

BULLETIN No. 35

# EUCARPIA

EUROPEAN ASSOCIATION FOR RESEARCH ON PLANT BREEDING  
EUROPÄISCHE GESELLSCHAFT FÜR ZÜCHTUNGSFORSCHUNG  
ASSOCIATION EUROPÉENNE POUR L'AMÉLIORATION DES PLANTES

January 2008

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**EUCARPIA** aims to promote scientific and technical co-operation in the field of plant breeding in order to foster its further development. To achieve this purpose, the Association arranges and sponsors meetings of its members to discuss general or specific problems. Each year, **EUCARPIA** organizes open conferences and colloquia throughout Europe. Founded at Wageningen (The Netherlands) in 1956 as a non profit organization, **EUCARPIA** has made considerable contributions to improving international contacts in plant breeding research for almost fifty years. **EUCARPIA** has 11 sections and a number of working groups active in specific fields of interest.

**EUCARPIA** has individual members (scientists qualified in the field of plant breeding) and corporate members (research institutes, breeding stations, associations, societies etc.). A corporate membership is a collective membership for at most 10 persons.

<b>Membership fees*:</b>	individual members	€ 40.--
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## **PRESIDENTIAL ADDRESS**

Last year was of an intense activity for EUCARPIA. In this respect, seven scientific meetings were organized during 2007. Among these, there were five section meetings (Genetic Resources, Fodder Crops and Amenity Grasses, Fruit, Oil and Protein Crops, and Organic and Low-Input Agriculture) and two working group meetings (Leafy Vegetables, and *Capsicum* and Eggplant). I could attend three of the section and one of the working group meetings, and I also received first hand reports from the others. As in the last years, I have been able to notice how these EUCARPIA events contributed to the development of the science of plant breeding, as well as the increased interest and number of attendants to these meetings. I wish to thank the organizers of EUCARPIA meetings for all the time and effort devoted to the tremendous burden involving the organization of these events.

During year 2007, I have also been very pleased to see how the Oil and Protein Crops Section, nine years after the last meeting in Pontevedra (Spain), has organized an outstanding meeting in Budapest (Hungary). As I told in my speech during this meeting, this section has been like the “Phoenix bird”, which resurrected from its ashes and is now flying again with renewed energy. I have to give my particular thanks to the organizer of the meeting Prof. Dr. Ferenc Virányi (who was unanimously elected as chairman of the section), and to the past-president of EUCARPIA, Prof. Dr. Peter Ruckebauer for the efforts they made for reviving this section. During the meeting several offers were made to organize the next meeting of this section, which finally will take place in Rauschholzhausen (Germany) and will be organized by Prof. Dr. Wolfgang Friedt.

We have also seen the creation of a new section of EUCARPIA, the Organic and Low-Input Agriculture Section, which took place in Wageningen (Netherlands) during the celebration of the first meeting of this section. This is rare event, as no new EUCARPIA sections had been created since 1978. The constitution of this section is the follow-up of the creation of a working group on “Organic Breeding” in 2004 during the 17<sup>th</sup> EUCARPIA General Congress of Tulln (Austria), and reflects the adaptation and commitment of EUCARPIA to the new challenges for plant breeders. This first meeting, organized by Prof. Dr. Edith Lammerts van Bueren, who was also elected unanimously as new chairwoman of the section, was a complete success.

Last year was also the third in a row of record number of new members. While in 2005 and 2006, 135 and 160 new members incorporated, respectively, to EUCARPIA, in 2007 we have had 206 new members! This shows that EUCARPIA and its activities are having a great appeal among the breeders community of Europe and also of the rest of the World (many new members are from outside geographical Europe), and also that the active policies of the Secretariat for attracting new members is working efficiently. At the moment of writing this report (January 15, 2008), 31 new members have joined EUCARPIA since the beginning of the year. So, it seems that the sustained growth in the number of EUCARPIA members will continue during 2008.

The booklet “Fifty Years of EUCARPIA (1956-2006)” was published and sent to all members. This EUCARPIA publication reviews the history of our Association and shows the many contributions that EUCARPIA has made to plant breeding since its constitution.

The activities of 2008 will be dominated by the celebration of the 18th EUCARPIA General Congress, which will take place from the 9th to 12th of September of 2008 in Valencia, under the general subject “Modern Variety Breeding for Present and Future Needs”. The first and second announcements of the Congress were already send during last year and at the time of writing this message we already have more than 350 pre-registrations at hand. This General Congress, of which you can get more information in this Bulletin and in the web page of EUCARPIA, will attract many breeders from the public and private sectors and will have a high scientific level, as many relevant breeders will present and discuss on the state of the art, challenges, opportunities, and new trends in the broad field of plant breeding. I hope that you can attend it!

My last words are to send you a warm salute and to remind that myself, as well as the other members of the Executive Committee, are open to your proposals and suggestions for the improvement of EUCARPIA and its functioning. You can easily contact with me through my e-mail address ([jprohens@btc.upv.es](mailto:jprohens@btc.upv.es)).

Valencia, Spain  
January 2008

Jaime Prohens  
President of EUCARPIA

## EUCARPIA EXECUTIVE COMMITTEE

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<b>M.L. Badenes</b>	<b>Secretary General - Spain</b> Tel./Fax: +34 963424 049 / 106 E-mail: eucarpia.secretariat@ivia.es	2004
<b>P. Ruckebauer</b>	<b>Past President - Austria</b> Tel./Fax: +43 227266280 201 / 203 E-mail: peter.ruckebauer@boku.ac.at	1998

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<b>E. van Bockstaele</b>	Belgium	<b>A. Sliesaravicius</b>	Lithuania
<b>A.N. Tsenov</b>	Bulgaria	<b>E. Jacobsen</b>	Netherlands
<b>J. Gunjaca</b>	Croatia	<b>S.H. Hjeltnes</b>	Norway
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<b>T.S. Aronen</b>	Finland	<b>D. Skoric</b>	Serbia
<b>M. Rousset</b>	France	<b>J. Prohens-Tomás</b>	Spain
<b>H.H. Geiger</b>	Germany	<b>P.C.G. Weibull</b>	Sweden
<b>A. Katsiotis</b>	Greece	<b>M.W. Humphreys</b>	United Kingdom
<b>L.C. Marton</b>	Hungary	<b>B. Boller</b>	Switzerland
<b>A. Blanco</b>	Italy	<b>M.L. Badenes</b>	All other countries

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## **SECTION REPORTS**

### **SECTION POTATOES**

The next section meeting is scheduled to be a joint meeting with the EAPR Section Breeding and Varietal Assessment in the Czech Republic in 2009, possibly in June. Both the Scottish Crop Research Institute (SCRI) and Wageningen University are reserve venues. In the meantime there is no shortage of meetings for potato breeders in 2008. On the 18 October 2007 the United Nations (UN) launched its International Year of the Potato. The aim is to raise awareness of the potato as a major staple food and hence its importance to the UN in achieving the millennium goal of providing food security and alleviating poverty. My small contribution is a book chapter on potato in *Breeding Major Food Staples* which has been edited by Kang and Priyadarshan and just published by Blackwell. I hope it will be of interest to members.

The 2008 conferences of which I am aware are as follows. The International Potato Center (CIP) is hosting a working conference on potato science for the poor in Cuzco, Peru from 25 to 28 March, including a visit to the Cuzco Potato Park. CIP is also organising a Third International Late Blight Conference in Beijing, China from 3 to 6 April ([m.huanes@cgiar.org](mailto:m.huanes@cgiar.org)). It is sobering that over 160 years after the Irish Potato Famine, late blight is still potentially the most devastating disease of potato throughout the world, and most farmers are still growing susceptible varieties despite much effort in breeding for resistance. The 17<sup>th</sup> Triennial Conference of the European Association for Potato Research will be held in Brasov, Romania from 6 to 10 July. EUCARPIA's own 18<sup>th</sup> General Congress is in Valencia, Spain from 9 to 12 September when I hope that Potato Section members will be presenting papers and posters as well as attending the congress. The 5<sup>th</sup> Solanaceae Genome Conference will take place from 12 to 16 October in Cologne, Germany. Finally, there will be a Global Potato Conference-2008 in New Delhi, India from 9 to 12 December, on the theme Opportunities and Challenges in the New Millennium. It will report on progress since the very successful 1999 Conference in New Delhi.

I am sure that members in their own countries will be contributing in various ways to the International Year of the Potato. For example, as part of Scotland's contribution, SCRI's commercial subsidiary, MRS, is hosting a one day international conference on potato

production on 8 August, after our annual potato day, Potatoes in Practice. I wish you all a successful and interesting year in your endeavours as potato breeders and researchers and look forward to seeing you at the EUCARPIA Congress in September. This will be my last congress before retirement, so section members should start to think about electing a new chairperson.

John Bradshaw  
Section Chairman  
December 2007

## **SECTION CEREALS**

After the Cereals Section meeting of Lleida (Spain) and of the Rye Working Group Meeting of Gross Luesewitz (Germany) of 2006, no specific meetings of the section took place in 2007. Given that during 2008 the General Congress of EUCARPIA will be celebrated in Valencia (Spain), no meetings are scheduled for this year, as the most important results of members of this section will be presented in this General Congress.

The next Cereals Section meeting will be held in Cambridge in 2009, at a date to be determined. The general subject of the meeting will be related to “innovation in cereal breeding” and there will be a special focus on some subjects of interest, like genome knowledge, GM approaches, F<sub>1</sub> hybrids, etc. Further information on this meeting will be available during this year.

Regarding the Rye Working Group meeting, it was agreed that the next meeting will take place in 2010 in Minsk (Belarus), and will be organized by S. Hardzei, from the Institute of Arable Farming and Plant Breeding of the National Academy of Sciences of Belarus.

Wayne Powell  
Section Chairman  
January 2008

## **SECTION FODDER CROPS AND AMENITY GRASSES**

The 27th meeting of the section was held from August 19 – 23, 2007, at Copenhagen, Denmark.

The meeting, attended by 116 researchers and breeders from 21 countries, was held under the title:

**“Symposium on improvement of fodder crops and amenity grasses”.**

It was organized by the Faculty of Agricultural Sciences (DJF) of the University of Aarhus, in collaboration with the Faculty of Life Sciences (LIFE) of Copenhagen University and DLF-Trifolium A/S. The organizing committee was chaired by Thomas Lübberstedt of DJF.

Three scientific sessions were held:

- Seed production (7 oral contributions)
- Applied genomics (split in 2 subsessions, 18 oral contributions)
- Forage quality and bioenergy (8 oral contributions)

The scientific programme was supplemented by 3 workshops on GMOs/coexistence/conventional vs. molecular breeding, Genetic resources, and DUS/VCU testing. Each workshop provided opportunities for some short oral presentations of poster contributions, as well as for discussions on key topics put forward by the chairmen. Prior to the conference, a rust workshop was held on August 19.

One full day in the middle of the conference was devoted to an excursion to the centre of official variety testing of forages and turfs at Tystofte, to the Research Centre Flakkebjerg of DJF, and to the headquarters of the breeding company DLF-Trifolium.

More detailed information on the content of the meeting, including all abstracts of oral and poster contributions, is available on the section homepage under <http://www.eucarpia.org/01sections/foddercrops/index2.html>.

### Information from the business meeting:

Past-chairman U.K. Posselt (D) stepped down of the board, as he gets close to retirement. M. Humphreys (UK) who had acted as section secretary also stepped down from the board, along with Peder Weibull (S). The section elected Ulf Feuerstein (D), Michael Abberton (UK) and Niels Roulund (DK) to become new members of the board. Ch. Huyghe (F) was nominated new secretary.

### Next section meeting

The next (28<sup>th</sup>) section meeting will be organized in France. The meeting will take place from the 11th to 14th of May 2009 in La Rochelle, with possibilities to hold workshops on the days before or after the meeting. The general theme will be ‘Sustainable use of genetic diversity’. A special attention will be paid in order to facilitate participation and paper presentation of young scientists (Master and PhD students and post-docs).

B. Boller

Section Chairman

December 2007

## **SECTION BIOMETRICS IN PLANT BREEDING**

In 2007 the reviewing process of the Proceedings of the XIII-th section meeting in Zagreb, September 2006, took place. The proceedings will be published mainly in a special edition of *Euphytica*. A limited number of papers, principally dealing with poster presentations, will be published in *Agriculturae Conspectus Scientifica*. Special guest editors for the *Euphytica* proceedings issue were Alain Charcosset, Christine Hackett, Hans Peter Piepho, Pawel Krajewski, and Fred van Eeuwijk. The reviewing process was close to finishing at the end of 2007; two papers were still under review, but close to acceptance. The projected publication date for the whole of the proceedings in both *Euphytica* and *Agriculturae Conspectus Scientifica* is April-May 2008.

The place of the next meeting in 2009 will be Dundee, Scotland, and will be hosted by the Scottish Crop Research Institute. The lead in the organization will be taken by Bill Thomas and Christine Hackett.

Suggested topics for this meeting are:

1. Systems biology (use of model systems/bioinformatics/candidate genes/linking levels of information/genetics of gene expression)
2. Association mapping (LD/haplotype sharing/phenotyping approaches)
3. Selection responses (MAS/multitrait selection)
4. Design (connected crosses/breeding by design/hybrid prediction)
5. Statistical methods (meta analysis/GxG/GxE/algorithms/QTL)

Further information on this meeting, as well as the first announcement, will be available in the coming months.

Fred Van Eeuwijk  
Section Chairman  
December 2007

## **SECTION GENETIC RESOURCES**

The XVIII EUCARPIA Genetic Resources Section Meeting “Plant Genetic Resources and their Exploitation in the Plant breeding for Food and Agriculture” was held on 23-26<sup>th</sup> of May 2007 in Piešťany, Slovak Republic. A full report from the meeting is found below.

During the Piešťany meeting it was emphasised that a common grip between plant breeders and plant genetic resources conservationists will be needed in order to tackle the environmental and climatic changes we are facing. Plant breeders have until now often asserted that their germplasm requirements are met within their own breeding pool on short and medium term. Therefore gene bank collections have been considered as a resource for the future. However it is now time to realize that we have actually reached the future and we have to make a joint effort. Considerable investments by national, regional, and global initiatives

are being made in order to rationalize, increase the value, and make the plant genetic collections of the world accessible for the users. Furthermore the fast and progressive development of bioinformatics tools will revolutionize the sought after accessions with desired characteristics. This and much more will therefore be on the agenda for the next meeting of the Genetic Resources Section which are planned to be held in Ljubljana, Slovenia in May 2009. During the meeting we intend to bring together plant breeders and PGR researchers in the front line. We also have the intention to report on the further implementation of the AEGIS (A European Genebank Integrating System) which by then most certainly has had significant impact on the European gene banks.

A first announcement of the Ljubljana meeting will be prepared within short and we look forward to a broad and active participation from the European PGR stakeholders.

In order to further strengthen the links between plant breeding, research, and PGR conservation a discussion have been initiated with ECPGR (European Cooperative Programme on Plant Genetic Resources) on issues of mutual interest and synergism. More information will come in due time. In the mean time I welcome all and everyone to exchange ideas and reflexions with me on how we can further strengthen our co-operation in Europe.

Finally I have the pleasure to inform you that the proceedings of the XVII Genetic Resources section meeting 30 March – 2 April 2005 at Castelsardo, Italy, “Plant genetic Resources of Geographical and other Islands” have been published. For further information please contact the editor and vice chair of this section Dr Simonetta Bullitta [bullitta@cspm.ss.cnr.it](mailto:bullitta@cspm.ss.cnr.it).

Eva Thörn  
Section Chairwoman  
December 2007

Report on the 18th EUCARPIA Genetic Resources Section Meeting (Piešťany, Slovak Republic, May 23-26, 2007)

From May 23 to May 26, the 18<sup>th</sup> EUCARPIA Genetic Resources Section Meeting was held in Piešťany, Slovak Republic. The organizing institution was Slovak Agricultural Research Centre - Research Institute of Plant Production, Piešťany and the organizer and chairman of

the meeting was Dr. Pavol Hauptvogel. The meeting was attended by 230 participants from 34 countries (Armenia, Austria, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Mexico, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovak Republic, Slovenia, Spain, Syria, Tunisia, Turkey and United Kingdom). The Meeting provided an ideal opportunity for the exchange of information between researchers worldwide. Participants presenting researchers and breeders joined the 3 1/2 days programme with 55 plenary lectures and 151 poster presentations.

The International Scientific Committee, called up a few months in advance to prepare the big event, consisted of 9 people from 8 countries (Karl Hammer - Germany, Jaime Prohens-Tomás - Spain, Ladislav Dotlačil - Czech Republic, Jan Nedelník - Czech Republic, Jean Koenig - France, Andreas Börner - Germany, Pietro Perrino - Italy, Vladimir Meglic - Slovenia, Michael Ambrose – United Kingdom).

