UPOV

# EXECUTIVE SUMMARY

## SYMPOSIUM ON PLANT BREEDING FOR THE FUTURE

## SEMINAR ON PLANT VARIETY PROTECTION AND TECHNOLOGY TRANSFER: THE BENEFITS OF PUBLIC-PRIVATE PARTNERSHIP

## SYMPOSIUM ON THE BENEFITS OF PLANT VARIETY PROTECTION FOR FARMERS AND GROWERS

# Foreword by the Secretary-General

This Trilogy provides a powerful perspective on how the UPOV system of plant variety protection can benefit society. Agriculture faces enormous challenges in achieving sustainable food security against a background of population growth and climate change. The Symposium on Plant Breeding for the Future recalled that scientific progress has long been key to meeting society's needs, and clearly demonstrated that accelerated scientific progress is necessary if agriculture is to meet our future needs. There is significant evidence to show that plant breeders are rapidly applying recent scientific advances in their work. The Seminar on Plant Variety Protection and Technology Transfer illustrated the critical role that plant variety protection plays in encouraging investment in plant breeding science and, equally important, in supporting investment in delivering the resultant technology to farmers in the form of plant varieties suited to their needs and to those of consumers. The importance of technology transfer in both the public and private sectors was highlighted, and examples shown of how the UPOV system has enabled those sectors to work together effectively. The final event in the Trilogy, the Symposium on the Benefits of Plant Variety Protection for Farmers and Growers, emphasized that plant variety protection provides farmers and growers with access to the best local and global varieties, as well as improved opportunities for them to capture value in the production chain. New varieties are the key to improved livelihoods for farmers and to enabling farmers to provide sustainable agriculture that meets the needs of the whole of society.

**Mr. Francis Gurry**

# Foreword by the President of the UPOV Council

In an era where globalization has brought great benefits to mankind, we should not forget that it takes a village to feed the World. Farmers rely on the ability of plant breeders to develop new varieties suited to their local conditions, in order that they can meet the needs of the wider community. New varieties offer farmers the possibility to deliver successful and sustainable agriculture with available, often limited, resources. Plant breeding has responded to the needs of agriculture by integrating advances in science in new varieties and delivering that vital technology to farmers in the form of high quality seed. Both the public and private sectors have a role to play in that process and we have seen that an effective plant variety protection system is an important tool for incentivizing public-private cooperation. The Trilogy has also highlighted the way in which plant variety protection provides benefits and opportunities to breeders, farmers, growers and producers, for the benefit of consumers. However, an important message that I have taken from these events is that there is a need to improve the way in which we communicate the benefits of the UPOV system of plant variety protection to stakeholders and I hope that this publication will have a key role to play in meeting that challenge.

**Ms. Kitisri Sukhapinda**

# Symposium on Plant Breeding for the Future

**Welcome address by**
*Mr. Francis Gurry, Secretary-General, UPOV*

**Message from the host of the 1961 Diplomatic Conference**
*Minister (France)*

**Messages from the founding members of the Union**
*Minister (Germany)*
*Minister (Netherlands)*
*Minister (United Kingdom)*

**Opening by**
*Mr. Keun-Jin Choi, President of the Council of UPOV*

**The development of plant breeding and plant variety protection**
*Mr. Bernard Le Buanec*

## SESSION 1: Plant science and the future for plant breeding

*Chair: Ms. Kitisri Sukhapinda, Vice-President of the Council of UPOV*

**The role of genomics in crop improvement**
*Mr. Mike Bevan, Deputy Director Science, John Innes Centre (United Kingdom)*

**Bioengineering**
*Mr. Konstantin G. Skryabin, Director, Research Centre "Bioengineering", Russian Academy of Sciences (Russian Federation)*

**Heterosis in rye**
*Mr. Stanislau Hardzei, Head, Laboratory of Genetics and Biotechnology, Scientific and Practical Centre of the Belorussian NAS for Arable Farming (SPCAF) (Belarus)*

