two papers highlight the need to create transparency of requirements, production possibilities and new opportunities as a mean of reducing transaction costs and contract efficiency. Other alternatives for providing sustainable linkage between producers and consumers are dealt with in two papers which highlight organisational and contractual requirements for producer co-ordination, production standardisation, and information linkage through direct contracts with consumers.

A principal factor causing change to farming practises is the ever increasing sensitiveness about negative environmental externalities. Three contributions addressed the need for methods to analyse the effect of agri-environmental-policies. It is argued that best methods should encompass the effect of changes in environmental policies and their effect on farming communities and social networks in rural areas. Other papers deal with the effect of changes in factor costs such as labour, in productivity, and in the flexibility of labour. The causes of these changes are discussed in relation to small farm structures in less developed regions of Europe, where these small holder farms create positive social environmental externalities. Although a more classical economic view is used in these two papers, their long term macro-economic outlook on the effect of changes seems important for rural development policies.

Perspectives for multi-disciplinary studies on farming are covered by two papers. Some arguments are aimed at the definition of system boundaries and essential interaction domains to be included in holistic assessments. It is also stressed that the statistical category “farm” is not only a technical system but a result of a long term social evolution which covers very diverse economic and social situations. A continuous understanding of this system requires interdisciplinary approaches and a clear requirement to link different system levels and interaction vectors.

This book provides empirical inspiration on a large number of aspects in farming systems research related to farm and rural management. Making this information available to a larger group of interested policy makers, scientists, students, and practitioners is applaudable. The book is interesting also for identifying differences in schools of thoughts and approaches between scientific communities within Europe. Improving the understanding of different methodologies approaches and the utilisation of synergies is another positive feature. Together with information on theorisation system economics this book can provide useful reading to support activities in research and in teaching Farm and Rural System Development.

Professor Kurt Peters,
Dept of Tropical Animal Breeding, Humboldt-University, Berlin, Germany.


Jiang’s PhD thesis is a complex document, composed of many parts on many themes, but it eventually comes together as a unity. It concerns present-day realities of breeding and selection of chicken broilers, both in western countries and in China, and it takes a perceptive and thoughtful look at the breeding industry of the future in light of consumer preferences and demands.

The first four parts concern challenges faced by industrial breeders in a complex business structure. All four deal with minutae of methodology, and all
four have been published separately in refereed journals where their worth will be judged with the passage of time.

The first part, published in *Poultry Sci*. 77:925-933 (1998), describes a model for economic analysis and derivation of economic values, both integrated and non-integrated systems, and for four levels of the industry (multiplier breeder, hatchery, commercial grower, and processor). In the second part, published in *Poultry Sci*. 77:934-943 (1998), the model is tested using real data. The third part, published in *Poultry Sci*. 78:307-316 (1999), describes development of a design for the application of discounted gene flow methodology to derive cumulative discounted expressions for production and reproduction traits. The fourth, published in *J. Anim. Breeding Genet*. 116:111-125 (1999), considers selection in both purebred grandparent and crossbred parent stocks on reproductive traits in a broiler dam line. All four of these studies will be welcomed by industrial breeders as refinements to their breeding and selection methodologies.

The fifth part of Jiang’s thesis is an abrupt departure from the dizzying heights of mathematical genetics. It is a comprehensive and critical review of literature on the chicken genetic resources of China, on structure of the Chinese poultry industry, and on the strong consumer preference there for “quality” meat which is that from local indigenous breeds and for “semi-quality” which is that from local mated with industrial. The review seems not to have been published elsewhere for a wider audience, but it should be. Description of genetic resources is the most complete yet available. Details of the Chinese poultry industry and of the increasing demand for “quality” product makes stimulating reading. Over half of the references cited are in Chinese and not readily available to western readers. This chapter is a gem for those interested in genetic diversity and in cultural influences on what many would presume to be a monotypic global industry.

The thesis concludes with a general discussion that brings together the disparate parts. It makes stimulating reading. It especially considers breeding goals and the forces which drive the broiler industry. These are cost reduction, quality improvement, versatility, and ethics. Cost reduction has dominated, but it is predicted that the other forces will increase in influence as evidenced by consumer power and industry structure in China and that industrial breeders should take heed.

Dr. Roy D. Crawford, Professor Emeritus
Department of Animal & Poultry Science, University of Saskatchewan, Saskatoon, SK S7K 3J9, Canada.