The Mr. Miroslav Jureňa, Minister of Agriculture of Slovak Republic, inaugurated the meeting. The participants were welcomed by Professor Jaime Prohens-Tomás, President of EUCARPIA, Dr. Jozef Turok, Bioversity Regional Director for Europe, Professor Karl Hammer, EUCARPIA Section Chairman and local organizers.

Invited speakers firstly addressed five plenary lectures: Professor Peter Ruckenbauer (Austria), Jozef Turok (Bioversity International, Roma), Lorenzo Maggioni (Bioversity International, Roma), Tibor Maliar (Slovak Republic) and Professor Karl Hammer (Germany). The key topics included:

1. Peter Ruckenbauer, Heinrich Grausgruber, Wolfgang Palme and Johann Vollmann: Plant genetic resources as a base of food for diverse and healthy diets
2. Jozef Turok: Policy and legal instruments and developments on plant genetic resources in Europe – an overview
3. Johannes M.M. Engels and Lorenzo Maggioni. The establishment of an European Genebank Integrated System (AEGIS) and it's relationship with plant breeding
4. Tibor Maliar, Ján Kraic, Andrea Šujová, Jarmila Drobná, Pavol Hauptvogel and Martin Užík: Therapeutic potential - new dimension for exploitation of plant genetic resources

5. Karl Hammer, Jung-Hoon Kang and Gaetano Laghetti. Wild gathered food plants and plant domestication - case studies of two distant areas (Italy and Korea)

The following four sessions took place during the meeting:

1. Plant genetic resources conservation and use: an overview
2. Plant genetic resources enhancement for breeding
3. Molecular and information technologies for plant genetic resources – challenges and opportunities
4. Plant genetic resources in context of climatic changes

Each of the four sessions included different oral presentations, discussions and a poster viewing (1. – 25 oral presentations and 67 poster presentations; 2. – 10 oral presentations and 48 poster presentations; 3. – 15 oral presentations and 23 poster presentations; 4. – 5 oral presentations and 13 poster presentations). Book of Abstracts of all oral and poster presentations are available on-line through the meeting website: <http://www.eucarpia.vurv.sk/> Fellowships for young scientist were awarded for 8 scientists from countries outside the EU. The contribution was provided from the EUCARPIA grant and SARC-Research Institute of Plant Production in Piešťany.

The organizing committee also provided scientific tours to SARC - Research Institute of Plant Production, Piešťany, which is the leading institution for agricultural research in Slovak Republic. The participants visited the Gene Bank, laboratories of the Applied Genetics and Agricultural Biotechnologies departments, as well as the experimental fields. Detailed information on research activities, projects and collaborations is available on the Institute website: <http://www.vurv.sk>. Parts of on the excursion were also visitation of the castle in Nitra, and social program with traditional folklore of village in Krakovany.

The general discussion was chaired by Dr. E. Thörn (Sweden) who was elected as Chairperson of the EUCARPIA Genetic Resources Section.

The meeting was concluded with Gala Dinner at the Kursalon in Piešťany. In all, we can look back on a very successful meeting, in which a nice balance was found of good quality presentations, excursions, and plenty of opportunity for informal discussions among

participants. The meeting was held in the very friendly, even "family", atmosphere that has become so characteristic of the Genetic Resources section meetings, and has strengthened the mutual bonds among us even further.

We would like to thank the Organizing Committee and the International Scientific Committee for their work and great contribution to the meeting, which made it a successful and fruitful event in the field of genetic resources and plant breeding. We are also grateful to the sponsors for their financial support without which the organization of the symposium would be much more difficult.

Pavol Hauptvogel  
Chairman of Organizing Committee

## **SECTION MAIZE AND SORGHUM**

As reported in the past Bulletin, the 20th International Conference of the Maize and Sorghum Section was held in Budapest, Hungary on June 20-24, 2006. Around 150 participants from 20 countries registered for the conference. A total of 51 speakers from universities, research institutes and private companies presented the most recent results of their research. The papers presented in the conference were published in the volumes of Acta Agronomica 2006-2007. The 21st Conference of the Section will be held in (June?) 2009 in Bergamo, Italy. The first circular will be sent to members in 2008.

Csaba L. Marton  
Section Chairman  
December 2007

## **SECTION VEGETABLES**

Within the section, two working group meetings were held in 2007, and two other ones are foreseen for 2008. In April David Pink of Warwick University, Wellesbourne, in the UK, organized the very successful Leafy Vegetables meeting with a high attendance and a full

program. His report is below and speaks for itself. I want to thank David and his colleagues very much for his efforts. The new meeting of the leafy vegetables group will be take place in Lille, France in 2011.

In early September Katarzyna Niemirowicz-Scytt organized the successful meeting of the *Capsicum* and Eggplant working group at the new facilities of the Warszawa Agricultural University, in Poland. Also this meeting was well attended and had a challenging program. The report by Katarzyna is below. I wish to thank Katarzyna and her colleagues for organizing this meeting. The meeting was opened by the present chairman of EUCARPIA, Jaime Prohens, who offered to organize the next meeting of the working group in his home town Valencia in Spain in 2010.

For 2008 we are looking forward to two working group meetings in the spring, whereas the fall is reserved for the General Congress in Valencia. First the Tomato working group will meet at Wageningen, the Netherlands, 13 – 15 May, organized by my colleague Sjaak van Heusden of Wageningen UR Plant Breeding, together with Plantum NL. The provisional program is at <http://www.eucarpiatomato2008.org>. I wish Sjaak and his crew all the success they will need to make this meeting another memorable event of our section. Later that month the Cucurbitaceae working group will meet at Avignon, France. This meeting is organized by INRA Montfavet by a group led by Michel Pitrat. For Michel this will mark the end of his successful career in plant sciences and we certainly wish him and his crew very much success in organizing this meeting in the renowned city of the popes. The program is at <http://www.inra.fr/cucurbitaceae2008>. The call for papers is open for a few more weeks, so don't hesitate!

For the following year, 2009, I shall try to have the meeting of the carrot working group, depending on the possibilities of BAZ Quedlinburg in Germany. This would be a very good opportunity to have the workers on the root crops together as an invaluable part of our Section Vegetables!

Ton den Nijs  
Section Chairman  
January 2008

Report on the Leafy Vegetables Working Group Meeting (Warwick, United Kingdom, April 18-20, 2007)

The Eucarpia Leafy Vegetable meeting took place at the main campus of the University of Warwick, near Coventry on 18/19 April and at the Warwick HRI site at Wellesbourne, Warwickshire on 20 April. The meeting was attended by 102 delegates from 13 European countries as well as US, Canada and Japan, with a good mix from the public and private sectors. The programme included 21 oral presentations covering six leafy vegetable crops: lettuce, chicory, endive, spinach, rocket and dill which were presented in three themed sessions: Market Development and Quality Traits, Genetics and Breeding and Genetic Resources and Diversity. In addition there were two keynote talks one at the beginning of the meeting by Dr James Monaghan, Harper Adams University College, UK giving an Overview of the market place for salad crops and the final talk by Prof. Richard Michelmore, University of California, Davis, USA on Comparative genomics of diseases resistance in plants, particularly lettuce. The meeting concluded with a tour of the facilities at the Wellesbourne site which included the Vegetable Genetic Resources Unit.

During coffee breaks and the ‘after tea’ session on the first day delegates were able to view 29 posters describing work on lettuce, chicory, endive, salad brassicas, spinach and rocket .and a satellite meeting of the International Bremia Evaluation Board was held on the evening of 18 April. Delegates attended a very enjoyable conference dinner on the 19 April held in The Royal Pump Rooms, Royal Leamington Spa.

A number of breeding companies generously provided sponsorship for the meeting: Enza Zaden, Nunhems, Rijk Zwaan and Shamrock Seeds and financial support was provided by Warwick HRI. Thanks are also due to Mrs Denny Croft for all her efforts in organising the meeting together with Dave Astley and Paul Hand and also to the scientific committee of Ryan Hayes, Arnaud Thabuis and Ales Lebeda.

The next EUCARPIA Leafy Vegetables meeting is due to be held in Lille, France in 2011.

David Pink  
Meeting Organizer  
December 2007

Report on the 13<sup>th</sup> EUCARPIA *Capsicum* and Eggplant Working Group Meeting (Warsaw, Poland, September 5-7, 2007)

The 13<sup>th</sup> International Symposium of the EUCARPIA *Capsicum* and Eggplant Working Group was held in Warsaw, Poland (September 5-7, 2007). The meeting title was “Genetics and Breeding of *Capsicum* and Eggplant”. The local organizers were the Warsaw University of Life Sciences and Polish Society of Horticultural Science.

The meeting brought together about 120 people of breeding companies, science and administration from all over the world. The International Scientific Committee, called up a few months in advance to prepare the symposium, consisted of 13 people from 6 countries (F. Adamicki – Poland, P. Bosland – USA, H. Buczkowska – Poland, S. Cebula – Poland, M-Ch. Daunay – France, J. Gajc-Wolska – Poland, Sergio Lanteri – Italy, L. Nowaczyk and P. Nowaczyk - Poland, A. Palloix – France, J. Prohens-Tomás – Spain, A. Stepowska – Poland, R. Voorrips – The Netherlands). Owing to the significant involvement and contribution of the Committee members who reviewed all the manuscripts it was possible to publish the monograph “Progress in Research on *Capsicum* and Eggplant”.

The participants had an opportunity to share their results of research, present the latest developments and discuss new approaches applied during the last few years.

The following four sessions took place during the symposium:

1. Genetic resources and diversity,
2. Genetics and breeding for resistance to biotic and abiotic stresses,
3. Genetics and breeding for quality traits,
4. Cultivation and market development; flower biology and biotechnology.

Altogether, 22 oral presentations were given by distinguished scientists and 36 posters were presented, the best four of which received a distinction, granted by voting of all the participants.

The meeting took three days, of which two were devoted to presentations and one to a professional study tour which was organized in central Poland and was meant to demonstrate different varieties cultivated in Poland (Warsaw University of Life Sciences Experiment Field and Research Institute of Vegetable Crops in Skierniewice) and professional farms growing sweet pepper under plastic and in the greenhouses.

The meeting began with the sightseeing of Warsaw and ended with visiting laboratories and facilities of Warsaw University of Life Sciences which gave foreign participants an idea of the Polish conditions.

We would like to thank the Local Organizing Committee and the International Scientific Committee for their hard work and great contribution to the meeting which made it a successful and fruitful event in the field of plant breeding and biotechnology.

We are also grateful to the sponsors for their financial support without which the organization of the symposium would be much more difficult.

The next EUCARPIA meeting on Capsicum and Eggplant is expected in Valencia, Spain, in 2010. It will be organized by Prof. Jaime Prohens.

Katarzyna Niemirowicz-Szczytt  
Chair of the Organizing Committee  
December 2007

## **SECTION FRUIT**

The EUCARPIA Fruit Section held its XII Symposium on Fruit Breeding and Genetics in Zaragoza (Spain) in September 16-20. This was the first time that it was held in Spain and was organised by the Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), where the first Spanish fruit breeding programme was established in almond by Dr. Antonio J. Felipe in 1974. Dr. Felipe, although retired for nearly 10 years, attended the opening ceremony and some of the sessions.

Several features distinguished this Symposium from previous ones. Possibly the most important was the diversity of species included in the communications by the different participants. If sometimes in the past these Symposia were practically considered an apple scab meeting, this time I was proud to announce in the opening address that among the ocean of apple research we could find many islands of Mediterranean fruits, even some subtropical contributions. The introductory lecture by Dr. G. Llácer was a review of fruit breeding in Spain, where most efforts are dedicated to stone fruits, including some very typical Mediterranean fruits. The Spanish attendance was important and the Spanish results fitted accordingly within the frame of the Symposium.

Another important feature was the wide interest in fruit quality. In the last Symposium in Angers the focus was already on fruit quality, but this time quality was a reference for many contributions. Not only two oral sessions, including an invited paper by Dr. A. Aharoni, were devoted to this topic, but also many posters included fruit quality as a research priority. The general awareness of fruit breeders of quality, nutrition and health indicates a clear line for future developments in this direction.

Another oral session was devoted to the wide HiDRAS project, whose main aim is also apple quality, showing the increasing application of molecular markers to different aspects of fruit breeding. In the past, molecular markers were mostly considered in resistance breeding, cultivar identification and chromosome mapping, but in this Symposium a wide array of applications for markers was considered, including self-compatibility and physiological aspects. Only if markers can be efficiently applied in developing new cultivars would they be a useful tool in plant breeding.

Genetic resources were also an important topic, introduced by the invited lecture of Dr. G. Fazio and his group from Cornell (USA), showing the awareness of all fruit breeders in the variability offered by the different fruit populations around the world. However, many steps have still to be taken in order to realize the real value of gene variability of each fruit species, not only the cultivated ones, but also the wild ones.

Resistance breeding continued to be an important topic of EUCARPIA Symposia. The invited lecture by Dr. D. Esmenjaud introduced this wide subject in two oral sessions, where the

molecular markers were often considered, showing again the usefulness of their reasonable application.

The importance of this Symposium can be measured by its attendance of 200 researchers from all over the world, with more than 55 oral contributions and 150 posters. There were also concurrent workshops on cultivar development, small fruits, rosaceae mapping and genetic engineering, opening some new routes of interest for future Symposia.

The local authorities were aware of this importance and the President of the Regional Government of Aragón, Mr. M. Iglesias, presided over the opening ceremony, together with the Secretary General of EUCARPIA, Dr. M.L. Badenes. The field visit included a fruit orchard and a fruit nursery, but also a visit to the Monasterio de Piedra, a XIII Century Monastery surrounded by a beautiful landscape of endless waterfalls. The Symposium ended with a farewell dinner where Prof. S. Sansavini, on behalf of the ISHS, thanked the efforts of the Organizing Committee and offered a medal of recognition to the Convenor.

The next Symposium will be organized by the colleagues of the University of Warsaw led by Dr. Emilian Pitera in 2011.

R. Socias i Company

Section Chairman and Symposium Convener

December 2007

## **SECTION ORNAMENTALS**

The XXIII International Symposium of EUCARPIA – Section Ornamentals – is scheduled in the Netherlands on 31 August - 4 September 2009. The organization will be done by the Plant Breeding group of Wageningen University and Research Center in close cooperation with Plantum NL and the ornamental breeding companies. The title of the meeting (probably) will be: “Colourful Genetics & Breeding”.

The first announcement will go out in the spring of 2008.

The Organizing Committee is formed by:

Sjaak van Heusden		Wageningen UR
Sjoukje Heimovaara		Royal van Zanten
Kees van 't Hoenderdal		Dekker Chrysanten
Johan van Huylenbroeck		ILVO, Belgium
Wendy ter Laak		Florema Young Plants
Ronald Snijder		Royal van Zanten
Thijs Simons	Secretary	Plantum NL
Jaap van Tuyl	Chairman	PRI

Jaap van Tuyl  
Section Chairman  
December 2007

## **SECTION OIL AND PROTEIN CROPS**

The meeting of the EUCARPIA Oil and Protein Crops Section was held in Budapest, Hungary from 7 to 10 October 2007. In total, 52 participants from 16 countries registered for this meeting including 13 European and 3 Asian countries.

At the Opening Ceremony, after a short welcome by Prof. F. Virányi, Prof. J. Prohens, President of EUCARPIA sketched a comprehensive picture of the last fifty years of EUCARPIA, Prof. L. Heszky (Szent István University, Hungary) outlined the future of both conventional and molecular plant breeding, and Dr. T. Bíró (Ministry of Agriculture and Rural Development, Hungary) explained the importance and challenges of Hungarian renewable energy (bioenergy) policy. The morning programme was ended by a keynote lecture by Dr. K. Ertsey-Peregi (Central Agricultural Office, Budapest) about challenges in the field of variety and seed testing.

The scientific programme was divided into four sessions, which were chaired by invited leading scientists. Each session started with an invited keynote lecture and was followed by offered papers. The individual topics were:

Session 1: Advanced Breeding Methodologies

Session 2: Breeding for Improved Oil and Protein Content

Session 3: Breeding for Resistance to Abiotic Stresses

Session 4: Breeding for Resistance to and Managing Diseases

There were separate poster sessions (I-IV) as well, each being dedicated to one of the above mentioned research topics.