**Breeding for virus resistance in cereals**
*Mr. Frank Ordon, Director and Professor, Head Institute of Resistance Research and Stress Tolerance, Julius Kühn-Institute (JKI), Federal Research Centre for Cultivated Plants (Germany)*

**Stress resistance in maize**
*Mrs. Marianne Bänziger, Deputy Director General, Research and Partnership, International Maize and Wheat Improvement Centre (CIMMYT)*

**Molecular virus-plant interactions and pathogen defense in tuber crop plants**
*Mr. Jari P.T. Valkonen, Professor, Plant Pathology, University of Helsinki (Finland)*





*"There can be no sustainable agriculture without innovation. The intellectual property protection model put forward by UPOV is in harmony with the needs and expectations of our agricultural sector."*
**Mr. Jean-Marc Bournigal**

*"Governments worldwide are under pressure, in the face of current and future global challenges, to ensure sustainable food security and economic development. In the final declaration, the G20 Agriculture Ministers therefore undertook to strengthen plant breeding primarily through innovation and through the internationally agreed legal instruments for the protection of plant varieties. "*
**Her Excellency Ms. Ilse Aigne**

*"The benefits of the UPOV Convention and plant breeders' rights legislation have been huge. New plant varieties and a system of plant variety protection, underpinned by UPOV, are essential. DEFRA is working with the whole food chain to stimulate the green economy and to encourage the agriculture and food sector to increase productivity in a sustainable way with due regard to reducing greenhouse gas emissions and protecting the natural environment. "*
**Lord Taylor of Holbeach**

*"Examples clearly show the interest of plant breeding for facing the challenges met by humankind. This is in line with the preamble of the 1961 Act of the UPOV Convention stating that the Contracting Parties were "convinced of the importance attaching to the protection of new varieties of plants for the development of agriculture in their territory."*
**Mr. Bernard Le Buanec**

*"Considering the inexorable rise in the human population and changing dietary habits, we need to produce food at an unprecedented high rate. Furthermore, this challenge has to be met while reducing inputs such as fertilizers and combating new disease epidemics, and maintaining high yields in an uncertain climate. To meet these challenges plant scientists are developing new approaches to crop improvement, including transgenesis and genomics."*
**Mr. Mike Bevan**

*"Insect-transmitted viruses are predicted to become even more important in the future due to climatic change. Soil-borne viruses already cause severe yield losses which cannot be prevented by spraying chemicals. Therefore, breeding for virus-resistant varieties is the only possibility to ensure wheat and barley cultivation on fields infected with soil-borne viruses and for reducing insecticide use with regard to insect-transmitted viruses. Molecular markers are efficient tools to enhance breeding for virus resistance."*
**Mr. Frank Ordon**

*"To satisfy increased demand under increasingly challenging conditions—climate change, greater weather variation (drought, flooding, heat shocks), natural resource scarcities—farmers will need crops that can tolerate stress while transforming water, nutrients, and solar energy more effectively into grain and other useful products. This is a huge order, but modern plant science provides ways to meet the challenges. Seed and plant variety legislation are at the core of bringing stress-tolerant crops to farmers' fields."*
**Mrs. Marianne Bänziger**

## SESSION 2: Applying the science: challenges and opportunities

*Chair: Mr. Peter Button, Vice Secretary-General, UPOV*

**Plant variety protection and technology transfer**
*Mr. Peter Button, Vice Secretary-General, UPOV*

**Variety traits for the future**
*Mr. David Nevill, Head of Cereals R&D, Syngenta International AG*

**Vegetable and field crop strategies in East Africa**
*Mr. Yashwant Bhargava, Head of R&D, East African Seed Company Ltd.*

**Breeding prospects for horticulture in Asia**
*Mr. Ki-Byung Lim, Professor of Department of Horticulture, Kyungpook National University (Republic of Korea)*