**TRAINING COURSES**

**Wageningen Agricultural University, The Netherlands**

International Postgraduate events will be held at Wageningen University and Research Centre and further information may be obtained from: International Training Centre, Wageningen University and Research Centre, PO Box 8130, 6700 EW Wageningen, The Netherlands. Tel: +31-317-484092/3. Fax: +31-317-426547. email: geralda.fonteijn@wageningenur.nl [http://www.wau.nl](http://www.wau.nl)

**European Agricultural Policy in Transformation.** An International Postgraduate Training Course will be held from 11 to 16 September 2000.

**Institut National Agronomique Paris-Grignon, France**

CIHEAM/IAMZ Courses

The following courses are offered by CIHEAM and IAMZ. Information: Instituto Agronómico Mediterráneo de Zaragoza, Apartado 202-50080 Zaragoza, Spain. Tel: +34-976-576013. Fax: +34-976-576377. E-mail: iamz@iamz.ciheam.org Web: http://www.iamz.ciheam.org

Animal Production
- Goat production will be held from 6 to 17 November 2000 in Murcia.
- Implementation of control and eradication programmes of animal diseases will be held from 11 to 15 December 2000 in Zaragoza.
- Meeting marketing requirements for quality in ruminant carcasses and meats will be held from 15 to 26 January 2001 in Zaragoza.
- Statistical principles in livestock production experiments: towards a better understanding and application of modern methods will be held from 19 to 23 February 2001 in Zaragoza.
- Use of molecular techniques in animal breeding will be held from 5 to 16 March 2001 in León, Spain.
- Aquaculture fish breeding will be held from 2 to 6 April 2001 in Zaragoza.
- Optimizing the use of local conventional and unconventional feed resources in Mediterranean arid and semi-arid areas will be held from 14 to 25 May 2001 in Cairo, Egypt.
- Mediterranean offshore mariculture will be held from 28 May to 1 June 2001 in Zaragoza.
- Marketing
  - Quality management. New concepts and their application in agro-food marketing will be held from 16 to 27 October 2000 in Zaragoza.
  - New developments in agro-food distribution logistics. Adaptation of marketing structures will be held from 20 to 24 November 2000 in Zaragoza.
  - The World Trade Organization and its impact upon international agro-food marketing will be held from 5 to 9 February 2001 in Zaragoza.
  - Electronic commerce. Impact and future trends in agro-food marketing will be held from 11 to 15 June 2001 in Zaragoza.
- Advanced Course on Rural Planning in Relation to the Environment will be held from 2 October 2000 to 8 June 2001 in Zaragoza.

International Master on Agro-Food Marketing (7th Edition) will be held from October 2000 to July 2001 at Zaragoza.

Barneveld College, The Netherlands

The following courses are offered. All courses include theory and practical aspects of management and technical operations, with study visits and are suited to beginners and mid-career specialists in production, extension and management. Information: Dept. International Studies, PO Box 64, 3770 AB Barneveld, The Netherlands. Tel: +31-342-414881. Fax: +31-342-492813. E-mail: io@ipcdier.hacom.nl

International six month courses
- Poultry husbandry from 21 August 2000 to 23 February 2001
- Pig husbandry from 21 August 2000 to 23 February 2001
- Animal feed training programme. 26 February 2001-25 May 2001

FORTHCOMING SCIENTIFIC CONFERENCES

AUGUST 2000
- International Conference on Animal Science and Veterinary Medicine Towards the 21st Century will be held in Beijing, China from 12-15 August 2000. Information: Ms. Xu Jinhua, Institute of Animal Science, Chinese Academy of Agricultural Sciences, No.2 Yuanmingyuan Xilu Road, Beijing 100094, China. Tel: +86-10-6289-5371. Fax: +86-10-6289-5351. Email: xmskyczy@public3.bta.net.cn or caavxshb@public.bta.net.cn
- 3rd International Conference on Symbiosis (TICS) will be held in Marburg, Germany from 13-19 August 2000 by the International Symbiosis Society. Information: Prof. Dr. H-C. Weber, Tel: +49-6421-28-2091. Email: weberh@mail.uni-marburg.de
- IAATH – The International Alliance for Animal Therapy and Healing will hold its first conference from 17 to 20 August 2000 at Washington State University, Vancouver, Washington State, USA. Information: Penny Ramey, Extension Livestock Advisor Program, Washington State University Cooperative Extension, 11104 NE 149th Street C100,
Note: the following five Satellite Symposia will take place in The Netherlands prior to the EAAP Annual Meeting details of which are shown below after the details of the Symposia. Further information on the Symposia is given in EAAP News No. 37. LPS 63 (2000) pages 166-167.