The oral and poster presentations involved a wide range of research activity of the participants carried out in the recent years. As examples, the *pervenets* mutation in sunflower and the use of QTL analysis in oil content variation as new breeding methods, breeding for improved oil seed quality, e.g. increased palmitic acid level in sunflower, looking for alternative oil crops, like camelina, selecting chickpea mutants for winter-sowing, or pea for cold-tolerance, breeding for resistance to broomrape, etc. were the subjects of the reports presented in this meeting. All contributions (keynote and offered papers, posters) have been compiled in a Book of Abstracts, and published by the Conference Secretariat, Altagra.

The scientific programme of the meeting was complemented by social events, including a Budapest sightseeing, a horse-show, and a conference dinner that proved to be very appreciated by the delegates.

Finally, the convener of the present meeting in Budapest, Prof. Ferenc Virányi (Szent István University, Gödöllő, Hungary) was elected by the Section Members as the new Chairman of the Oil and Protein Crops Section and, at the same time they also voted on the place and organiser of the next Section meeting. Prof. Wolfgang Friedt (Giessen University, Germany) proposed Rauschholzhausen near Giessen as a location of the next meeting in 2010 and he kindly offered to be the organizer of that meeting at the Giessen University, Germany.

Ferenc Virányi

Section Chairman

December 2007

## **SECTION ORGANIC AND LOW-INPUT AGRICULTURE**

The General Assembly of September 2004 decided to pay attention to the area of organic agriculture by means of a Working Group and during the first successful meeting in Wageningen NL, November 2007, it has been transformed into a new (horizontal) Section Organic and Low-input Agriculture. This first EUCARPIA meeting was organised as a symposium with the title ‘Plant Breeding for organic and sustainable, low-input farming systems: dealing with genotype-environment interaction’. One hundred and thirty participants from 28 countries gathered together for 17 oral and 48 poster presentations. The symposium was opened by Martin Kropff, the vice-chancellor of Wageningen University and by Jaime Prohens-Tomás, president of EUCARPIA.

This symposium was focused on the fact that although in Europe agriculture is increasingly moving towards organic and sustainable, low-input farming systems, these agricultural practices, however, have various constraints that still need to be solved. One of the major constraints is that organic farmers still largely depend on crop varieties produced for conventional farming systems with high inputs of artificial, mineral fertilizers and chemicals for crop defense. Therefore, the organic sector urgently requires breeding programmes for robust varieties, which are better adapted to low-input conditions, with traits such as improved root systems, stronger interspecific competition ability (weed suppression) and yield stability. The question how to develop appropriate selection criteria for such variety characteristics was addressed in several presentations of projects mostly concerning cereal research. But also many other crops were included, such as fodder crops, onion, cabbage, tomato, etc. to explore alternative strategies to overcome these constraints, hereby also using insight and knowledge from agronomic fields working at a higher aggregation level (i.e. crop level).

An important aspect in the breeding for such varieties is the choice for an appropriate selection environment (organic versus conventional, high versus low-input conditions). But also the questions which breeding strategy is most appropriate, including the question of the role of molecular markers in organic breeding programmes. The symposium ended with a few examples of participatory approaches to enhance diversity.

Although the organic market may still be of limited size, many seed companies see the organic sector as an interesting niche market, which can have a spin-off for a more

environmentally friendly seed production and seed treatments, and breeding programmes for sustainable, low-input farming systems. Therefore, the symposium will also be of relevance for sustainable, low input agriculture.

The Abstract book with the abstracts of all presentations is available on the Eucarpia website and a selection of papers will be published in a special issue of *Euphytica* summer 2008.

This symposium was jointly organized by COST SUSVAR: Working group Genetics, European Consortium for Organic Plant Breeding (ECO-PB), ISO FAR's Section Plant Breeding & Seed Production and the Graduate School Production Ecology & Resource Conservation (PE&RC) of the Wageningen University. I owe many thanks to my colleagues in the scientific committee: Hanne Østergård (DK), Isabelle Goldringer (F) and Olga Scholten (NL). The next EUCARPIA meeting of this section is planned for 2010 as there will be a IFOAM world conference on organic plant breeding in 2009 in the USA. More news on both meetings will follow in due time.

Edith Lammerts van Bueren

Section Chairwoman

December 2007

## **NEW SECTION CHAIRPERSONS**

Some new Section Chairpersons have been appointed during 2007. Below there is a brief introduction to each of them:

### **Eva Thörn (Genetic Resources)**

Dr. Eva Thörn is a senior scientist at the Swedish Biodiversity Centre of the Swedish Agricultural University and since 2004 responsible for the coordination of SEEDNet (South East European Development Network of Plant Genetic Resources), a network on conservation and utilisation of plant genetic resources. Between 1995 and 2003 Eva Thörn was the director of the Nordic Gene Bank and was engaged as well as supervisor for a Baltic PGR network. Prior to that she was working with plant breeding and biotechnology in various crops, such as cereals, oil seed crops, and vegetables, for a period of 20 years. Eva Thörn is actively participating in ECPGR as chair of the AEGIS (A European Genebank Integrated System) Advisory Group and the Inter-regional Cooperation Network. She is teaching and supervising students at the MSc program on Biodiversity at the Swedish Biodiversity Centre.

### **Rafael Socias i Company (Fruit)**

Rafel Socias i Company, was born on the island of Majorca. He is Agricultural Engineer (ETSIA Valencia, 1970), Diplomé en Horticulture (IAM Zaragoza, 1972), Master of Science (Univ. of California Davis, 1974) and PhD (ETSIA Madrid, 1977).

His research work has been mostly centred in almond pollination and breeding, with the objective of obtaining new late-blooming and self-compatible cultivars of very high kernel quality. He has undertaken also some research on identification and breeding of other species, such as peach and *Prunus* rootstocks, as well as on bibliography and fruit germplasm.

He has been involved in the development of several almond cultivars. In 1987 three almond cultivars were registered: ‘Guara’ (over 50% of the new plantings in Spain in the recent years), ‘Aylés’ and ‘Moncayo’; in 1997: ‘Blanquerna’, ‘Cambra’ and ‘Felisia’; in 2005: ‘Soleta’ and ‘Belona’. He has also participated in the development of the new peach x almond hybrid rootstocks ‘Garnem’, ‘Monegro’ and ‘Felinem’.

He is the chairman of the Almond Working Group of ISHS, and has been chairman of GREMPA in 1999-2001. Member of AIDA, ASHS and SECH.

Hi has organized several scientific meetings, including the III International Congress on Almond and Pistachio of the ISHS in Zaragoza in May 2001, and the XII Eucarpia Symposium on Fruit Breeding and Genetics.

He has authored or co-authored many papers on almond, mainly almond self-compatibility.

### **Edith Lammerts van Bueren (Organic and Low-Input Agriculture)**

Dr. Edith Lammerts van Bueren is currently theme leader Organic Plant breeding at the Louis Bolk Institute (LBI) in the Netherlands, a research institute specialised in organic agriculture, health care and nutrition. Since 2005 she also has a position as professor Organic Plant Breeding at Wageningen University NL (WUR). She has been involved with research for organic agriculture for more than 25 years and specialised in plant breeding research for this sector since 1993. She is co-founder and president of the European Consortium for Organic Plant Breeding (ECO-PB) and leads the section plant breeding and seed production within the International Society of Organic Agriculture Research (ISO FAR). She is member of the Subcommittee Ethical and Societal Aspects of the National Advisory Committee on Genetic Modification (COGEM) and is member of the national Board for Plant Varieties. To build up a European network with cereal breeders and researchers her participation in the management team of the COST Action 860 SUSVAR (sustainable low-input cereal production: required varietal characteristics and crop diversity) has been of great importance (2004-2008).

Her personal research interest aims at developing concepts and strategies for improving varieties that not only comply with the ecological requirements but also with the values of organic agriculture. From 2004-2007 she conducted a LBI-WUR research programme on organic plant breeding including research on the influence of the selection environment (organic vs conventional) in onion, and research for morphological traits to support tolerance for fusarium (wheat) and thrips (cabbage); her group will now focus on developing selection criteria for nutrient-efficiency in potato (2008-2010) and on socio-economic strategies to gain new breeding programmes for spring wheat in NL. She initiated the first Eucarpia meeting 'Plant breeding for organic and sustainable, low-input agriculture: dealing with genotype-environment interactions' at Wageningen University-NL, in November 2007.

## BIOEXPLOIT INTEGRATED PROJECT

EUCARPIA participates as a partner in the EU Framework 6 Integrated Project BIOEXPLOIT (Exploitation of natural plant biodiversity for the pesticide-free production of food). This project commenced in October 2005 and comprises 45 laboratories from 12 countries and is led by Professor Jaap Bakker from Wageningen University, The Netherlands.

### The BIOEXPLOIT objectives

The aim of the Integrated Project BIOEXPLOIT is to force a break-through in exploiting natural host plant resistance by developing efficient and rational breeding strategies using genomics and post-genomics tools. Two strategies are followed to design new resistant varieties: i) marker-assisted breeding and ii) genetic engineering. In the shade of the discussions on GMOs, marker-assisted breeding has gone through a silent revolution and has become a realistic option for developing new varieties with multiple resistances. The development of high through-put technologies for selecting plants at the seedling stage will shorten the time between the first cross involving wild species and introduction on the market considerably, for some crops even with 50%. Genetic variation in wild accessions of crop species and in their wild relatives is still largely unexplored.

The BIOEXPLOIT integrated project addresses four strategic objectives:

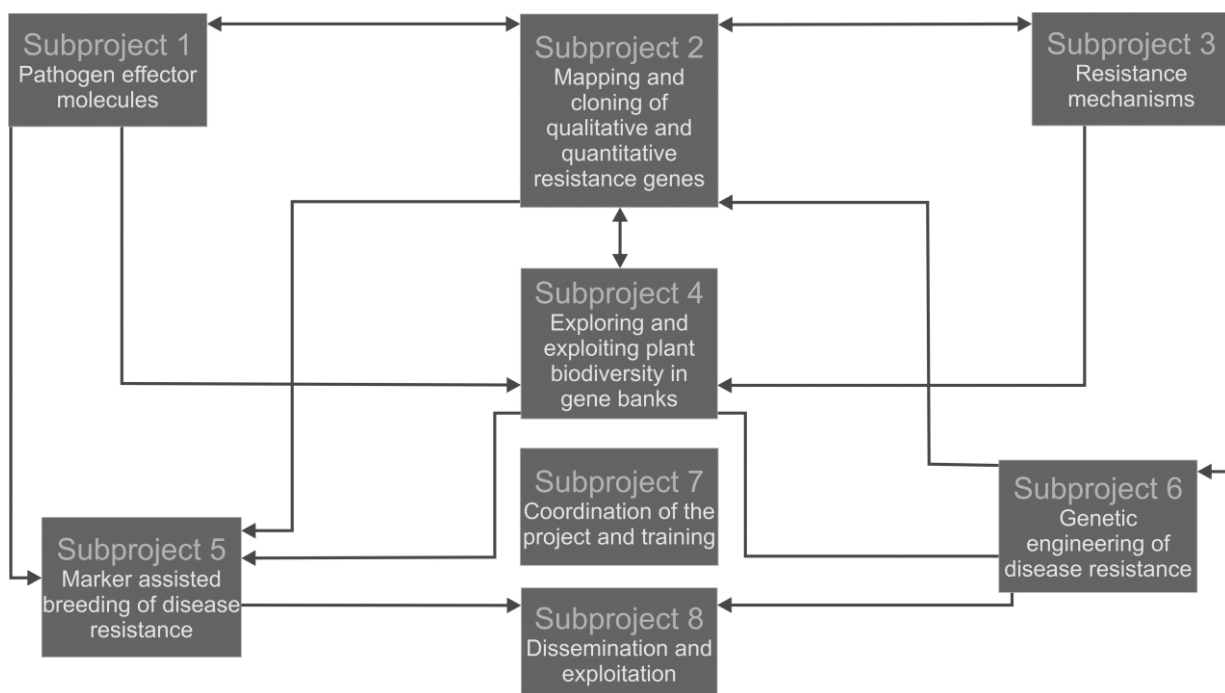
- 1) To understand the molecular components involved in durable disease resistance
- 2) To explore and exploit the natural biodiversity in disease resistance
- 3) To accelerate the introduction of marker-assisted breeding and genetic engineering in the EU plant breeding industry
- 4) To coordinate and integrate resistance breeding research, to provide training in new technologies, to disseminate the results, and to transfer knowledge and technologies to industry

BIOEXPLOIT focuses on wheat and potato - the two most important staple crops for all consumers in the EU - for which pesticides, mainly fungicides, are indispensable at the moment. Despite their importance as food crops for Europe, investments in genomics and post-genomics research on wheat and potato have been severely lagging behind when compared with rice or even tomato. In addition, wheat and potato have not been the favourite plant species of the scientific community to unravel disease resistance, and, as a consequence, basic knowledge and tools to design new resistances are often poorly developed. The coming years a critical mass on genomics research in wheat and potato will be essential to strengthen the competitiveness of European SMEs.

BIOEXPLOIT has translated the strategic objectives into eight research objectives, which represent the subprojects in the integrated project:

- **Subproject 1** identifies targets for durable resistance by analysing effector molecules from the oomycete *Phytophthora infestans* in potato and from the fungal mildew and rust pathogens in wheat;
- In **Subproject 2** mapping, isolation and characterisation of genes responsible for qualitative and quantitative disease resistance in potato and wheat is taking place;
- **Subproject 3** is unravelling the molecular mechanisms underlying innate resistance to plant pathogens;

- In **Subproject 4** the natural biodiversity on genetic loci associated with disease resistance in wheat and potato accessions (and identified in subproject 2) is being explored in European genebanks;
- All subprojects mentioned above feed into **Subproject 5** in which disease resistance in potato and wheat is being increased through marker-assisted breeding (MAB);
- In **Subproject 6** knowledge from upstream subprojects is integrated to increase disease resistance in potato and wheat through genetic engineering;
- In **Subproject 7** a programme is being developed to provide training and workshops for researchers, breeders, research managers, industrial executives and other potential users of the innovative disease resistance breeding technologies;
- The activities in **Subproject 8** are focussed on the dissemination and exploitation of project results, and to transfer technology to industry.



This diagram describes the work flow between the subprojects in the BIOEXPLOIT integrated project

### The BIOEXPLOIT consortium:

The BIOEXPLOIT project integrates the effort of 43 organizations from 15 different countries. From these organizations, 68 research laboratories are active in BIOEXPLOIT making up a unique assembly of scientific and technological specializations (e.g. plant pathologists, population geneticists, molecular biologists, molecular and classical plant breeders from academia, research institutes, SMEs and industry).

### What's news and noteworthy from BIOEXPLOIT's first year: work performed and results achieved

#### Subproject 1: Fungal effector molecules

In the first year of the project useful resources and systems have been developed towards isolation and characterization of fungal and oomycete effector genes particularly avirulence

genes. In the potato pathogen *Phytophthora infestans* avirulence genes were identified by association genetics and by combining data obtained by genetic mapping, marker landing on BAC contigs and transcriptional profiling. For two proteins functional characterization using co-bombardment, binary PVX expression, agroinfiltration and/or complementation of virulent strains was successful. From the tobacco pathogen *Phytophthora parasitica*, the barley pathogen *Blumeria graminis* and the wheat pathogen *Mycosphaerella graminicola* EST libraries were generated. By applying various bioinformatics tools the EST data were analysed and compared to ESTs obtained from pre-infection stages of the pathogen. All together these EST libraries are valuable resources for selection of putative effectors.

The most current theory predicts that virulence which is not required for infection of the host plant will reduce the fitness of the pathogen. Tests were done to determine whether or not there are fitness costs associated with unnecessary virulences in fungal pathogens. The effects of environmental conditions (temperature and inoculation density) on costs of virulence were also studied.

### **Subproject 2: Mapping, isolation, and characterization of R genes and QTLs**

The key to the characterisation of disease resistance from novel germplasm sources is first, is to identify resistance in the germplasm chosen for study and the spectrum of pathogen isolates against which it is effective and second, is to genetically dissect the resistance to determine whether it is likely to be unique or novel. The first largely involves pathogen screening, the second, much more time consuming component involves making crosses between different parents, generating some form of inbred or immortal progeny (clones for potato, DH, RILs or ILLs for wheat and barley), distributing these populations to the relevant partners and the parallel activities of testing the progeny for reaction to the chosen pathogen while genotyping all of the individuals with molecular markers to allow the resistance phenotype to be linked to the genetic map. In the first 12 months of the project activities have largely focussed on these two activities and completing the genetic analysis of the populations that were brought to the project by the individual partners.