**Flower breeding for the global market**
*Mr. Ulrich Sander, Managing Director, Selecta Klemm (Germany)*

**Fruit breeding aims for the twenty-first century**
*Mrs. Wendy Cashmore, Manager Plant Varieties, New Zealand Institute for Plant & Food Research Limited (New Zealand)*

**Concluding remarks by**
*Mr. Keun-Jin Choi, President of the Council of UPOV*

*"The Fiftieth Anniversary of UPOV and this Symposium have come at a time when there are many challenges for agriculture. At the global level, increasing population, climate change, parallel demands for food and energy production and evolving human needs require a response in agricultural production. There are also many challenges for economic development. For these reasons, scientific progress and innovation are of greater importance than ever to provide a dynamic and sustainable agriculture and to provide for economic development in the rural sector.*

*In the first session of the Symposium: "Plant science and the future for plant breeding", we had the opportunity to look at today's science and to see some of the tools that are becoming available to breeders. We have seen exciting science that is being conducted in the fields of genomics, bioengineering and heterosis, and have seen the work that is being done in disease and stress resistance – essential elements in the support of a dynamic and sustainable agriculture. In the second session: "Applying the science: challenges and opportunities", we heard about the work of plant breeders and how they are translating science into plant breeding and, as a result, new plant varieties. We have seen the breeding tools and breeding methods that are being employed. We have seen some of the traits that are being developed in order to improve agricultural productivity and sustainability. We have seen the work to improve the quality of the food that we eat and the flowers that brighten our daily lives.*

*To achieve the maximum harvest of the fruits of plant science and plant breeding we need an effective system of plant variety protection. We have seen that the UPOV system of plant variety protection encourages the development of new varieties of plants that will benefit farmers, growers and consumers – in other words "society as a whole". As we heard in the messages from the Ministers of France, Germany, the Netherlands and the United Kingdom, UPOV and the UPOV system of plant variety protection are as relevant today as when they were founded 50 years ago and have a vital role to play for the future."*
**Mr. Keun-Jin Choi**





*"New varieties are a crucial means of delivering new technologies to farmers and growers and, ultimately, delivering benefits through to consumers. We can see examples of those benefits in terms of reduced cost of high-quality food, efficient land use, diversity of plant-derived products etc."*
**Mr. Peter Button**

*"Companies invest in research and development to bring forward new innovations that drive long-term agricultural productivity, rural development and environmental sustainability. Such innovation needs to be encouraged, supported and protected."*
**Mr. David Nevill**

*"The creation of wealth in East African countries requires smallholder farmers to change from being subsistence farmers to being profitable businesses."*
**Mr. Yashwant Bhargava**

*"Different authors estimate that the global flower market amounts to a retail value of approximately $100 billion worldwide with the cut flower market ranging between $40 to 60 billion. There are still a huge number of small breeding companies or private breeders. We have seen many examples where spectacular novelties were bred by small companies or private breeders. Cut flower producers in South America and Africa are investing in breeding to develop their own varieties. Cut flower production has been moved over the last decades from Europe and North America to South America and East Africa. A relatively new trend is that air freight is replaced by sea freight. Performance in sea freight may become a new selection criterion in cut flower breeding. "*
**Mr. Ulrich Sander**

*"Overall, our strategic breeding aim for the 21st century is "Better Cultivars Faster". Fruit breeders are setting themselves some audacious goals for the 21st century. The potential for future genetic improvement to take traditional fruit species into new market spaces should not be underestimated."*
**Mrs. Wendy Cashmore**

# Seminar on Plant Variety Protection and Technology Transfer: the Benefits of Public-Private Partnership

**Welcome address by**
*Mr. Francis Gurry, Secretary-General, UPOV*

**Opening by**
*Mr. Keun-Jin Choi, President, Council of UPOV*

**Benefits of the UPOV system for technology transfer**
*Mr. Peter Button, Vice Secretary-General, UPOV*

## SESSION 1: Use of Plant Variety Protection by National Research Centers

*Chair: Ms. Enriqueta Molina Macías*

**National Agriculture and Food Research Organization (NARO), Japan**
*Mr. Ryudai Oshima, Deputy Director, Intellectual Property Division, Ministry of Agriculture, Forestry and Fisheries (MAFF)*