Gas Production Workshop: Fermentation Kinetics for Feed Evaluation and to assess Microbial Activity will be held in Wageningen, The Netherlands from 18-19 August 2000. This is a joint activity of the British Society for Animal Science and Wageningen Agricultural University and takes place immediately before the EAAP Annual Meeting in The Hague, The Netherlands. Information: Eddie Deaville. Email: eddie.deaville@adas.co.uk or Barbara Williams. Email: barbara.williams@alg.vv.wau.nl or John Cone. Email: j.w.cone@id.dlo.nl or from: BSAS, PO Box 3, Penicuik, Midlothian, EH26 0RZ, UK. Tel:  +44-131-445-4508. Fax: +44-131-535-3120. Email: bsas@ed.sac.ac.uk. http://www.bsas.org.uk

EAAP 2000 Satellite Symposium on Robotic Milking: the Future is Here will be held in The Netherlands prior to the EAAP Annual Meeting in The Hague from 18-19 August 2000. Information: Dr. Henk Hogeveen. Tel: +31-320-293-430. Fax: +31-320-241-584. Email: h.hogeveen@pv.agro.nl

Elsevier/EAAP Workshop, The Hague 2000 on Preparing and Presenting Scientific Papers will be held in connection with the EAAP meeting at the Netherlands Congress Centre on Saturday 19 August from 08.30 to 17.30 hours. Information: Dr Phil Garnsworthy, University of Nottingham. Fax: +44 115 951 6060. E-mail: Phil.Garnsworthy@nottingham.ac.uk

5th Joint EAAP/ASAS Workshop on the Biology of Lactation in Farm Animals will be held on 19 to 20 August 2000 in The Hague in advance of the EAAP Meeting. Information: Antonella Baldi, Animal Nutrition Institute, University of Milan, Trentacoste, 2 20133 Milan, Italy. Fax: +39-2-2140745. Email: abaldi@unimi.it Local organizer: Kerst Stelwagen, Research Station for Cattle, Sheep and Horse Husbandry, PO Box 2176, Runderweg 6, 8203 AD Lelystad, The Netherlands. Fax: +31-320-241-584. Email: k.stelwagen@pr.agro.nl

The Use of Information and Communication Technology (ICT) in Teaching and Learning in Animal Sciences is a Satellite Symposium of the EAAP Annual Meeting and will be held on Sunday 20 August 2000 at the Netherlands Congress Centre, The Hague. Information: Dr. Simon Heath, Centre for CBL in Land Use and Environmental Sciences (CLUES), University of Aberdeen, Aberdeen AB24 5UA, UK. Tel: +44-1224-273-755. Fax: +44-1224-273-752. email: clues@abdn.ac.uk. Web: http://www.clues.abdn.ac.uk:8080/

51st EAAP Annual Meeting will be held from 21-24 August 2000 at the Netherlands Congress Centre, Churchillplein 10, NL 2517 JW, The Hague, The Netherlands. Information: EAAP2000, NRS, PO Box 454, 6800 AL Arnham, The Netherlands. Tel: +31-26-389-8791. Fax: +31-26-389-8777. Email: eaap2000@alg.vf.wau.nl Web: eaap2000.wau.nl For further details see the beginning of this Newsletter.

2nd Congress on Agricultural and Food Ethics with the theme “Two Systems – One World” will be held from 24-26 August 2000 in Copenhagen, Denmark. Information: Ms. A. Ito, Royal Veterinary and Agricultural University, Grønneågården 8, DK-1870, Frederiksberg C. Tel: +45-3528-3010; Fax: +45-3528-3022. email: ai@kvl.dk

Biodiversity and Dynamics of Ecosystems in North Eurasia. A Workshop will be held from 21 to 23 August 2000 in Novosibirsk, Russia. Information: Russian Academy of Sciences, Novosibirsk Akademgorodok, Russia. Email: kol@bionet.nsc.ru


Plants stand still but their genes don’t. Symposium from 29 to 31 August 2000 organized by the British Ecological Society, London. Information: +44-20-8871-9797.