Disease resistance (*R*) genes have been identified in different plant species and belong to several classes and subclasses of multigene families; the most important being the NBS-LRR class of *R* genes. The research in the first year also aimed to study the organization and evolution of homologs of *R* genes (RGA) in potato and wheat. The strategy used consists of data mining of RGA from available sequence data (in both species), analysis of RGA sequence data and resolving genetic and physical organization of these RGA. This is of particular interest as it allows comparison of the organization and evolution of RGA between a monocot (wheat) and a dicot (potato) species, representing important corps. It facilitates identification of specific genes of interest (RGA-based genetic markers and identification BAC clones containing RGA).

RGA clusters include members with high structural similarity but with totally different recognition specificity. To resolve the evolution of recognition specificities in R proteins we used computer aided modelling of domains in the R protein structures. In the first year, BIOEXPLOIT focussed on the LRR domain for structure analysis.

### **Subproject 3: Disease resistance mechanisms**

In BIOEXPLOIT's first year, useful resources and systems have been developed towards identification and characterization of the molecular components in pathogen recognition

complexes and disease resistance signalling. Some candidate interactors with the model R- and Avr-proteins have been already isolated in pilot experiments, suggesting the robustness and feasibility of our approaches. Further screening of such interactors is being extensively performed in different systems at present. The biological significance of these interactions will be subsequently examined. The results will provide the knowledge about the constitution of the pre-recognition R protein complexes and the role of pathogen effectors in pathogen recognition and the activation disease signalling pathways.

#### **Subproject 4: Exploring natural biodiversity**

For the genotypic analyses in order to be able to define customised core collections in European genebanks the activities in the first year was mainly focused at the screening for allelic variance of cloned R genes, the definition of the preliminary core collections of wheat and potato and the assembly of marker data linked to resistance loci. Furthermore, phenotypic analyses and functional characterisation of allelic variance in customised core collections the work was divided into the development of efficient screening methods for fungal disease resistance and evaluation of new resistance sources in potato, wheat and barley.

Preliminary core collections for potato and wheat are currently being prepared. The integrated database, based upon the Germinate database, is under construction.

#### **Subproject 5: Marker-assisted breeding**

The aim of this subproject is to develop and validate high throughput marker technologies and molecular markers associated with disease resistance loci for commercial marker-assisted breeding and to select molecular markers linked to resistance gene loci for conversion into simple PCR markers to be used by breeding companies. The BIOEXPLOIT project has selected a 'starter set' of easily accessible, promising markers for the early stage of the project, representing various marker types. These will be tested for segregation in the germplasm, before being converted to high throughput (HTP) format.

With the aim to accelerate the introduction of marker-assisted breeding in the EU plant breeding industry, the project specifically focuses on pyramiding major *R* genes and QTL by marker assisted breeding approaches, as opposed as by genetic engineering (SP6), into elite materials. First, the project focussed on resistance sources already identified in other projects, while sources identified and genes mapped in upstream subprojects are expected to be integrated at a later stage.

#### **Subproject 6: Genetic engineering**

Intra- and intermolecular interactions within larger complexes of R proteins and other interactors determine the disease recognition specificity. The activities in subproject 6 in the first year aimed to modify R gene recognition specificities by in vitro mutagenesis to generate broader spectrum effectiveness by genetic engineering. Most of the R proteins found to date belong to the so-called CC-NB-LRR class and with the work done in this subproject, we successfully modified the recognition specificity of an R protein through random mutagenesis of the LRR domain from this class of R proteins. It was the first finding of an induced shift in recognition specificity of *R* proteins. The finding – as a proof of concept - will have significant impact on the potential to engineer new disease resistance specifically tuned towards the recognition of effector proteins that are essential for the fitness of a pathogen..

**For the latest information on Subproject 7: Training and Subproject 8: Dissemination and exploitation** see the project website at <http://www.bioexploit.net>.

### **Perspectives:**

The first step towards the major goal to push breeding for resistance in potato and wheat from traditional breeding to breeding by design has been made. Detailed molecular analysis of pathogens (SP1) and plants (SP2, SP3) will provide insight in the mechanisms that lead to “boom and bust” cycles in modern agriculture and will without doubt eventually lead to a more effective exploitation of resistance sources (SP4, SP6). Together with a major investment in developing high throughput marker technologies for genome characterisation and molecular breeding in diploid and polyploid genotypes, BIOEXPLOIT will not only accelerate ongoing breeding programs, but also streamline the screening of the genetic resources of wheat and potato stored in gene banks. A unique feature of BIOEXPLOIT is that a wide range of specialists (breeders, plant pathologists, geneticists, molecular biologists, SME’s, etc) are brought together in a single project. During the first year it already became clear that there will be a substantial benefit from the synergy between these different “worlds”.

## NEWS FROM THE EUCARPIA SECRETARIAT

### New EUCARPIA members

The executive committee is pleased to welcome the following new members (January-December 2007) in our association:

#### List of new individuals:

<b>ARMENIA</b>	<b>AVAGYAN A.</b>	Yerevan
	<b>KIRAKOSYAN D.</b>	Darakert Community
	<b>SARGSYAN G.</b>	Darakert Community
	<b>VARDANIAN I.</b>	Darakert Community
<b>AUSTRALIA</b>	<b>CULLIS B.R.</b>	Wagga Wagga
	<b>NELSON M.</b>	Crawley
	<b>ROGERS G.S.</b>	Camperdown
	<b>VAUGHAN P.R.</b>	North Ryde
<b>AUSTRIA</b>	<b>LOSCHENBERGER F.</b>	Probstdorf
	<b>SCHMIDT M.</b>	Vienna
<b>BELARUS</b>	<b>KOZLOVSKAYA Z.</b>	Samokhalovitchy
<b>BELGIUM</b>	<b>DE BOTH G.</b>	Gent
	<b>DEN BOER B.</b>	Gent
	<b>LAGA B.</b>	Gent
	<b>LAMBERT B.</b>	Gent
<b>BOSNIA AND HERZEGOVINA</b>	<b>DURIC G.</b>	Banjaluka
	<b>TOMIC L.</b>	Banjaluka
<b>BULGARIA</b>	<b>TOMLEKOVA N.</b>	Plovdiv
<b>CANADA</b>	<b>SPANER D.</b>	Edmonton
<b>CHILE</b>	<b>MAUREIRA BUTLER I.J.</b>	Temuco
<b>CHINA</b>	<b>XIE MING</b>	Hangzhou City
	<b>ZHANG CHUNYU</b>	Wuhan
<b>CROATIA</b>	<b>PETROVIC S.</b>	Osijek
<b>CYPRUS</b>	<b>FASOULA D.</b>	Nicosia
<b>CZECH REPUBLIC</b>	<b>BOCEK S.</b>	Brno
	<b>CHRPOVA J.</b>	Praha
	<b>CURN V.</b>	Ceske Budejovice
	<b>DUSEK K.</b>	Olomouc-Molice
	<b>DUSKOVA E.</b>	Olomouc-Molice
	<b>HOLUBEC V.</b>	Praha-Ruzyne
	<b>JALUVKA L.</b>	Hladke Zivotice
	<b>KARLOVA K.</b>	Olomouc-Molice
	<b>NOVAKOVA A.</b>	Ceske Budejovice
	<b>PANKOVA K.</b>	Praha
	<b>STAVELIKOVA H.</b>	Olomouc-Molice
	<b>WIESNER I.</b>	Ceske Budejovice
<b>DENMARK</b>	<b>BACKES G.</b>	Frederiksberg
	<b>DIDION T.</b>	Store-Heddinge
	<b>ERIKSEN L.</b>	Horsens
	<b>HJORTSHØJ R.L.</b>	Horsens
	<b>JENSEN C.S.</b>	Store-Heddinge
	<b>LENK I.</b>	Store-Heddinge
	<b>MEYER V.</b>	Store-Heddinge

	<b>NIELSEN K.K.</b>	Store-Heddinge
	<b>NIELSEN N.C.</b>	Store-Heddinge
	<b>PETERSEN M.G.</b>	Store-Heddinge
	<b>ROULUND N.P.</b>	Store-Heddinge
	<b>SANCHEZ-PEREZ R.</b>	Frederiksberg
	<b>VANGSGARD K.</b>	Store-Heddinge
<b>ECUADOR</b>	<b>LIZANZABURU J.A.</b>	Quito
<b>ESTONIA</b>	<b>AAVOLA R.</b>	Jogeva
	<b>TAMM S.</b>	Jogeva
<b>FRANCE</b>	<b>BERVILLÉ A.</b>	Montpellier
	<b>CADOT V.</b>	Brion
	<b>DE LAPPARENT E.</b>	Seiches sur Loir
	<b>DESCLAUX D.</b>	Mauguio
	<b>DIDIER A.</b>	Clermont-Ferrand
	<b>DURAND-GASSELIN T.</b>	Montpellier
	<b>GALBRUN C.</b>	Les Alleuds
	<b>GEOFFRIAU E.</b>	Angers
	<b>MENTION P.</b>	Bellegarde
	<b>N'DIAYE A.</b>	Beaucouze
	<b>NOUY B.</b>	Montpellier
	<b>PITRAT M.</b>	Montfavet
	<b>REY F.</b>	Carcassonne
	<b>ROLLAND B.</b>	Le Rheu
	<b>ZANETTO A.</b>	Mauguio
<b>GERMANY</b>	<b>ALIYU O.M.</b>	Gatersleben
	<b>EBNER F.</b>	Jesletten-Altenburg
	<b>FINCKH M.R.</b>	Witzehnausen
	<b>OFORI A.</b>	Göttingen
	<b>SCHIERHOLT A.</b>	Marne
	<b>SCHMIDT W.</b>	Einbeck
	<b>STEFFAN P.</b>	Witzehnausen
	<b>STEFFEN E.</b>	Berg
<b>GREECE</b>	<b>VLACHOSTERGIOS D.</b>	Larissa
<b>HUNGARY</b>	<b>CSIKASZ T.</b>	Iregszemlse
	<b>HAJNALKA L.D.</b>	Debrecen
	<b>LÉDO DARÁZSI H.</b>	Debrecen
	<b>WALCZI.</b>	Pecs
<b>INDIA</b>	<b>BALA S.</b>	Delhi
	<b>HAZRA P.</b>	Nadia
	<b>KUMAR R.</b>	Azad Pur Delhi
	<b>SOOD S.P.</b>	Palampur
<b>IRELAND</b>	<b>CONAGHAN P.</b>	Carlow
<b>ITALY</b>	<b>BOSCO M.</b>	Bologna
	<b>DEMONTIS A.</b>	Argelato
	<b>ENGEL P.</b>	Rome
	<b>LOGOZZO G.</b>	Potenza
	<b>OSKAR P.</b>	Terlano
<b>IVORY COAST</b>	<b>KONAN J.L.</b>	Abidjan
<b>JAPAN</b>	<b>OKUMO K.</b>	Tsukuba
	<b>TAO R.</b>	Kyoto
	<b>YAMANE H.</b>	Kyoto

<b>KOREA</b>	<b>KIM DAEIL</b>	Suon
<b>LATVIA</b>	<b>BERZINA I.</b>	Priekuli
	<b>GAILITE A.</b>	Salaspis
	<b>GRAUDA D.</b>	Salaspis
	<b>LACIS G.</b>	Dobele
	<b>LEPSE L.</b>	Tukuma Raz
	<b>RUNGIS D.</b>	Salaspis
<b>LITHUANIA</b>	<b>LEISTRUMAITE A.</b>	Akademija
<b>MACEDONIA</b>	<b>BOGEVSKA Z.</b>	Skopje
	<b>JANKULOVSKA Z.</b>	Skopje
<b>MEXICO</b>	<b>FRESNEDO RAMÍREZ J.</b>	Los Reyes
<b>NETHERLANDS</b>	<b>BEURSKENS P.</b>	Horst
	<b>DEN HERTOOG M.</b>	De Lier
	<b>EGGINK M.</b>	De Lier
	<b>FICKE A.</b>	De Lier
	<b>GLAWE G.</b>	Fijnaart
	<b>HAANSTRA J.</b>	De Lier
	<b>KIK C.</b>	Wageningen
	<b>LAVRIJSEN P.</b>	Horst
	<b>MULDER J.H.</b>	Horst
	<b>RIJK ZWAAN BREEDING</b>	De Lier
	<b>VAN DEN BERCKEN B.</b>	Horst
	<b>VAN DEN NIEUWENHUIZEN A.</b>	Fijnaart
	<b>VAN DER STEEN M.</b>	Horst
	<b>VAN HEUSDEN A.W.</b>	Wageningen
	<b>VERHOEF R.</b>	De Lier
<b>NEW ZEALAND</b>	<b>PARKES B.</b>	Mount Maunganui
<b>NIGERIA</b>	<b>EGBOWON A.M.</b>	Lagos
<b>NORWAY</b>	<b>DAVIK J.</b>	Stjordal
	<b>LILLEMO M.</b>	Aas
<b>PAKISTAN</b>	<b>KHAN M.Q.</b>	Azad Kashmir
<b>POLAND</b>	<b>BARTOSZEWSKI G.</b>	Warsaw
	<b>BOKSZCZANIN K.</b>	Warsaw
	<b>CZEMBOR J.H.</b>	Blonie
	<b>DAWIDZIUK A.</b>	Poznan
	<b>JEDRYCZKA M.</b>	Poznan
	<b>KACZMAREK J.</b>	Poznan
	<b>MASOJC P.</b>	Szczecin
	<b>RZEPKA-PLEVNES D.</b>	Szczecin
	<b>SMOLIK M.</b>	Szczecin
<b>PORTUGAL</b>	<b>PINTO-CARNIDE O.</b>	Vila Real
<b>ROMANIA</b>	<b>BODEA M.</b>	Cluj-Napoca
	<b>BUDAN S.</b>	Marului
	<b>SESTRAS A.</b>	Cluj-Napoca
	<b>VLAD M.M.</b>	Bucharest
<b>RUSSIA</b>	<b>KOROKEVA V.</b>	Moscow
	<b>SHIROKOVA A.</b>	Moscow
	<b>TSIUNEL M.</b>	Moscow
	<b>ZAGOSKINA N.</b>	Moscow
<b>SERBIA</b>	<b>CERVENSKI J.</b>	Novi Sad
	<b>DELIC N.</b>	Beograd-Zemun

	<b>KUZMANOVIC L.</b>	Novi Sad
	<b>PAJIC Z.</b>	Beograd-Zemun
	<b>SRDIC J.</b>	Beograd-Zemun
	<b>STANKOVIC G.</b>	Beograd-Zemun
	<b>VANCETOVIC J.</b>	Beograd-Zemun
<b>SLOVAKIA</b>	<b>BENEDIKOVA D.</b>	Piestany
	<b>DROBNÁ, J.</b>	Piestany
<b>SPAIN</b>	<b>ARANZANA M.J.</b>	Cabrils
	<b>BELAJ A.</b>	Córdoba
	<b>BORDAS BALIU M.</b>	Subirats
	<b>BOS H.N.</b>	Aguadulce
	<b>CAMPOY J.A.</b>	Bullas
	<b>CANTIN-MARDONES C.M.</b>	Zaragoza
	<b>CARRERA L.</b>	Zaragoza
	<b>CATEDRA M.</b>	Sevilla
	<b>DAPENA DE LA FUENTE E.</b>	Villaviciosa
	<b>ESPIAU M.</b>	Zaragoza
	<b>FERNÁNDEZ MARTÍ A.</b>	Zaragoza
	<b>FONT FORCADA C.</b>	Zaragoza
	<b>GARCÍA BRUNTON J.</b>	La Alberca
	<b>GIL GARCÍA C.M.</b>	Almunia de Doña Godina
	<b>GONZALO-PASCUAL M.J.</b>	Zaragoza
	<b>LOSADA-RODRIGUEZ J.M.</b>	Zaragoza
	<b>MARTÍNEZ GARCÍA P.J.</b>	Murcia
	<b>MARTÍNEZ MORENO F.</b>	Sevilla
	<b>MENESES C.</b>	Cabrils
	<b>MONFORT A.</b>	Cabrils
	<b>MORENO-YANGÜELA M.T.</b>	Córdoba
	<b>PICAÑOL PONS R.</b>	Cabrils
	<b>QUERO-GARCÍA J.</b>	Madrid
	<b>RAMOS M.</b>	Cáceres
	<b>RUIZ D.</b>	Murcia
	<b>RUIZ DE GALARRETA J.I.</b>	Vitoria
	<b>VILLEGAS D.</b>	Lleida
	<b>ZHU C.</b>	Lleida
<b>SWEDEN</b>	<b>PERSSON C.</b>	Svalöv
<b>SWITZERLAND</b>	<b>MESSMER M.</b>	Witterswil
	<b>VAN DEN HELJDEN M.</b>	Zürich
<b>SYRIA</b>	<b>CHOUMANE W.</b>	Lattakia
<b>THAILAND</b>	<b>BURNS T.</b>	Nakhon Pathom
<b>TUNISIA</b>	<b>BEN AMAR F.</b>	Sfax
	<b>MARRAKCHI M.</b>	Ariana
	<b>SALHI-HANNACHI A.</b>	Tunisie
<b>TURKEY</b>	<b>AKAR T.</b>	Ulus Ankara
	<b>CAGIRGAN M.I.</b>	Akdeniz
	<b>TOKER C.</b>	Akdeniz
	<b>UZUN B.</b>	Akdeniz
<b>UNITED KINGDOM</b>	<b>GATEHOUSE G.</b>	Chichester
	<b>HAYES R.</b>	Aberystwyth
	<b>JONES H.</b>	Berkshire
	<b>POWELL W.</b>	Cambridge