**Grasslanz Technology, New Zealand**
*Ms. Jenn James, IP Manager*

**Agricultural Research Council, South Africa**
*Mr. Shadrack R. Moephuli, Chief Executive Officer*
*(presented by Mr. Raimundo Lavignolle, Office of the Union)*

**Brazilian Agricultural Research Corporation (EMBRAPA), Brazil**
*Mr. Filipe de Moraes Teixeira, Head, Technical Innovation Office*

**National Institute of Agricultural Research (INRA), France**
*Mr. Yves Lespinasse, INRA Research Director*





*"The legal framework of protection offered by the UPOV system provides incentives for investment in delivering the most suitable varieties to farmers and growers. It is also that framework which enables the needs of farmers and growers to be understood and for the investment to be directed towards meeting those needs. New varieties are a means of transferring technology along the production chain and, because of the breeder's exemption, a means of transferring technology to all breeders."*
**Mr. Peter Button**

*"Active utilization of the plant variety protection system has contributed to the development of elite plant varieties through the IP cycle (innovation-protection-utilization (royalty)) in the public research institutes. IPRs are at the core of promoting the dissemination of elite varieties for public use, which is the mission of NARO as a public research institute."*
**Mr. Ryudai Oshima**

*"Prior to New Zealand becoming a member of UPOV in 1981, government departments that bred plant varieties held no intellectual property (IP) rights over their new varieties or innovations. Consequently, commercial traders in these new plants and seeds were reluctant to spend money promoting them. The introduction of Plant Variety Rights (PVR) in New Zealand gave confidence and security to both government and commercial breeders, providing a renewed impetus to breed new, improved varieties."*
**Ms. Jenn James**

*"As a public entity in South Africa, ARC is obliged to ensure that the outcomes of its research and development initiatives are effectively disseminated. To this end, ARC has adopted an approach for the transfer of technology, including new varieties with plant breeders' rights to both the commercial and resource-poor agricultural sector. South African farmers utilize both ARC-developed varieties and those originating from other countries, in order to ensure sustainable and competitive agricultural production. This interplay of varieties from different parts of the world is also important for mitigation of agricultural risks, particularly for developing resistance against specific pests and diseases, therefore ensuring a good yield and harvest for the producers, which in turn ensures food security."*
**Mr. Shadrack R. Moephuli**

*"One of the best examples of Embrapa's success in the formation of partnerships is its program of variety development and licensing: Through public/private partnerships in this area of research, substantial resources are brought in by diverse private partners in every phase of Embrapa's innovation of varieties, from research to the sale of seeds. All of this has been possible thanks to the existence of the legal system for the protection of varieties in Brazil. It was following the implementation of the system to protect varieties that our breeding programs were able to become strong and competitive, guaranteeing technological security which we provide to a globally competitive agriculture sector."*
**Mr. Filipe Geraldo**

*"PVP offers an excellent compromise between the property rights of inventors and the free use of improved materials to enable the invention of new varieties intended for commercial exploitation."*
**Mr. Yves Lespinasse**

## SESSION 2: Technology Transfer by the Private Sector

*Chair: Ms. Kitisri Sukhapinda*

**DSP SA, Switzerland**
*Mr. Willi Wicki, Responsible for Varieties Administration*

**Masstock Arable UK Ltd, United Kingdom**
*Mr. Barry Barker, National Arable Seed Product Manager*

**Uruguayan Breeders Association (URUPOV)**
*Mr. Diego Risso, Executive Director*

**Role of the private sector in Kenya**
*Mr. Evans Sikinyi, Kenya*

## SESSION 3: International Research Centers

*Chair: Mr. David Boreham*

**Perspective of the Consultative Group on International Agricultural Research (CGIAR) Consortium**
*Mr. Lloyd Le Page, Chief Executive Officer, CGIAR Consortium*