SEPTEMBER 2000

Biotechnology 2000. 11th International Biotechnology Symposium and Exhibition will be held from 3 to 8 September 2000 in Berlin, Germany. Information: Dr. Volker Rosenbaum. Tel: +49-69-
Early Regulation of Mammalian Development.
A Symposium organized by the British Society for Animal Science will be held from 18-20 September 2000 in Aberdeen, UK. Information: BSAS, PO Box 3, Penicuik, Midlothian, EH26 0RZ, UK. Tel: +44-131-445-4508. Fax: +44-131-535-3120. Email: bsas@ed.sac.ac.uk. http://www.bsas.org.uk

Biotechnology in the Global Economy: Science and the Precautionary Principle. An International Conference will be held from 22 to 23 September 2000 at Harvard University, Boston, Mass. USA. Information: Email: derya.honca@ksg.harvard.edu

Fair 2000: European and local breeds of livestock at Rambouillet, France will be held from 23 September to 3 October 2000 with a Symposium on 27 September 2000 at Stoneleigh, Warwickshire, RASE, UK. Information: Alan Stebbing. Tel: +44-1203-696-969. Fax: +44-1203-696900. Email: alans@rase.org.uk

OCTOBER 2000

Extension’s Role in Biotechnology Education Symposium will be held from 8 to 10 October 2000 in Ames, Iowa, USA. Information: ISU Office of Biotechnology. Tel: +1-515-294-9818. Fax: +1-515-294-4629. Email: biotech@iastate.edu

34th Congress of the International Society for Animal Ethology (ISAE) will be held from 17 to 20 October 2000 in Florianópolis, Brazil on the topics “Promoting animal welfare in husbandry systems” and “Domestication and ethology of wild animals” (see page XXX). Information: ISAE2000 c/o Luiz Carlos Pinheiro Machado F. Universidad Federal de Santa Catarina, CCA-Departamento de Zootecnia & Desenvolvimento Rural, Rod. Admar Gonzaga 1346, Florianópolis/SC/Brazil 88-034-001. Tel: +55-48-331-5356. Fax: +55-48-331-5350/331-5400. Email: isae2000@cca.ufsc.br. Website: www.cca.ufsc.br/ISAE2000

6th World Buffalo Congress will be held from 23
International Symposium on Prospects for a Sustainable Dairy Sector in the Mediterranean, sponsored by EAAP and other organizations, will be held at Hammamet, Tunisia from 26-29 October 2000. Further details are given on page XXX. Information: Symposium Secretariat, c/o Mr. Mustapha Guellouz, Office de l’Elevage et des Pâturages, 30 Rue Alain Savary, 1002 Tunis, Tunisia. Tel: +216-1-793-603/782-960. Fax: +216-1-790-795/787-813. Email: dg.oep@email.ati.tn

NOVEMBER 2000
5th Global Conference on the Conservation of Domestic Animal Resources will be held from 20 to 24 November 2000 in Brasilia, Brazil. Further details are given on page XXX. Information: Arthur Mariane da Silva, National Centre for Genetic Resources, EMBRAPA-CENARGEN, Sain Parque Rural, PO Box 02372, BR 70849-970, Brasilia, Brazil. Tel: +55-61-340-3507. Fax: +55-61-340-3624. Email: marinate@cenargen.embrapa.br

3rd African Conference on Animal Production and the 11th Conference of the Egyptian Society of Animal Production (ESAP) on the theme Optimizing the Utilization of Animal Production Resources in Africa will be held jointly in Alexandria, Egypt from 6-9 November 2000. Further details are given on page XXX. Information: Prof. A.H. Barkawi, Egyptian Society of Animal Production, Department of Animal Production, Faculty of Agriculture, Cairo University, Giza 12613, Egypt. Tel/Fax: +202-568-3188/569-4049. Email: esap@asunet.shams.eun.eg or cise@main-scc.cairo.eun.eg. Home page: esap.org.eg Conference Agency: Carlson Wagonlit Travel, 3 Isis Str, off Orouba Road, Heliopolis 11341, Cairo, Egypt. Tel: +202-4175801/12/30. Fax: +202-4175847.

Beef Breeders Round Table will be held from 16 to 18 November 2000 in Bolton, UK Information: j.collins@ed.sac.ac.uk

JANUARY 2001
World Congress of Environmental Law and Policy will be held at San José, Costa Rica from 8 to 12 January 2001, organized by the Mexican Academy of Environmental Law. Information: email: ciacaciv@sarenet.es and ramon_ojeda_mestre@mailcity.com
Website: www.greenchannel.com/iceac in spanish section & http://www.mailcity.lycos.com

APRIL 2001
Improving the Quality of Livestock Products. A Satellite Symposium to the British Society for Animal Science Annual Meeting will be held in April 2001 in York, UK. Information: Jeff Wood at Tel: +44-117-928-9293.