<b>UNITED STATES OF AMERICA</b>	<b>TOBUTT K.H.</b>	Kent
	<b>BASSIL N.</b>	Corvallis
	<b>BUSHEY S.</b>	Santa María
	<b>DHINGRA A.</b>	Washington
	<b>MENKEN M.</b>	Minneapolis
	<b>MILLER D.D.</b>	Wooster
	<b>PEACE C.</b>	Pullman

**List of new corporate members:**

<b>CZECH REPUBLIC</b>	<b>CROP RESEARCH INSTITUTE</b>	Praha-Ruzyne
<b>ITALY</b>	<b>GRIBA VIVAI COOP. SOC. AGR.</b>	Terlano
<b>NETHERLANDS</b>	<b>LIMSEEDS B.V.</b>	Horst
	<b>RIJK ZWAAN BREEDING</b>	De Lier

**Deceased members:**

**Croatia:** R. HENNEBERG

**Spain:** E. SÁNCHEZ-BELL

**United Kingdom:** J.G. HAWKES

**Obituary of Jack G. Hawkes (Honorary Member of EUCARPIA)**

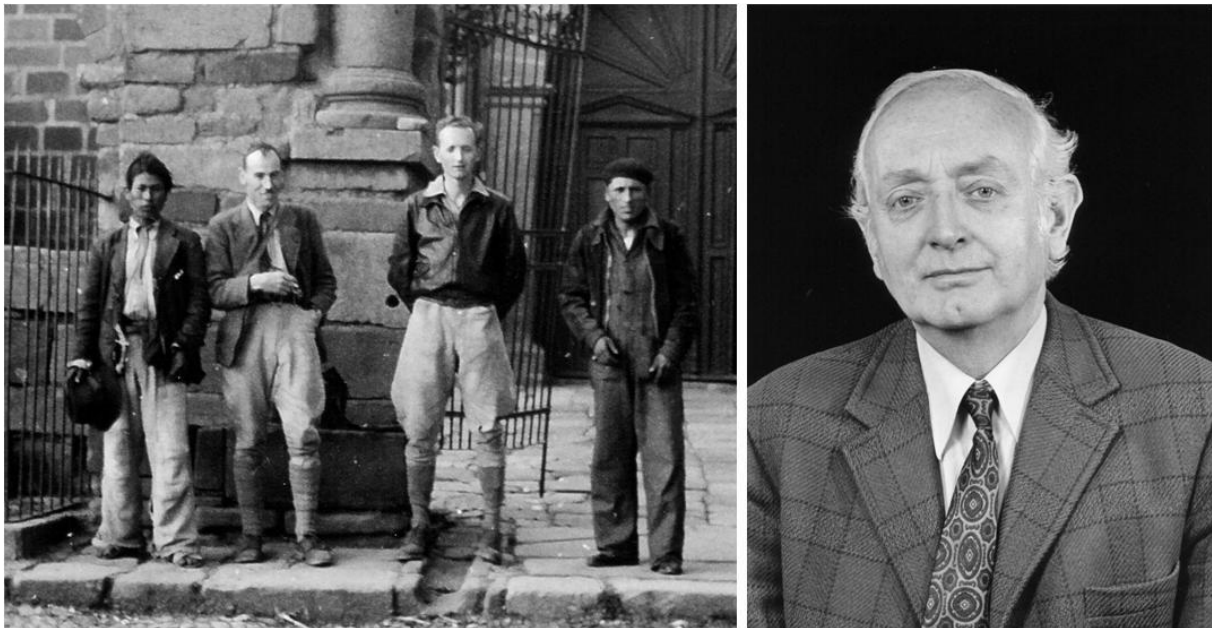
‘The “Golden Wonder” of the potato world.’

World authority on potato genetics and conservation of plant genetic resources.

Professor John Gregory Hawkes was globally recognised amongst crop scientists as an outstanding expert, researcher, teacher and visionary in the conservation and utilisation of crop plant genetic resources. He was the world’s leading authority on the evolution and genetics of one of the most important staple foods, the potato. His work was of immense importance in safeguarding the genetic building blocks of the world’s food supply for plant breeders. When, in 1984, he was awarded the Linnean Society of London’s Medal for Botany, he was regarded “as having few rivals and no equals.”

The greatest influence on his life was his chance meeting in 1938 with the brilliant Russian academician Nikolai Ivanovich Vavilov in Leningrad, who, amongst many posts, was one time President of the Lenin All-Union Academy of Agricultural Sciences; President of the Geographical Society of the USSR and a member of the Central Executive Committee of the USSR. Vavilov, born in 1887, was to be murdered by the state on trumped up charges in 1943 as a consequence of the politics of the notorious Trofim Lysenko (1898-1976) – a highly politicised biologist whose scientific views have since been discredited. When introduced to Lysenko, Hawkes found him “A dangerous, bigoted and wholly repellent person – a politician rather than a scientist, very able to ingratiate himself with communist Moscow.” In 1935 Vavilov had commenced publishing “The Theoretical Bases of Plant Breeding”. Hawkes, who had just taken a first class degree in Natural Science at Christ’s College, Cambridge, in 1937, was fascinated by this monumental 2,500 page work and he had travelled to Leningrad to meet Messrs Bukasov and Juzepczuk to study the potato collections they had recently gathered in South America. At that time plant breeders at the Commonwealth Bureau of Plant Genetics, Cambridge, were in great need of a wider selection of genetic material. Realising the urgency, the institute’s director, Dr. P. Hudson, decided on making a collecting expedition to the Andes and he had recruited Hawkes as his assistant. Unfortunately, ill health prevented

Hudson from travelling and the consequent delay allowed Hawkes to visit the USSR before setting off on “The British Empire Potato Collecting Expedition 1938-39” under the leadership of Edward Balls accompanied by William Gourlay.



*Prof. J.G. Hawkes (second from right in the left picture) in South America in 1939, and in a portrait taken circa 1980.*

The three scientists set out from Lima, Peru, in January 1939 on what was to be the first of Hawkes’s dozen major potato collecting expeditions throughout South America over the next 42 years. During eight months the expedition travelled 9,000 miles along the eastern side of the continent to finish in Panama. In some remote areas they enjoyed the hospitality and generous assistance of long settled European and North American expatriates “who were only too glad of someone else to talk to.” In April, the team visited the Uro Indians who lived very simply on floating reed islands on Lake Titicaca. Such encounters with indigenous peoples captivated Hawkes with an enthusiasm with which he was later to inspire many students. At Macchu Picchu, in May, the collectors were so overawed by the archaeology that they missed discovering a rare species of potato growing next to their hotel, which was found in 1943 by local professors Cardenas and Vargas who named it *Solanum hawksii* in honour of Hawkes who had barely yet established himself in the crop’s study. During the journey, Hawkes got used to South American bureaucracy and its “comic opera routines” and learnt to accept it with “a shrug of the shoulders as a fact of South American life.” In September, at the expedition’s end, he voyaged home on a ship of the Pacific Steam Navigation Company that was among eight ships to form one of the first wartime Atlantic convoys and one which suffered several U-boat scares. Sixty years later Hawkes was to recount his first expedition in vivid detail in “Hunting the Wild Potato in the South American Andes” – a highly readable book about their daily adventures at a time when old fashioned transport by horse, mule or on foot was still a frequent necessity.

Returning to Cambridge, as a scientific officer – a reserved wartime occupation – Hawkes embarked on studying the more than a thousand potato samples the expedition had collected, for his doctorate, which he completed in 1941. Following this evaluation, he dispatched much useful new genetic material to plant breeders in Great Britain and the Commonwealth. Continuing this research until 1948 he became engrossed in understanding the complex relationships between the many species “of the humble spud” and in assessing them for pest

and disease resistance. A fascination which occupied his life and he unstintingly shared his knowledge.

Hawkes was next seconded for three years to the Government of Colombia as the first director of their Potato Research Station in Bogotá. His wife and two daughters accompanied him and it was here that their twin sons were born. In this post he collected potatoes in Colombia, Ecuador and Venezuela. With local colleagues he obtained fifty percent increases in crop yields by breeding new hybrid potato varieties.

Returning to England from Colombia he was engaged at the Agricultural Research Council's Potato Genetics Station for a year and in 1952 took up a lectureship in Taxonomic Botany at the University of Birmingham. In 1961 he was appointed to a personal Chair as Professor of Plant Taxonomy and Head of the Department of Plant Biology until retirement in 1982. As Emeritus Professor he continued to work into his late 80s and, for example, undertook research in the 'Municipal Archives of Seville 1573-1601' to ascertain which potato varieties had been first introduced into Europe from the New World.

Few botanists worked with both wild and domesticated plants and Hawkes's combined studies of these, especially the transitions in potatoes from wild to semi-cultivated and domesticated plants gave him an immense understanding of the origins and development of agriculture and he developed new, now widely accepted theories of the processes involved. Such academic research enabled him to introduce genes from wild and weedy species into the commercial crop and he became aware of its vast potential for improving food production worldwide. He began to study the origin, evolution and genetic diversity of other crops and he was one of the first, along with Jack Harlan in the USA, to realise that this valuable ancient heritage was fast being lost as a result of modern agricultural methods. In the 1950s he began to conserve genetic materials – a concept which later developed into an international system of gene banks once finance was eventually forthcoming in the 1970s from the Food and Agriculture Organisation of the UN and the Rockefeller Foundation amongst others.

Realising that training was non-existent in developing countries where most genetic diversity is found, Hawkes established an international M.Sc. postgraduate course in 1969 at Birmingham and he developed the subject of plant genetic resources as its own discipline. He emphasised that students should be trained in fieldwork and “should think for themselves” and be able to use practical botany in plant breeding, crop protection and food production. Many students went on to occupy senior positions in genetic resources conservation in many lands.

Over many years, Hawkes eventually worked out the interrelationships between the more than 230 wild potato species. He was the first to clearly discover the evolutionary sequence of the cultivated potato and identify its four wild ancestors – a unique breakthrough for the crop whose origin until then had only been surmised. His work in the 1950s was pioneering and was the first to attempt geographical genetic mapping to help breeders find disease and pest resistance and he pioneered the use of computer mapping techniques when studying the flora of the English county of Warwickshire. Working with P. Gall and S. Wright at Birmingham University's Medical School he initiated the use of human blood immunology techniques to understand plant species affiliations and they published a landmark paper in the Proceedings of the Royal Society in 1960. In the 1980s he established new ideas on conserving economic species of tropical forest trees.

In all Hawkes was to write, co-author or edit more than 240 scientific books and papers

between 1941 and 2004, the first and last - coming full circle - covering the British Empire Potato Collecting Expedition. Among his main publications are:

Chemotaxonomy and Serotaxonomy (ed. 1968);  
The Potatoes of Argentina, Brazil, Paraguay and Uruguay (with P.J. Hjerting, 1969)  
Crop Genetic Resources for Today and Tomorrow (with Sir Otto Frankel, eds. 1975)  
Conservation and Agriculture (ed. 1979)  
The Diversity of Crop Plants (1983)  
A Bibliography of Crop Genetic Resources (with J.T. Williams and R.P. Croston 1984)  
The Potatoes of Bolivia (with P.J. Hjerting, 1989)  
The Potato – Evolution, Biodiversity and Genetic Resources (1990)  
The N.I. Vavilov Centenary Symposium (with D.R. Harris, eds. 1990)  
Vavilov Lectures (1994, in English and Hungarian)  
Hunting the Wild Potato in The South American Andes (2004)

Hawkes's expertise was widely recognised and he served on many committees, which included:- President of the EUCARPIA Gene Bank Committee for 30 years from 1961; an expert panel member on genetic resources for the FAO of the UN from 1964-84; advisor to the American Potato Introduction Station, Wisconsin; advisor to the International Potato Center, Lima, Peru, 1972-1984; the Scientific Advisory Panel to the Royal Botanical Gardens, Kew, from 1975-1984; Vice President of the 12th International Botanical Congress, Leningrad, 1975, where he was awarded a Congress Medal; President of the Linnean Society of London, 1991-94 and he was latterly adviser to the IUCN (International Union for the Conservation of Nature) Botanic Gardens Secretariat on conserving wild plant genetic resources.

He received various honours, including awards from The American Genetics Association (1973); The Potato Association of America (1973); The Linnean Society of London Medal for Botany (1984); Honorary Member of EUCARPIA (1989); The N.I. Vavilov Centenary Medal of the USSR Academy of Agricultural Sciences (1990, of which he was immensely proud) and in 1994 he was awarded the OBE.

In 1997, sponsored by the Linnean Society of London, he visited the N.I. Vavilov Institute in St. Petersburg (formerly Leningrad) to discuss genetic resources and proposals for establishing strong collaborative links between the United Kingdom and the former countries of the USSR. In 1999 the institute awarded him an Emeritus Professorship – the second only and the first to a non-Russian. Thus his life had come full circle from his student days when Nikolai Ivanovich Vavilov had been his greatest influence.

The immense wealth of the *Solanaceae* species collection, which includes many potatoes, that Hawkes and colleagues built up during many years at Birmingham University is now deposited and cared for by the University of Nijmegen Botanical Garden, The Netherlands.

John Gregory Hawkes was the son of the head of a technical college and was educated at Cheltenham Grammar School. In 1941 he married Barbara Leather whom he had met in 'The Left Bookshop' in the city of Cambridge where she was studying sociology at the London School of Economics' wartime evacuation from London. The Hawkeses were generous with their hospitality at home to many overseas students from 70 nations ranging from Afghanistan to Zimbabwe.

There can be no better epitaph for "JGH" as he was known to many, than that of an

introduction given to the Linnean Society in London in the 1970s when Hawkes was announced as “The Golden Wonder of the Potato World.”

He is survived by his four children.

Professor John Gregory Hawkes, BA; MA; Ph.D; Sc.D; OBE.

Born Bristol 27th June 1915.

Died Reading 6th September 2007.

Roger Croston

January 2008

### **Membership fees**

Invoices for the 2008 membership will be issued in February. The membership fee for individual members is € 40 for members of Western Europe and developed countries from elsewhere outside Europe, € 30 for EU members of Eastern Europe and € 20 for members of other Eastern Europe countries (this special rate may also applied to some developing countries outside geographical Europe). The fee of corporate members is € 300.

In face of increasing bank costs, payment of membership fees by credit card (Visa/JCB, Eurocard/Mastercard) is strongly encouraged, as this is cheapest both for members and for EUCARPIA. Now the EUCARPIA membership fee can be also paid with a credit card through the Secure online system. For bank transfers, please use the following details, which corresponde to the EUCARPIA account in Spain: **IBAN:** ES67 2013 1122 0802 0019 9729  
**BIC:** CESCESBBXXX

### **Membership privileges**

#### *Individual membership*

Among others, advantages of being member of EUCARPIA include:

- Reduction ( $\geq 40$  €) in the registration fee for events (General congress, symposia, meetings, etc.) organized by EUCARPIA.
- Reduced rates for the annual subscriptions to plant breeding journals: *Euphytica* (102 €), *Plant Breeding* (81 €), *Molecular Breeding* (113 €), *Theoretical and Applied Genetics* (284 €), *Plant Genetic Resources* (96 £), and *Genetic Resources and Crop Evolution* (118 €) and discounts in the publications edited by EUCARPIA.
- Participation in the EUCARPIA sections of your interest (or in all if you wish).
- Reception of the EUCARPIA Bulletin, with information on EUCARPIA activities, publications, dates and information of symposia, meetings and events related to plant breeding, etc.
- Membership certificate issued by the EUCARPIA Secretariat
- Other advantages, like the facilitation of the international cooperation, exchange of methods and plant material, etc.

#### *Corporate membership*

Apart from the privileges entitled to individuals, Corporate members (Institutes, Departments, Companies, Associations, Societies, etc.) have the following additional privileges:

- Possibility of enlisting up to 10 individual members associated to the corporate membership for free.