**Experience of a CGIAR center: International Rice Research Institute (IRRI)**
*Mr. Ruaraidh Sackville Hamilton, Head, Genetic Resources Center, IRRI*

**Possible approaches for Technology Transfer by International Research Centers**
*Mr. Ian Barker, Head of Agricultural Partnerships, Syngenta Foundation*

**Closing remarks by the Chairs**

**SESSION 1 - Chair: Enriqueta Molina**

Plant Variety Protection:

- Promotes private sector involvement in research and development
- Is a tool for technology transfer
- Provides a legal framework for financial investment
- Encourages innovation in breeding aims, particularly for the development of new or niche markets
- Focuses investment on meeting the needs of farmers and consumers

**SESSION 2 - Chair: Kitisri Sukhapinda**

The private sector:

- Offers an effective means of delivering varieties to farmers
- Provides an assessment of the market potential of varieties
- Creates a link between public research and the needs of farmers
- Provides a channel for income for public-sector research
- Facilitates strategic associations and coordinated technology transfer

**SESSION 3 - Chair: David Boreham**

- PVP provides a mechanism to facilitate dissemination of varieties to farmers: open access does not ensure widespread dissemination or use
- PVP provides a system to increase availability of varieties suited to farmers' needs
- PVP provides incentives for small and medium-sized enterprises (SMEs), particularly local breeders and seed distributors
- The breeders' exemption provides a mechanism to facilitate access to germplasm
- The use of PVP is consistent with the ITPGRFA and SMTA





*"The PBR system, according to the UPOV Convention, is the basis for licensing the ACW/DSP varieties and thus for collecting royalties, which is the main financial source to cover the costs of DSP relating to the services provided to the Swiss seed growers and hence for the Swiss farmers, which benefit from new, valuable varieties. This model of public-private partnership may be suitable to maintain, introduce or re-introduce small breeding programs for crops that are adapted to certain climatic conditions of a country, to consumer habits, to traditions or to the requirements of processors and distributors."*
**Mr. Willi Wicki**

*"If you can provide that grower with more information about the way to manage the variety through the use of agrochemicals or fertilizers or how and where it should fit on the farm in order to provide a better financial return, then you have translated the potential of the improved genetics into a more tangible proposition for the grower. To generate this information requires considerable investment. Therefore, it is essential that those varieties are protected by plant breeder's rights so companies invest their time and money in developing the variety to its fullest potential."*
**Mr. Barry Barker**

*"Licenses should serve as a tool to facilitate the development of and access to new plant varieties, thus developing the market and production. Once a variety is protected, the breeder establishes an appropriate royalty collection policy. Royalties are not necessarily collected for all protected varieties. There are a number of concrete examples in which it was decided to release protected varieties for the benefit of small farmers without royalties being collected, although licenses were set up to regulate the use of those varieties. The appropriate use of plant breeders' rights will contribute to the strengthening of technology transfer, with enforcement of those rights being central to this process."*
**Mr. Diego Risso**

*"The private sector has invested in breeding. Within the last 20 years, the number of seed companies, which are mainly private, has increased from 13 to 83."*
**Mr. Evans Sikinyi**

*"The Consortium and its members regard results and outputs of our research and development activities as goods for the public at large, otherwise known as international public goods. We are committed to their widespread diffusion and use, and we seek to achieve maximum possible access, scale and scope of impact from them. These are to be provided for the benefit of the poor, especially for farmers in developing countries. We realized in the past that open access does not necessarily equal widespread dissemination or use, and that partnerships downstream can encourage the uptake of the innovations that our research has provided. Plant Variety Protection (PVP) is an option that can be successfully utilized in support of the new CGIAR Consortium strategic vision. We believe that it will stimulate partnerships that will more effectively commercialize new pro-poor varieties and traits. PVP may be the best and only option for downstream partners to achieve commercialization in some situations."*
**Mr. Lloyd Le Page**