JUNE 2001
First Joint Meeting of University Departments of Animal Sciences of the Balkan Countries will be held from 6 to 8 June 2001 at Tekirdag, Turkey (see page XXX). Information: Meeting Secretariat, Trakya University, Department of Animal Science, 59100 Tekirdag, Turkey. Tel/Fax: +90-282-2931-479. Email: animal.science@turk.net

What Price Cheap Food? A Workshop will be held in Edinburgh, UK. Information: British Society for Animal Science, PO Box 3, Penicuik, Midlothian, EH26 0RZ, UK. Tel: +44-131-445-4508. Fax: +44-131-535-3120. Email: bsas@ed.sac.ac.uk. http://www.bsas.org.uk

JULY 2001
Wildlife Health and Management in Australasia Conference will be held from 2 to 6 July 2001 at Taronga Zoo, Sydney, Australia. Information: Dr. Larry Vogelnest, Taronga Zoo, PO Box 20, Mosman NSW 2088 Australia. Fax: +61-2-9978-4516. Email: lvogelnest@zoo.nsw.gov.au

American Society of Animal Science Annual Meeting will be held from 24-28 July 2001 in Indianapolis, Indiana, USA. This is a joint meeting with FASS. Information: Tel: +1-301-571-1875. Fax: +1-301-571-1837. Email: ellenb@assochq.org.

AUGUST 2001
52nd Annual Meeting of EAAP will be held in Budapest, Hungary from 26-29 August 2001.
Information from: AgroEurope Organizing Bureau, H-2100 Gödöllő, PO Box 8, Hungary. Tel/Fax: +36-28-432-988. Email for registration: biszkup@sunserv.katki.hu email for Organizing Committee: jgundel@atk.iif.hu Homepage: http://www.atk.hu

**34th International Congress of Physiological Sciences** will be held from 26 to 31 August 2001 in Christchurch, New Zealand. Information: Conference Company, PO Box 90-940, Auckland, New Zealand. Tel: +64-9-360-1240. Fax: +64-9-360-1242. Email: infor@tcc.co.nz. http://www.iups2001.org.nz

**SEPTEMBER 2001**

Engineering for Livestock Production. A joint meeting of the British Society for Animal Science and the Institution of Agricultural Engineers will be held on 11-12 September 2001 at Cambridge, UK. Information: BSAS, PO Box 3, Penicuik, Midlothian, EH26 0RZ, UK. Tel: +44-131-445-4508. Fax: +44-131-535-3120. Email: bsas@ed.sac.ac.uk. http://www.bsas.org.uk

**OCTOBER 2001**

Organic Milk and Meat Production from Ruminants. A conference organized by the Greek Society for Animal Production and the British Society for Animal Science will be held on 4 to 6 October 2001 in Kastri, Athens. Information: Dr. G. Zervas, Agricultural University of Athens, Dept. of Animal Nutrition, Athens, Greece. Tel: +30-30-1529-4411. Fax: +30-1529-4413. email: gzervas@auadec.aua.gr or Dr. Ilias Kyriazakis email: i.kyriozakis@ed.sac.ac.uk

**JULY 2002**

American Society of Animal Science Annual Meeting will be held from 22-25 July 2002 in Quebec, Canada with the Canadian Association for Animal Science and the American Dairy Science Association. Information: Tel: +1-301-571-1875. Fax: +1-301-571-1837. Email: ellenb@assochq.org.

**AUGUST 2002**


**SEPTEMBER 2002**

53rd EAAP Annual Meeting will be held in Cairo, Egypt in the second half of September 2002. Information: Prof. A.H. Barkawi, Department of Animal Production, Faculty of Agriculture, Cairo University, Giza 12613, Egypt. Tel/Fax: +202-568-3188/569-4049. Email: esap@asunet.shams.eun.eg or cise@main-scc.cairo.eun.eg. Home page: esap.org.eg

**NOVEMBER/DECEMBER 2002**

Responding to the Increasing Global Demand for Animal Products. A meeting will be held in November or December 2002 in Mexico jointly by the University of Merida, Mexico and the British Society for Animal Science. Information BSAS, PO Box 3, Penicuik, Midlothian, EH26 0RZ, UK. Tel: +44-131-445-4508. Fax: +44-131-535-3120. Email: bsas@ed.sac.ac.uk. http://www.bsas.org.uk