-A link to the web page of the Institution can be posted in the web page of EUCARPIA (<http://www.eucarpia.org>). This web page is visited mainly by breeders and receives many hits per day.

### **EUCARPIA Bulletin**

The EUCARPIA Bulletin No. 36 will probably be printed in January 2009. If you would like to publish information about congresses, meetings, publications, section news or any other information relevant to other members, please send in your contribution to the Secretariat by **December 1, 2008**.

### **Scientific journals at reduced rates for individual members of EUCARPIA**

Agreements between EUCARPIA and three publishers (Springer, Blackwell, and Cambridge University Press) have been reached offering individual members of EUCARPIA a personal subscription to the scientific journals *Euphytica*, *Plant Breeding*, *Molecular Breeding*, *Theoretical and Applied Genetics*, *Plant Genetic Resources*, and *Genetic Resources and Crop Evolution* at very special reduced rates. Subscription prices of these journals for 2007 for EUCARPIA members are the following:

#### Springer Journals:

*Euphytica*: 102 €

*Molecular Breeding*: 113 €

*Theoretical and Applied Genetics*: 284 €

*Genetic Resources and Crop Evolution*: 118 €

New subscriptions to these journals can be made by contacting Mrs. Claudia Kern (Claudia.Kern@springer.com) and requesting the special prize for EUCARPIA members. Members already subscribed will receive a renewal form from Springer.

#### Blackwell Journal:

*Plant Breeding*: 81 €

New subscriptions to this journal can be made in the journal's web page (<http://www.blackwellpublishing.com/journal.asp?ref=0179-9541>) using the special subscription for EUCARPIA members. Members already subscribed will receive a renewal form from Blackwell.

#### Cambridge University Press Journal:

*Plant Genetic Resources*: 96 £

New subscriptions to *Plant Genetic Resources* at the special rate for EUCARPIA members can be made in the following web page: <http://journals.cambridge.org/eucarpia>.

### **<http://www.eucarpia.org>**

The web-site of EUCARPIA (<http://www.eucarpia.org>) is updated on a regular basis. Information on all the forthcoming EUCARPIA events, on EUCARPIA publications, as well as on its Sections is included in the web page. The web page also includes an online payment system which can be used as an alternative to the traditional system of making a bank transfer or sending the credit card details by regular mail or fax. Also, there is a section with links to the web pages of EUCARPIA Corporate members. For contributions, updates, suggestions or comments please contact the Secretariat (E-mail: [eucarpia.secretariat@ivia.es](mailto:eucarpia.secretariat@ivia.es)). The web-site is

the most cost-efficient tool to deliver up-to-date information about EUCARPIA both to members as well as to non-members of the association.

**Address of EUCARPIA Secretariat**

The address of the EUCARPIA Secretariat is: Dr. María L. Badenes, Instituto Valenciano de Investigaciones Agrarias, Apartado Oficial, E-46113 Moncada (Valencia), Spain (Tel.: +34 963424049; Fax: +34 963424106; e-mail: eucarpia.secretariat@ivia.es).

María L. Badenes  
EUCARPIA Secretary General

# MINUTES OF THE EXECUTIVE COMMITTEE MEETING

## Minutes of the EUCARPIA Executive Committee Meeting held by E-mail in July 2007

Participants: Prof. J. Prohens Tomás, Prof. E. Jacobsen, Dr. B. Boller, Prof. Z. Bedö, Dr. M.L. Badenes, and Prof. P. Ruckebauer.

### 1. Section affairs and activities

Since the last Executive Committee meeting (June 20, 2006), a total of nine EUCARPIA Section and Working Group meetings have taken place:

- Maize and Sorghum Section Meeting (June 20-24, Budapest, Hungary)
- Rye Working Group Meeting (28-30 June 2006, Rostock, Germany)
- Biometrics in Plant Breeding Section Meeting (30 August - 1 September 2006, Zagreb, Croatia)
- Fodder Crops and Amenity Grasses Section Meeting (3-7 September 2006, Perugia, Italy)
- Ornamentals Section Meeting (11-15 September 2006, Sanremo, Italy)
- Cereals Section Meeting (14-17 November 2006, Lleida, Spain)
- Potato Section Meeting (20-22 November 2006, Carlow, Ireland)
- Leafy Vegetables Working Group Meeting (April 18-20, Warwick, United Kingdom)
- Genetic Resources Section Meeting (23-26 May 2007, Piestany, Slovak Republic)

The President attended five of them (Maize and Sorghum, Ornamentals, Cereals, Potato and Genetic Resources). All the meetings seem to have been satisfactory from the scientific and organizational points of view.

In some of the Section meetings, new chairpersons were elected:

- Cereals: Prof. Wayne Powell (United Kingdom)
- Fodder Crops and Amenity Grasses: Dr. Beat Boller (Switzerland)
- Maize and Sorghum: Dr. Csaba L. Marton (Hungary)
- Genetic Resources: Dr. Eva Thörn (Sweden)

-Ornamentals: Dr. Jaap van Tuyl (Netherlands)

Five other meetings are scheduled for the rest of the year 2007:

-XXVIIth Meeting of the Fodder Crops and Amenity Grasses Section (19-23 August 2007, Copenhagen, Denmark)

-XIIIth Meeting of the Capsicum and Eggplant Working Group (5-7 September 2007, Warsaw, Poland)

-XIIth Meeting of the Fruit Section (16-20 September 2007, Zaragoza, Spain)

-Meeting of the Oil and Protein Crops Section (7-10 October 2007, Budapest, Hungary)

-1<sup>st</sup> Meeting of the Organic Breeding Working Group (7-9 November 2007, Wageningen, Netherlands)

The organization of these meetings is proceeding well, and, in particular for the Oil and Protein Crops Section meeting, for which no meetings had been organized since 1998 a sufficient number of abstracts (around 40) has been received so far, so that a successful meeting can take place and proceed in order to re-start the activities of this section. For the 1<sup>st</sup> Organic Breeding Working Group meeting, many abstracts (around 75) have been received by the organizers.

A new Working Group on “NIRS Online Forage User” has been proposed within the Fodder and Amenity Grasses Section. The constitution of this new EUCARPIA working group has been proposed by Dr. Ulf Feuerstein to the Section Chairman Dr. Beat Boller (see attached document) and will be discussed in the next Fodder Crops and Amenity Grasses section meeting.

The chairwoman of the 1<sup>st</sup> Organic Breeding Working Group has asked about the constitution of the “Organic Breeding” Section. According to the Internal regulations of EUCARPIA, published in the EUCARPIA Bulletin no. 23 (1995), when talking about the Board indicates that “...the Board makes decisions concerning the setting up of sections...”. So, the creation of a new section must be approved by the Board. This could be done either during the next General Congress in Valencia, or directly in Wageningen during the celebration of the 1<sup>st</sup> meeting of the Organic Breeding Working group (Wageningen, November 2007). The President will attend the meeting and it is the opinion of the Executive Committee that it

would be better to constitute the new section in Wageningen. The Board members will be contacted by e-mail asking for the approval to constitute the new section.

## 2. Overview of the financial situation

### Swiss accounts:

The following table gives an overview of the financial situation of EUCARPIA since the end of 2004:

	Balance 31.12.04	Balance 31.12.05	Balance 31.12.06	Balance 30.06.07
Item	EUR	EUR	EUR	EUR
CHF Account Nyon (at respective exchange rate)	13406.99	2912.94	2208.68	2054.45
BioExploit Nyon	0.00	0.00	11032.49	9105.48
EUR current account Nyon	27719.00	9135.00	6422.72	6672.45
EUR deposit account Nyon	90778.99	50965.75	51280.80	51280.80
Diversified Fund		24459.20	23823.50	25154.00
Bonds Fund		48304.80	47548.80	47224.80
Totals Nyon EUR	131904.98	135777.69	142316.99	141491.98
Valencia account	8600.35	18361.74	20663.65	29926.05
Vienna account	1852.07	0.00		
Grand Total EUR	142357.40	154139.43	162980.64	171418.03
Result 2005, 2006		11782.03	8841.21	

The overall financial situation of EUCARPIA continues to be sound. Both 2005 and 2006 ended with positive results. The current fortune of EUCARPIA amounts to 171418 €.

Two points of caution:

-The investment in “save” funds decided during the 2005 meeting was not successful so far. Overall, these funds have depreciated (minus 283 €), have caused extra costs at purchase (1075 €) and are causing yearly costs for the deposit of about 50 €.

-Part of the surplus in 2006 was caused by the advance payment of the contributions from the EU for the BIOEXPLOIT Project. Most of this money has not yet been used. The net result for EUCARPIA without the BIOEXPLOIT project for 2006 would have been + 1130 €.

Valencia account:

Despite a large quantity (15000 €) used in 2006 for subsidies for Section and Working Group Meetings and some extra expenses (e.g., printing of the Members list), the Valencia account had a superavit of 2301.91 € in 2006 (see summary account below). This means that we continue having a healthy financial situation. Year 2006 finished with a saldo of 20663.65 €, and at July 6, 2007 we have a saldo of 29674.99 € (despite having paid 5000 € in subsidies for next meetings of the Oil and Protein Crops section and for the Capsicum and Eggplant and Cucurbitaceae Working Group meetings, and 7313 € for the publication of the EUCARPIA Bulletin 2007 and the “Fifty years of EUCARPIA booklet). Many membership payments are still coming these days and we hope that in 2007 this healthy situation will be maintained.

Summary Valencia account 2006:

Income:

Subscriptions to journals (members without credit card)	2162.00 €
Interests account	15.39 €
Membership fees	32802.60 €
Total:	34979.99 €

Outcome:

Subscriptions to journals (members without credit card)	2271.18 €
Taxes on interests of the account	2.32 €

Secretariat:

Office material	65.40 €
Honoraries administration	3120.00 €
Web page	628.76 €
Consulting	40.00 €

Printer	119.00 €
EUCARPIA Bulletin (2006)	3500.00 €
Members list (2006)	3291.60 €
Subsidies to sections and working groups:	
Biometrics ('06)	2500.00 €
Rye ('06)	1250.00 €
Potato ('06)	2500.00 €
Leafy Vegetables ('07)	1250.00 €
Genetic Resources ('07)	2500.00 €
Fodder Crops and Amenity Grasses ('07)	2500.00 €
Expenses Executive Committee Meeting (June '06)	3025.41 €
Bank expenses	752.71 €
Travel expenses for representation of EUCARPIA:	
President to Cereals Section Meeting (Nov. '06)	254.49 €
President to Ornamentals Section Meeting (Sep. '06)	546.10 €
President to ECP/GR Steering Committee Meeting (Sep. '06)	684.80 €
Past-president to funeral former President Francis Lupton (Jun. '06)	730.71 €
Past-president to 5 PlantGEMs Meeting (Oct. '06)	315.60 €
Chairman Oil and Protein Crops Section to Udine meeting	830.00 €
Total:	32678.08 €
Saldo at 01/01/06:	18361.74 €
Saldo at 31/12/06:	20663.65 €
Saldo for EUCARPIA (2006)	+2301.91 €

### **3. Budget for 2007/08**

A forecast for the budget for 2007 and 2008 has been produced by the Treasurer based on the present figures and expectations for the future. The treasurer indicates that we continue to produce surpluses and should think about it.

### **4. Requests for subsidies**

The policy of granting subsidies to the sections has been working well. It provides some “seed money” for the organizers of the meetings at a time when other sources of funding are not yet available, and guarantees that the EUCARPIA members have a reduced rate of at least 40 € when participating in EUCARPIA meetings.

Since the last Executive Committee Meeting (June 20, 2006) the following subsidies have been granted:

- Potato Section Meeting (November 2006): 2500 €
- Genetic Resources Meeting (May 2007): 2500 €
- Fodder Crops and Amenity Grasses (August 2007): 2500 €
- Capsicum and Eggplant Meeting (September 2007): 1250 €
- Oil and Protein Crops Meeting (October 2007): 2500 €
- Cucurbitaceae Meeting (May 2008): 1250 €

A subsidy for the 18<sup>th</sup> EUCARPIA General Congress will be requested after the number of pre-registered participants is known. The subsidy will be given in two payments of an equal amount (one in 2007 and the other in 2008). In any case, the maximum total subsidy for a General Congress is 10.000 €.

## **5. Secretariat affairs**

The secretariat is continuing to work well and the day-to-day functioning benefits from the help of one assistant, who works one day a week for EUCARPIA (mailings of Bulletin, update of members list and account, invoices, databases and mailing of thousands of letters inviting people and corporations to join EUCARPIA, membership cards, etc.)

The management of the account also works well and the relationship with the bank is fluid. The online payment system works well. Nowadays around 1/3 of the payments have been received through this system (1/3 with transfer and 1/3 with conventional off-line VISA system). Reminders were sent to the members that had not paid by October 2006.

The web page is being updated on a regular basis (once a week or every 15 days) and we try to include the most relevant information on it, especially on the EUCARPIA meetings.

New members: Last year (2006) we had a new record of new members (160). Up to now, during 2007 we have received 116 new applications (2 corporate: LIMSEEDS B.V., and RIJK ZWAAN BREEDING) for membership. The policy of giving one year of free subscription to EUCARPIA to non-members participating in EUCARPIA events has proved of great utility in recruiting new members. Cancellations of membership during this year have been 26. At present we have 1234 active members (the highest number ever of members in EUCARPIA).

A total of 1500 copies of the List of members were printed and sent to the members in July 2006.

Membership certificates and the EUCARPIA Bulletin 34 (2007) were sent in March to the Members. The next EUCARPIA Bulletin is scheduled for January 2008.

A total of 1800 copies of the “The Fifty Years of EUCARPIA (1956-2006)” booklet have been printed and have been sent in June 2007 to all members.

Subscriptions to journals. The subscriptions for Euphytica, Molecular Breeding, Genetic Resources and Crop Evolution and Theoretical and Applied Genetics are managed directly by Springer. A subscription form, available through the web page of EUCARPIA, has been produced. The subscriptions to Plant Breeding are also managed directly by Blackwell. This facilitates the work of the Secretariat and makes the process easier. However, some of the members do not have credit card and pay directly to EUCARPIA. Then we pay their subscriptions with a personal credit card and take back the money from EUCARPIA.

## **6. Fifty years of EUCARPIA (1956-2006)**

A booklet with 66 pages entitled “Fifty years of EUCARPIA (1956-2006) has been produced in order to celebrate the 50 anniversary of EUCARPIA. An important part of the contents of this booklet, in particular the history of the beginnings of EUCARPIA, have been based on the former “40 years of EUCARPIA”.

Apart from this booklet a “Membership list” containing the names of the active members at July 2, 2006 (the date of the 50<sup>th</sup> anniversary) was produced.

The year of the 50<sup>th</sup> anniversary was particularly intensive in EUCARPIA meetings, with eight meetings (six section and two working group). The president has given talks on the 50 years of EUCARPIA in four of them.

Furthermore, 2006 has been marked by the achievement of the record number of new members (160) as well as the record number of active members (1145 members by the end of the year 2006).

## **7. 18<sup>th</sup> EUCARPIA General Congress**

The organization of the 18<sup>th</sup> EUCARPIA General Congress is proceeding well. The subject of the Congress is “Modern Variety Breeding for Present and Future Needs”. The Congress will be celebrated from September 11 to 14, 2008, at the Congress Hall of the Universidad Politécnica de Valencia, Valencia, Spain.

Four sessions are programmed: 1) Conservation of genetic resources and prebreeding; 2) Breeding for yield and biotic and abiotic stresses; 3) Breeding for quality; 4) Evaluation and release of breeding material and new breeding objectives.

The first announcement has been produced and has been forwarded by postal mail and e-mail to all EUCARPIA members. Furthermore, other 3000 copies of the first announcement have been sent by postal mail to other potential participants. Mailing of the announcements has been paid by the Universidad Politécnica de Valencia and the printing of the first announcement by the Agroalimed Foundation.

The web page of the congress, accessible through the web page of EUCARPIA contains the updated information on the Congress.

A scientific committee has been established in which there is an important presence of members of the Board of EUCARPIA and section Chairpersons.

For the proceedings book we plan to follow a similar structure to that used in the 17<sup>th</sup> General Congress, with two possibilities for the authors: a) extended abstracts, or b) full papers.

We will try to keep the registration fee as low as possible, but in order to establish the final fee we need to have an estimate of the number of participants, which we will have in the next months.

Two congress rooms at the Universidad Politécnica de Valencia (one with a capacity of 485 people and the other for 375 people) have been reserved for the Congress.