*"To claim legal protection over its varieties through plant breeders' rights (PBRs) has traditionally been considered inconsistent with IRRI's mission. We present the rationale behind the need to change the approach to protecting IRRI-bred varieties, and the revised policy on Plant Variety Protection (PVP). There is a need to integrate IRRI's expertise in developing improved varieties with the private sector's capacity to market them. For seed production, this implies effective plant variety protection. It provides the legal security needed by the private sector without compromising the needs of farmers who rely on informal seed systems, and it provides the potential for exclusivity needed by the private sector without compromising IRRI's mission and mandate to develop improved varieties and make them freely available for further breeding and research."*
**Mr. Ruaraidh Sackville Hamilton**

# Symposium on the Benefits of Plant Variety Protection for Farmers and Growers

**Welcome address by**
*Mr. Francis Gurry, Secretary-General, UPOV*

**Opening by**
*the President of the Council of UPOV*

**Keynote Speech: The importance of new plant varieties for farmers and growers**
*Mr. Thor Gunnar Kofoed (Committee of Professional Agricultural Organisations (COPA) – General Committee for Agricultural Cooperation in the European Union (COGEPA)) (Denmark)*

## SESSION 1: The Role of PVP in Improving Incomes for Farmers and Growers

*Moderator: Ms. Kitisri Sukhapinda*

**Introduction**
*Mr. Peter Button, Vice Secretary-General, UPOV*

**The experience of smallholder flower growers in Kenya**
*Mr. Stephen Mbithi, Fresh Produce Exporters Association of Kenya (FPEAK)*

**The use of plant variety protection to add value for fruit growers**
*Mr. Philippe Toulemonde, President of Star Fruits (France)*





*"We have about 12 million farmers and farm workers as members of this umbrella organization and 36,000 cooperatives. We are dealing with organic farmers and conventional farmers, even farmers who want to grow genetically modified organisms (GMO) and seed producers, manufacturers, sugars, oilseed and protein crops, just to mention a few. If we look at the yields for cereals per hectare in Europe, we can see that we have had an increase in yields since 1960. One country that stands out is Denmark, which follows the trend of the rest of Europe; however, in the same period they have reduced the use of nitrogen by 50 per cent. They still have the same yields as the other countries, but they have reduced the use of pesticides by 30 per cent. One very important thing: they always use new varieties. Farmers need better varieties – this is the message to the breeders: you need to continue to produce better varieties. Farm-saved seed: the system for farm-saved seed must be simple and fair to both the farmers and the breeders."*
**Mr. Thor Gunnar Kofoed**

*"Farmers and growers deliver the benefits of new varieties to society through reduced food cost, efficient land use, high quality food, storability and a wide diversity of products. They deliver those benefits because they are the first beneficiaries of new varieties, which offer to them improved yields and profitability, resistance to pests and diseases, input efficiency and agronomic options that enable them to meet their own needs and those of consumers. In short, new varieties are their route to improved livelihoods."*
**Mr. Peter Button**

*"For Kenya, revenue from horticultural exports of 1 billion US dollars is a considerable economic factor. In Kenya, horticulture or fresh produce provides employment for about 4.4 million people, directly or indirectly. That amounts to 11 per cent of the working population. Fruit and vegetable growing is essentially a matter for smallholders. They contribute 70 per cent to the overall production. Those farmers have one or two acres. It is just obvious to the farmer that half an acre of tomatoes feeds his family, and the surplus money pays for medical care and for the school fees of his children much better than half an acre of cassava. IPRs in developing countries for smallholder farmers are extremely important. It is most important to understand that smallholder farmers are able to integrate in the value chain of any market in the world. They need technologies and varieties that come through IPRs. In a country such as Kenya, which has signed up to IP conventions, it was with a view to promoting investment by breeders through protection of their rights. The horticultural sector appreciates that: it is good for the farmer; it is good for the breeder. We are increasingly seeing that IPRs are becoming a very important tool for market access."*
**Mr. Stephen Mbithi**