The travel agency “El Corte Inglés”, which has previously worked with the conveners of the congress will be in charge of organizational aspects (accommodation, social events, etc.).

A poster of the congress is being prepared for distribution, and the second announcement will be distributed by October, 2007.

## **8. 19<sup>th</sup> and 20<sup>th</sup> EUCARPIA General Congresses**

The 19<sup>th</sup> EUCARPIA General Congress (2012) is scheduled to take place in Hungary. For the next General Assembly (2008) it should be decided the location of the 20<sup>th</sup> EUCARPIA General Congress (2016). At this respect, Dr. Beat Boller informs that Switzerland is thinking about an eventual offer to organize the Congress in 2016.

## **9. BIOEXPLOIT project**

EUCARPIA was represented in the annual project meeting of October in Wageningen by the President. The main objective of EUCARPIA is to contribute to the diffusion of the project. Five pages of information of the project in the EUCARPIA Bulletin 34. For next year a scientific symposium has to be organized within the framework of BIOEXPLOIT. This could be made coincident with the General Congress, but this has to be decided in the next project management team meeting of BIOEXPLOIT.

There is a financial issue for which we still have not found a solution. This is the way to be able to spend the money of the project for personnel (16667 euro to be spent before the end of the project-October 2010). We have been exchanging e-mails with the project staff office on this issue and we hope to be able to find a solution for this. A legal officer of the EU has been

contacted recently by the treasurer in order to amend the contract and try to find a way to release the money. This appears to be rather difficult and will require further efforts.

## **10. Representation of EUCARPIA**

Apart from the EUCARPIA meetings, EUCARPIA has been represented in several other events. EUCARPIA is an observer in the ECP/GR (European Cooperative Programme for Genetic Resources) Steering Committee. A meeting of this Steering Committee took place in Latvia in September 2007. The president of EUCARPIA attended this meeting and made a presentation of EUCARPIA and its objectives.

The Past-President of EUCARPIA attended in the name of EUCARPIA the 5Plant GEMs Meeting, which took place in October in Venice, Italy. He participated in a round table on “Public-private collaborations in the genomic era”.

EUCARPIA was also represented by the Past-president of EUCARPIA in the funeral of Prof. Dr. Francis Lupton, former president of EUCARPIA (1971-1974).

## **11. Next meeting**

The next meeting is scheduled for March-April 2008 in Valencia, the place where the next General Congress will take place.

The minutes of the July 2007 Executive Committee Meeting were approved by E-mail in July 2007.

# **18<sup>TH</sup> EUCARPIA GENERAL CONGRESS**

**“Modern Variety Breeding for Present and Future Needs” (9-12 September 2008, Valencia, Spain)**

## **Invitation**

On behalf of EUCARPIA, the International Scientific Committee cordially invites you to the 18<sup>th</sup> EUCARPIA General Congress “Modern Variety Breeding for Present and Future Needs”. The final aim of breeders is to develop new improved varieties. Consequently, the congress aims to review state-of-the-art methodologies and techniques for breeding new varieties with a focus on the present and foreseeable needs.

The 18<sup>th</sup> EUCARPIA General Congress will be held in Valencia, Spain from 9 to 12 September, 2008. The Congress will take place at the Congress Hall (6G Building) of the Universidad Politécnica de Valencia, which is located in the northeastern part of the city of Valencia.

## **Scientific topics and sessions**

The scientific topics of the Congress include modern approaches to the conservation of genetic resources and prebreeding, improvement of breeding methods and techniques and their practical application to breeding for higher yield, resistance to stresses and improvement of quality, evaluation and release of breeding material, implications of intellectual property rights in breeding programmes, public perception of plant breeding and biotechnology.

These topics will be organized in four sessions:

### **1. Conservation of genetic resources and prebreeding**

Present status and progress in the collection, conservation, characterization, evaluation, documentation, and enhancement of genetic resources and agricultural biodiversity.

### **2. Breeding for yield and resistance to biotic and abiotic stresses**

Advances in breeding for higher yield under optimal and marginal conditions, and resistance or tolerance to biotic and abiotic stresses that limit the crop production.

### **3. Breeding for quality**

Advances in breeding for improved sensorial and nutritional quality, functional foods, and breeding for quality for industrial purposes.

#### **4. Evaluation and release of breeding material and new breeding objectives**

Developments in the evaluation and release of improved materials, implications of intellectual property rights in breeding programmes, public perception of plant breeding and biotechnology, and trends in breeding for future needs.

#### **International Scientific Committee**

Pere Arús (Spain)

María L. Badenes (Spain)

Zoltan Bedö (Hungary)

John Bradshaw (UK)

Beat Boller (Switzerland)

José M. Carrillo (Spain)

Jerzy Czembor (Poland)

Ton den Nijs (Netherlands)

María J. Díez (Spain)

Evert Jacobsen (Netherlands)

Karl Hammer (Germany)

Hartwig H. Geiger (Germany)

François Laurens (France)

Aleš Lebeda (Czech Republic)

Csaba L. Marton (Hungary)

Fernando Nuez (Spain)

Marcelino Pérez de la Vega (Spain)

Wayne Powell (UK)

Jaime Prohens (Spain)

Michel Rousset (France)

Peter Ruckenbauer (Austria)

Tito Schiva (Italy)

Roberto Tuberosa (Italy)

Fred van Eeuwijk (Netherlands)

Jaap M. van Tuyl (Netherlands)

Ferenc Virányi (Hungary)

#### **Congress proceedings and submission of papers**

The proceedings will include all submitted and accepted oral and poster presentations and will be available to the participants at the beginning of the Congress. Only one contribution per registration will be accepted. The Scientific Committee will select the oral contributions based on the preferences of the authors and interest to the broad audience of participants in the Congress. Authors of oral or poster presentations can submit either an abstract (one page) or an extended congress paper (up to four pages) for the proceedings.

#### **Preliminary programme**

The preliminary programme of the 18<sup>th</sup> EUCARPIA General Congress (9-12 September 2008) is the following:

	Tuesday 9	Wednesday 10	Thursday 11	Friday 12
8:00-8:30				
8:30-9:00			POSTER SESSION	POSTER SESSION
9:00-9:30			ORAL SESSION	ORAL SESSION
9:30-10:00		ORAL SESSION	ORAL SESSION	ORAL SESSION
10:00-10:30	REGISTRAT. & POSTER SETUP	COFFEE	COFFEE	COFFEE
10:30-11:00				
11:00-11:30		ORAL SESSION	ORAL SESSION	ORAL SESSION
11:30-12:00				
12:00-12:30				
12:30-13:00				
13:00-13:30				
13:30-14:00				
14:00-14:30				
14:30-15:00				
15:00-15:30				
15:30-16:00	OPENING		EXCURSION	
16:00-16:30	ORAL SESSION	ORAL SESSION		
16:30-17:00				
17:00-17:30				
17:30-18:00	COFFEE	COFFEE		
18:00-18:30	ORAL SESSION	POSTER SESSION		
18:30-19:00				
19:00-19:30		EUCARPIA		
19:30-20:00	POSTER SESSION	GENERAL ASSEMBLY		
20:00-20:30				
20:30-21:00				
21:00-21:30	RECEPTION		GALA DINNER	
21:30-22:00				
22:00-22:30				
22:30-23:00				
23:00-23:30				
23:30-24:00				

Invited conferences:

Session 1: “Plant genetic resources for future breeding” (Dr. Andreas Börner; IPK-Leibniz Institute of Plant Genetics and Crop Plant Research, Germany)

Session 2: "Genomics approaches to improve tolerance to abiotic stresses" (Prof. Dr. Roberto Tuberosa; University of Bologna, Italy)

Session 3: “Breeding for quality in crop plants by using genetic and genomic tools” (Prof. Dr. Richard Visser; University of Wageningen, The Netherlands)

Session 4: “Genetic and genomic approaches for improving biofuel production from maize” (Dr. Yves Barrière, INRA-National Institute of Agronomic Research, France)

**Registration fees**

Registration fees for participants in the 18<sup>th</sup> EUCARPIA General Congress are the following:

	Before 30 June 2008	After 30 June 2008
EUCARPIA member	430 €	480 €
Non-EUCARPIA member*	500 €	550 €

Registration fees include attendance to all conference sessions, conference official documentation, book of proceedings, coffee, drinks and snacks during the coffee breaks, lunches of September 10 and 11, reception of September 9, gala dinner of September 11, and excursion on September 11 afternoon.

**For general information or scientific issues, please contact the organizing committee:**

EUCARPIA 18<sup>th</sup> General Congress

COMAV

Universidad Politécnica de Valencia

Camino de Vera 14

46022 Valencia

SPAIN

Fax: +34 963879422

e-mail: eucarpia@upvnet.upv.es

**For registration and accommodation issues, please contact:**

EUCARPIA 18th General Congress Secretariat

Viajes El Corte Inglés

Gran Via Fernando el Católico 3, Bajo

46007 Valencia

Spain

Fax: +34 963411046

e-mail: eucarpia2008@viajeseci.es

## EUCARPIA MEETING CALENDAR FOR 2008 AND LATER

More information and updates on these meetings can be obtained in the web page of EUCARPIA (<http://www.eucarpia.org>)

- Potatoes**            The next Section Meeting will take place in the Czech Republic in 2009, probably in June  
Info: John Bradshaw (Section Chairman Potatoes)  
e-mail: [jbrads@scri.sari.ac.uk](mailto:jbrads@scri.sari.ac.uk)
- Cereals**            The next Section Meeting will take place in Cambridge in 2009, at a date to be determined  
Info: Wayne Powell (Section Chairman Cereals)  
e-mail: [wayne.powell@niab.com](mailto:wayne.powell@niab.com)
- The next Rye Working Group Meeting will take place in Minsk (Belarus) in 2010  
Info: S. Hardzei  
e-mail: [hardzei@me.by](mailto:hardzei@me.by)
- Fodder Crops and Amenity Grasses**    **XXVIII Meeting of the Fodder Crops and Amenity Grasses Section**  
**La Rochelle, France**  
11 - 14 May 2009  
Info: Beat Boller (Section Chairman Fodder Crops and Amenity Grasses)  
e-mail: [beat.boller@art.admin.ch](mailto:beat.boller@art.admin.ch)
- Biometrics in Plant Breeding**    The next Section Meeting will be organized by the Scottish Crop Research Institute, Dundee, Scotland, and will take place in 2009  
Info: Bill Thomas  
e-mail: [Bill.Thomas@scri.ac.uk](mailto:Bill.Thomas@scri.ac.uk)
- Genetic Resources**            **XIXth Meeting of the Genetic Resources Section.**  
**Ljubljana, Slovenia**  
“Plant Genetic Resources and Their Exploitation in the Plant Breeding for  
Info: Eva Thörn (Section Chairwoman Genetic Resources)  
e-mail: [eva.thorn@cbm.slu.se](mailto:eva.thorn@cbm.slu.se)
- Vegetables**            **XVIth Tomato Working Group Meeting.**  
**Wageningen, The Netherlands**  
12-15 May 2008  
Info: Sjaak van Heusden  
e-mail: [secretariaat.cbsg@cbsg.nl](mailto:secretariaat.cbsg@cbsg.nl)  
web-page: <http://www.eucarpiatomato2008.org>
- IXth Cucurbitaceae Working Group Meeting.**  
**Avignon, France**  
21-24 May 2008  
Info: Michel Pitrat  
e-mail: [cucurbitaceae2008@avignon.inra.fr](mailto:cucurbitaceae2008@avignon.inra.fr)  
web-page: <http://www.inra.fr/cucurbitaceae2008>

- Fruit** The next Section Meeting will be organized by the University of Warsaw, Warsaw, Poland, and will take place in 2011  
Info: R. Socias (Section Chairman Fruit)  
e-mail: rsocias@aragon.es
- Ornamentals** **Section Meeting. Wageningen, The Netherlands**  
31 August - 4 September 2009  
Info: Jaap M. van Tuyl  
e-mail: Jaap.vantuyl@wur.nl  
web-page: <http://www.eucarpia.org>
- Oil and Protein Crops** The next Section Meeting will be organized by the University of Giessen, Germany, and will take place in 2011  
Info: F. Viranyi (Section Chairman Oil and Protein Crops)  
e-mail: viranyi.ferenc@mkk.szie.hu
- Organic and Low-Input Agriculture** The next Section Meeting is planned to take place in 2009  
Info: E. Lammerts van Bueren (Section Chairwoman Organic and Low-Input Agriculture)
- General EUCARPIA Congress** **XVIIIth EUCARPIA General Congress. Valencia, Spain**  
**“Modern Variety Breeding for Present and Future Needs”**  
9-12 September 2008  
Info: Jaime Prohens  
e-mail: eucarpia@upvnet.upv.es  
Web-page: <http://www.eucarpia.org>

## **MEETINGS AND CONFERENCES OF RELATED ORGANISATIONS**

### **5th International Crop Science Congress, Jeju, Korea**

13-18 April 2008

Further information: <http://www.cropscience2008.com>

e-mail: [icsc2008@snu.ac.kr](mailto:icsc2008@snu.ac.kr)

### **International Symposium on Biotechnology, Sfax, Tunisia**

4-8 May 2008

Further information: <http://isb2008.cbstunisia.com>

e-mail: [isb2008@cbstunisia.com](mailto:isb2008@cbstunisia.com)

### **World Congress on the Future of Food and Agriculture, Bonn, Germany**

12-16 May 2008

Further information: <http://www.planet-diversity.org>

e-mail: [info@planet-diversity.org](mailto:info@planet-diversity.org)

### **ISF World Seed Congress, Prague, Czech Republic**

26-28 May 2008

Further information: <http://www.worldseed2008.com>

e-mail: [isf2008@guarant.cz](mailto:isf2008@guarant.cz)

### **16th IFOAM Organic World Congress, Modena, Italy**

18-20 June

Further information:

[http://www.ifoam.org/events/ifoam\\_conferences/owc/Organic\\_World\\_Congress.html](http://www.ifoam.org/events/ifoam_conferences/owc/Organic_World_Congress.html)

e-mail: [ifoam2008@provincia.modena.it](mailto:ifoam2008@provincia.modena.it)

### **4th European Plant Science Organization Conference 2008, Toulon, France**

18-20 June

Further information: <http://www.epsoweb.org/catalog/conf2008.htm>

e-mail: [epsos@epsomail.org](mailto:epsos@epsomail.org)

### **International Durum Wheat Symposium, Bologna, Italy**

30 June-3 July 2008

Further information: <http://www.fromseedtopasta2008.it>

e-mail: [congressi@avenuemedia.eu](mailto:congressi@avenuemedia.eu)

### **XXth International Congress of Genetics, Berlin, Germany**

12-17 July 2008

Further information: <http://www.geneticsberlin2008.com>

e-mail: [info@geneticsberlin2008.com](mailto:info@geneticsberlin2008.com)

### **International Conference "Development of Plant Breeding and Crop Management in Time and Space", Priekuli, Latvia**

16-18 July 2008

Further information: <http://www.priekuliselekcija.lv>

email: [priekuli-conference@inbox.lv](mailto:priekuli-conference@inbox.lv)

### **XXth International Congress on Plant Sexual Reproduction, Brasilia, Brazil**

4-8 August 2008

Further information: <http://www.cenargen.embrapa.br/XXICSPR>  
email: [xxicspr@cenargen.embrapa.br](mailto:xxicspr@cenargen.embrapa.br)

**International Symposium on Induced Mutations in Plants, Vienna, Austria**

12-15 August 2008

Further information: <http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=167>  
email: [plant.mutation@iaea.org](mailto:plant.mutation@iaea.org)

**XVI Congress of the Federation of European Societies of Plant Biology, Tampere, Finland**

17-22 August 2008

Further information: <http://www.fespb2008.org>  
e-mail: [fespb2008@congrex.fi](mailto:fespb2008@congrex.fi)

**Agricultural Biotechnology International Conference, Cork, Ireland**

24-27 August 2008

Further information: <http://www.abic.ca/abic2008.html>  
e-mail: [info@platinumone.ie](mailto:info@platinumone.ie)

**VI International Symposium on In Vitro Culture and Horticultural Breeding, Brisbane, Australia**

24-28 August 2008

Further information: <http://www.une.edu.au/campus/confco/ivchb2008/>  
e-mail: [confco@une.edu.au](mailto:confco@une.edu.au)

**Control of Flowering Time and Applications for Plant Breeding, Salzau, Germany**

22-24 September 2008

Further information: <http://www.plantbreeding.uni-kiel.de/salzau/>  
e-mail: [c.jung@plantbreeding.uni-kiel.de](mailto:c.jung@plantbreeding.uni-kiel.de)