*"Breeding improves fruit quality of taste, coloration, storage, etc. It leads to improvement in cultivating practice – less pesticides, for example, for scab-resistant varieties. A virtuous circle – if the grower gets added-value with a PBR variety, it is a way of investing more, so that we are able to give back to the breeders some financial results and resources so that they can continue their breeding programs. It is a virtuous circle to try and supply the fruit industry with the best products. Moreover, with PBR, we have the capacity to organize the production or the distribution and to put the emphasis on a quality approach at all the different stages of production. The example of the variety club. The goal is not only to give the farmer a good product – at the end of the day it is to inform the consumer of the quality of the product and to have a complete circle of good work practices. We can do that using PBR and the trademark.With protection you are able to regulate and organize the production. PBR is the basis of the collective organization."*
**Mr. Philippe Toulemonde**

## SESSION 1: The Role of PVP in Improving Incomes for Farmers and Growers

*Moderator: Ms. Kitisri Sukhapinda*

**Investing to deliver the varieties that farmers and growers need**
*Mr. Stephen Smith, Pioneer Hi-Bred International Inc. (United States of America)*

**Adding value for grower cooperatives**
*Mr. Eduardo Baamonde, Director General, Cooperativas Agroalimentarias (Spain)*

**The use of plant variety protection to add value for farmers in Brazil**
*Mr. Oscar Stroschon, Sementes Produtiva (Brazil)*

**Delivering high performance varieties to subsistence/smallholder farmers**
*Mr. Vuyisile Phehane, Agricultural Research Council (South Africa)*





*"We have a huge diversity of farmer-customers from those with 1 hectare plots in China to 1,000 hectare farms in Iowa and to 5,000 hectare farms in Brazil. Nonetheless, across this diversity, all customers have one thing in common—each is looking for seed that will work for them and meet their needs; seed that will be a good investment for them and for their family. […] To be successful, plant breeders must know the field environments of the customer. Breeding and product advancement takes place at the local level."*
**Mr. Stephen Smith**

*"The development of new varieties stands for dynamism, modernity and permanent innovation. If we wish to remain competitive in a global system, then we must ensure that these features become a permanent part of the European grower sector. According to a European Commission Green Paper of 2007 , Spain will be one of the countries most affected by climate change, with agriculture being the worst hit of all sectors. The European Commission warns that, unless steps are taken, by the end of the century we could see a fall in yields of up to 30 per cent, as a result of climate change and other issues such as desertification, erosion, forest fires, increased salinization and the appearance of new pests and diseases. In order to tackle these possible new scenarios, we will require specific research, development and innovation (RDI) strategies focusing on crop selection and the development of varieties that are better adapted to the new conditions. The development of new varieties will doubtless be inhibited if breeders, the group committed to research into new varieties, are not compensated for their efforts. For many years now, cooperatives have been demonstrating the importance of backing, and committing to new plant varieties. Those groups opted to develop varieties for their members and are now world-famous in this field, offering not just new and improved varieties but also a high level of added value to their growers."*
**Mr. Eduardo Baamonde**

*"I was born into a family of small farmers in the south of Brazil. I have seen the transition from subsistence agriculture, with the earth being ploughed using animals in my childhood, to large-scale production involving the use of highly-productive varieties, agricultural machinery and equipment, technology and biotechnological progress to grow economically-viable crops. Productivity, which I first of all consider to be directly linked to the impact of the 1997 Brazilian Law on the Protection of Crops (LPC), and the recognition of intellectual property encouraged breeders to increase the range of new varieties on offer. For example, on average, there was a 50 per cent increase in soya bean productivity, rising from 2,200 kilos per hectare (kg/ha) to 3,300 kg/ha. In 1996, there was an outbreak of "Stem Rust"; and 90 per cent of the planted area of the savannahs had been given over to a single variety susceptible to that disease. It was a disaster! Huge losses all along the chain. Faced with this situation, in 1997 the LPC was approved. Public and private companies were immediately encouraged to invest."*
**Mr. Oscar Stroschon**