**Thirteenth International Biotechnology Symposium and Exhibition, Dalian, China**

12-17 October 2008

Further information: <http://www.ibs2008.org>  
e-mail: [loc@ibs2008.org](mailto:loc@ibs2008.org)

**IV International Conference on Legume Genomics and Genetics, Puerto Vallarta, Mexico**

7-12 December 2008

Further information: <http://www.ccg.unam.mx/iclgg4/>  
e-mail: [iclgg4@ccg.unam.mx](mailto:iclgg4@ccg.unam.mx)

## RECENT EUCARPIA PUBLICATIONS

### General

#### **Fifty Years of EUCARPIA (1956-2006).**

ISBN 978-84-7986-626-8

Compilers: **J. Prohens and M.L. Badenes**

Published: 2007 by Ediciones Promolibro

Obtainable from: EUCARPIA Secretariat

M.L. Badenes

Instituto Valenciano de Investigaciones Agrarias

P.O. Box 322, 3300 AH Dordrecht, The Netherlands

E-46113 Moncada

Spain

e-mail: eucarpia@upvnet.upv.es

#### **Genetic Variation for Plant Breeding. Selected Papers Presented at the 17th EUCARPIA General Congress, Tulln, Austria, 8-11 September 2004**

Published as a Special Issue of Euphytica: Euphytica 146 No. 1-2 2005

Obtainable from: Springer Netherlands

Abstracts available at: <http://www.springerlink.com/content/1573-5060/>

#### **Genetic Variation for Plant Breeding**

Proceedings of the 17th EUCARPIA Congress, Tulln, Austria, 8-11 September, 2004

ISBN 3-900962-56-1

Editors: **J. Vollmann, H. Grausgruber and P. Ruckenbauer**

Published: 2004 by BOKU – University of Natural Resources and Applied Life Sciences, Vienna, Austria

Price: € 45.- (EUCARPIA members) or € 65.- (non-EUCARPIA members)

Obtainable from: Johann Vollmann

BOKU / Pflanzenbau und Pflanzenzuechtung

Gregor Mendel Strasse 33

A-1180 Vienna, Austria

Fax: +43 1 47654-3342

e-mail: hans.vollmann@iname.com

### Potatoes

#### **The Science of Selection: Potato Breeding Methodology for the 21<sup>st</sup> Century.**

Abstracts of the 2006 Joint Conference of the EAPR Section Breeding and Varietal Assessment and the EUCARPIA Section Potatoes, Carlow, Ireland, 20-22 November, 2006

Compilers: **Dan Milbourne and Dennis Griffin**

Teagasc, Crops Research Centre

Oakpark, Carlow, Ireland

E-mail: dan.milbourne@teagasc.ie

### Cereals

#### **Cereal Science and Technology for Feeding Ten Billion People: Genomics Era and Beyond**

Abstracts, EUCARPIA Cereals Section Meeting, Lleida, Spain, 13-17 November 2006.

Editor: **José Luis Molina-Cano**

Centre IRTA-UdL

Av. Rovira Roure 177, 25198 Lleida, Spain

E-mail: joseluis.molina@irta.es

Publisher: Edicions de la Universitat de Lleida

#### **International Symposium on Rye Breeding & Genetics**

Abstracts, Rye Working Group Meeting, Groß Lüsewitz, Germany, 28-30 June 2006

Editor: **Peter Wehling**

Publisher: Federal Centre for Breeding Research on Cultivated Plants

Institute of Agricultural Crops, Rudolf-Schick-Platz 3a

D-18190 Groß Lüsewitz, Germany

Fax: +49 3820945222

E-mail: bafz-lk@bafz.de

**From Biodiversity to Genomics: Breeding Strategies for Small Grain Cereals in the Third Millennium**

Proceedings, EUCARPIA Cereal Section Meeting, Salsomaggiore, Italy, 21-25 November 2002  
Publisher: Experimental Institute for Cereal Research, Fiorenzuola d'Arda (PC), Italy  
Editors: C. Marè, P. Faccioli and A.M. Stanca  
Published: December 2003

**Proceedings of the 5th International Triticale Symposium**

**Radzików, Poland, 30 June - 5 July 2002**

Volume 1 (ISBN 83-89172-01-1), Volume 2 (ISBN 83-89172-02-X), Supplement (ISBN 83-89172-03-8)

Editor: **E. Arseniuk**

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Obtainable from: Plant Breeding and Acclimatization Institute, Radzików

05-870 Blonie, Poland

Fax: +48 22 7254714

E-mail: e.arseniuk@ihar.edu.pl

**Proceedings of the EUCARPIA Rye Meeting**

**Radzików, Poland, 4-7 July 2001**

ISBN 83-89172-00-3

Editor: **Plant Breeding and Acclimatization Institute**

Published: March 2002

Obtainable from: Plant Breeding and Acclimatization Institute, Radzików

05-870 Blonie, Poland

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**Fodder  
Crops and  
Amenity  
Grasses**

**XXVIIth EUCARPIA Symposium on Improvement of Fodder Crops and Amenity Grasses**

Book of Abstracts of the Section Fodder Crops and Amenity Grasses Meeting  
Copenhagen, Denmark, 19-23 August, 2007

Editor: **T. Lübberstedt**

Published: Denmark, 2007

Obtainable from: Thomas Lübberstedt

University of Aarhus, Research Centre Flakkebjerg, Institute of Genetics and Biotechnology,  
Forsøgsvej 1, DK-4200 Slagelse, Denmark

E-mail: Thomas.Luebberstedt@agrsci.dk

Book of Abstracts available: <http://www.eucarpia.org>

**Breeding and Seed Production for Conventional and Organic Agriculture**

XXVI EUCARPIA Fodder Crops and Amenity Grasses and XVI *Medicago* spp. Group Joint Meeting, Perugia, Italy, 3-7 September 2006

Compilers: **Fabio Veronesi and Daniele Rosellini**

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**International Symposium on Grass Breeding**

Meeting of the EUCARPIA Section Fodder Crops and Amenity Grasses, 22-25 September 2002, Bundesforschungsanstalt für Landwirtschaft (FAL) Braunschweig, Germany.

Editors: **U.K. Posselt and J.M. Greef**

Published in: *Vorträge für Pflanzenzüchtung*, Issue 59 (ISSN 0723-7812), 2003.

**Biometrics  
in Plant  
Breeding**

**XIII EUCARPIA Biometrics in Plant Breeding Meeting Section**

Abstracts, EUCARPIA XIII Biometrics in Plant Breeding Section Meeting, Zagreb, Croatia, 30 August - 1 September 2006

Published: *Agriculturae Conspectus Scientificus*

Volume 71 (2006) Supplement 1; Croatia, 2006

Editors: **Jerko Gunjaca, Fred van Eeuwijk and Zlatko Satovic**  
Obtainable from: Dr. Jerko Gunjaca  
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E-mail: jgunjaca@agr.hr

**Proceedings of the XII EUCARPIA Biometrics in Plant Breeding Conference, held in A Coruña, Spain, 3-5 September 2003 Selected Papers**

Published as a Special Issue of Euphytica: Euphytica 137 No. 1 2004  
Obtainable from: Springer Netherlands  
Abstracts available at: <http://www.springerlink.com/content/1573-5060/>

**Genetic Resources**

**Plant Genetic Resources and their Exploitation in the Plant Breeding for Food and Agriculture. Book of Abstracts**

Book of Abstracts of the 18<sup>th</sup> EUCARPIA Genetic Resources Section Meeting, Piešťany, Slovak Republic, 23-26 May 2007  
ISBN 978-80-88872-63-4

Editors: **P. Hauptvogel, D. Benediková and R. Hauptvogel**

Published: 2007

Obtainable from: Pavol Hauptvogel

SARC – Research Institute of Plant Production Piešťany

Piešťany, Slovak Republic

E-mail: [hauptvogel@vurv.sk](mailto:hauptvogel@vurv.sk)

**Plant Genetic Resources of Geographical and Other Islands. (Conservation, Evaluation and Use for Breeding)**

Proceedings of the XVII Genetic Resources Section Meeting, Castelsardo, Italy, 30 March-2 April, 2005; ISBN 88-9011771-0-1

Published: Italy, 2007

Obtainable from: Dr. Simonetta Bullitta

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**Maize and Sorghum**

**XXth International Conference of the EUCARPIA Maize and Sorghum Section. Book of Abstracts.**

Book of Abstracts of the XXth International Conference of the EUCARPIA Maize and Sorghum Section, Budapest, Hungary, 20 - 24 June, 2006. Published: Hungary, 2006

Editor: **Csaba L. Marton**

Obtainable from: Dr. Csaba L. Marton

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**Vegetables**

**Progress in Research on Capsicum & Eggplant**

Proceedings of the XIIIth EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant.

Warsaw, Poland, 5-7 September, 2007

ISBN 978-83-7244-862-0

Published: Warsaw University of Life Sciences, Poland

Obtainable from: K. Niemirowicz-Szczyt, Department of Plant Genetics, Breeding and

Biotechnology, Warsaw University of Life Sciences (WULS), Nowoursynowska 159, 02-776.

Warsaw, Poland

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**EUCARPIA Cucurbitaceae 2004.**

Progress in Cucurbit Genetics and Breeding Research. Proceedings of Cucurbitaceae 2004, the

8th EUCARPIA Meeting on Cucurbit Genetics and Breeding.  
Olomouc, Czech Republic, 12-17 July, 2004  
ISBN 80-86636-04-6  
Price: € 50.-  
Published: Palacký University Olomouc, Czech Republic  
Obtainable from: A. Lebeda, Palacky University, Faculty of Science  
Department of Botany, Slechtitelu 11, CZ-783 71 Olomouc, Czech Republic  
Fax: +420 68 5241027  
E-mail: lebeda@prfholnt.upol.cz

**EUCARPIA Capsicum and Eggplant 2004**

*Proceedings of the XIIth Meeting on Genetics and Breeding of Capsicum and Eggplant*

Noordwijkerhout, The Netherlands, 17-19 May, 2004

Editors: R.E. Voorrips

Published: Noordwijkerhout, 2004

Obtainable from: R.E. Voorrips

Plant Research International, Wageningen UR, P.O. Box 16, 6700 Wageningen

E-mail: re\_voorrips@yahoo.com

**EUCARPIA Leafy Vegetables 2003.**

**Proceedings of the EUCARPIA Meeting on Leafy Vegetables Genetics and Breeding,**

Noordwijkerhout, The Netherlands, 19-21 March 2003

Editors: Th.J.L. van Hintum, A. Lebeda, D.A. Pink and J.W. Schut

Published: Centre for Genetic Resources, The Netherlands (CGN), Wageningen, The Netherlands

Online-access of full papers: <http://www.leafyvegetables.nl/papers.htm>

**Proceedings of the XIth Meeting on Genetics and Breeding of Capsicum and Eggplant, Antalya, Turkey, 9-13 April, 2001**

ISBN 975-487/085-3

Editors: **K. Abak, S. Büyükalaca and Y. Dasgan**

Published: Adana, 2001

Proceedings are no more available.

**Capsicum and Eggplant Newsletter No. 20, 2001**

**Capsicum and Eggplant Newsletter No. 21, 2002**

**Capsicum and Eggplant Newsletter No. 22, 2003**

**Capsicum and Eggplant Newsletter No. 23, 2004**

ISSN 1122-5548

Editor: **P. Belletti**

Price: € 30.-- or € 150.-- (supporters)

Obtainable from: P. Belletti, University of Turin

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Via Leonardo da Vinci, 44, I-10095 Grugliasco TO, Italy

Fax: +39 011 6708826

E-mail: capsicum@unito.it

Web site: <http://www.capsicum.unito.it/>

**Cruciferae Newsletter No. 23, April 2001**

**Cruciferae Newsletter No. 24, July 2002**

ISSN 0263-9459

Editor: **INRA Rennes**

Obtainable from: The Editor Cruciferae Newsletter

INRA - Station d'Amélioration des Plantes

BP 29, F-35650 Le Rheu, France

**Fruit**

**EUCARPIA Symposium "XII Fruit Section". Book of Abstracts.**

Book of Abstracts of the EUCARPIA Symposium XII Fruit Section

Spain, 16-20 September 2007.

Editors: Mayte Espiau, Rafael Socias.

Obtainable from: Chair of Fruit Section  
Centro de Investigación y Tecnología Agroalimentaria de Aragón  
P.O. Box 727  
E- 50008 Zaragoza, Spain  
e-mail: rsocias@aragon.es

**EUCARPIA Fruit Breeding Section Newsletter No. 5, 2001**

Obtainable from: Genbank Obst  
Bergweg 23, D-01326 Dresden, Germany  
Tel./Fax: +49 351 2615010/ 2615011  
E-mail: fischer@ipk-gatersleben.de

**Orna-  
mentals**

**Breeding for Beauty. Part II**

Proceedings of the XXIIth International EUCARPIA Symposium Section Ornamentals,  
Sanremo, Italy, 11 - 15 September, 2006

ISBN 90-6605-549-9

Editors: **A. Mercuri and T. Schiva**

Published: Acta Horticulturae 743, May 2007

Price: EUR 58.-- (for non-members of ISHS)

Obtainable from: Secretariat ISHS

P.O. Box 500, B-3001 Leuven, Belgium

Fax: +32 16 22 94 50

E-mail: ishs@ishs.org

**Breeding for Beauty. Part I**

Proceedings of the XXIIth International EUCARPIA Symposium Section Ornamentals,  
Sanremo, Italy, 11 - 15 September, 2006

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Editors: **A. Mercuri and T. Schiva**

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**Classical versus Molecular Breeding of Ornamentals.**

**Proceedings of the 21st International Symposium on Classical versus Molecular Breeding  
of Ornamentals, EUCARPIA Section Ornamentals, ISHS Section Ornamental Plants,  
München, Germany, 25-29 August 2003**

Editors: **G. Forkmann, B. Hauser & S. Michaelis**

Price: € 55.-- (for non-members of ISHS)

Obtainable from: Secretariat ISHS

P.O. Box 500, B-3001 Leuven 1, Belgium

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E-mail: info@ishs.org

**Strategies for New Ornamentals .**

**Proceedings of the Twentieth International Symposium Section Ornamentals,  
Melle, Belgium, 3-6 July, 2001**

Editors: **J. Van Huylbroeck, E. Van Bockstaele and P. Debergh**

Volume 1: Acta Horticulturae 552, July 2001, ISBN 90-6605-834 X

Price: € 53.-- (for non-members of ISHS)

Volume 2: Acta Horticulturae 572, February 2002, ISBN 90-6605-825 0

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Obtainable from: Secretariat ISHS

P.O. Box 500, B-3001 Leuven 1, Belgium

Fax: +32 16 22 94 50

E-mail: info@ishs.org

**Oil and Protein Crops**

**EUCARPIA Oil and Protein Crops Section Meeting- "Present status and future needs in breeding oil and protein crops". Book of Abstracts**

Book of Abstracts of the EUCARPIA Oil and Protein Crops Section Meeting, Budapest, Hungary, 7-10 October 2007.

Editor: F. Virányi

Obtainable from: Ferenc Virányi

Department of Plant Protection

Páter Károly u. 1

2100 Gödöllő, Hungary

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**Organic and Low-Input Agriculture**

**EUCARPIA Symposium "Plant breeding for organic and sustainable, low-input agriculture: dealing with genotype-environment interactions". Book of Abstracts.**

Book of Abstracts of the EUCARPIA Symposium "Plant breeding for organic and sustainable, low-input agriculture: dealing with genotype-environment interactions", Wageningen, The Netherlands, 7-9 November 2007.

Editors: E.T. Lammerts van Bueren, I. Goldringer, O. Scholten, and H. Oestergaard

Obtainable from: Chair of Organic Breeding,

Laboratory of Plant Breeding

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e-mail: secretariaat-plantbreeding.psg@wur.nl

Book of Abstracts available: <http://www.eucarpia.org>

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2. First name(s) \_\_\_\_\_
3. Nationality \_\_\_\_\_ Date of birth \_\_\_\_\_
4. Titles \_\_\_\_\_
5. Functions \_\_\_\_\_
6. Institution \_\_\_\_\_

Address: \_\_\_\_\_  
Street / P.O. Box \_\_\_\_\_  
Postal code - City \_\_\_\_\_  
Country \_\_\_\_\_  
Telephone \_\_\_\_\_ Fax \_\_\_\_\_  
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7. I, the undersigned Mrs. / Mr.

apply as an individual member of EUCARPIA.

apply on behalf of \_\_\_\_\_  
as a corporate member of EUCARPIA.

8. I / We would like to participate in the following section(s):

- |  |   |
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Date: \_\_\_\_\_

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