*"As a public entity in South Africa, the ARC is obliged to ensure that the outcomes of its research and development initiatives are effectively disseminated To this end, the ARC has adopted an approach for the transfer of technology, including new varieties with plant breeders' rights, to both the commercial and resource-poor agricultural sector. Licensing of the transfer of varieties to smallholder producers is done in a manner aimed at ensuring maximum benefit to the recipients. The ARC has entered into a local licensing agreement for the commercialization of some of the ARC's citrus varieties. One of the obligations is to ensure the participation of smallholder citrus producers in the commercialization value-chain. The estimated revenue accrued to wheat farmers who have licenses for the ARC's varieties was R 36.7 million in 2011/12. Using a single ARC pear variety, the income accruable to licensees of this cultivar is estimated at R 138 million per annum, with the potential to create 1,260 farm worker jobs. Access to the ARC's varieties has resulted in a profit of R 130,000 per harvest per smallholder farmer from sales of orange-fleshed sweet potato on the informal market only. The potential for sales is greater as the ARC concludes supply contracts with retail stores."*
**Mr. Vuyisile Phehane**

## SESSION 2: The Role of PVP in Enabling Farmers and Growers to Become Breeders

*Moderator: Ms. Kitisri Sukhapinda*

**Encouraging the development of new varieties of plants**
*Mr. Peter Button, Vice Secretary-General, UPOV*

**A farmer-breeder experience in the Republic of Korea**
*Mr. Young-Hae Kim (Republic of Korea)*

**The role of plant variety protection in supporting the development of improved varieties**
*Mr. Guy Kastler, Coordinator, Via Campesina (France)*

**The Ashiro Rindo Story**
*Mr. Yoshiteru Kudo (Japan)*

**The importance of plant variety protection for farmer-breeders of potato**
*Mr. Derk Gesink (Netherlands)*

**Closing remarks by**
*the President of the Council of UPOV*

**The UPOV System of Plant Variety Protection:**

- *Encourages the breeding of new varieties - enabling farmers to respond to the environmental and economic challenges confronting agriculture*
- *Provides farmers and growers with access to the best local and global varieties*
- *Enables variety choice to be combined with information and delivery of good quality planting material*
- *Offers a tool for capturing value through farmer cooperation*
- *Facilitates "win-win" cooperation between farmers and breeders*
- *Provides business opportunities for small farmers and growers*
- *Has the potential to be even more effective through improvements in implementation*
- *Provides an incentive for farmers and growers to become breeders*
- *Enables any farmer or grower to use the best available, protected varieties for breeding work*
- *Offers an effective and transparent system that is easily accessible for small and medium-sized enterprises*
- *Enables farmers and growers to develop local, national and international businesses*
- *Empowers farmers and growers in the production chain*
- *… BUT we need to explain it better*

**Ms. Kitisri Sukhapinda**





*"For a farmer or grower wishing to breed new varieties, one of the most important features of the UPOV system is the "breeder's exemption", which means that they can use protected varieties as a starting point for their breeding work. UPOV has developed an internationally harmonized, transparent system that facilitates applications by breeders, whether they are individuals or large organizations."*

**Mr. Peter Button**

*"The Government has encouraged individual breeders as the future growth engine of the Republic of Korea seed industry. Rice varieties developed by individual breeders who have specialized breeding targets such as functional quality are widely cultivated and are very profitable for farmers."*

**Mr. Young-Hae Kim**

*"Farmers' selections, which gave rise to the diverse range of cultivated crops available today, are, first and foremost, based on "repeated propagation" through open pollination and/or mass selection at the same geographical location."*

**Mr. Guy Kastler**

*"In 1971, 19 young farmers started gentian cultivation. In 1986, a project led by the Flower Production Group of the Ashiro Town Agriculture Cooperative was started to breed new varieties of gentian (Rindo) flowers. New gentian varieties are now jointly bred by the growers and the Hachimantai municipal government. New varieties (protected by PBR) are supplied to the world market and the royalties collected from the sales are used for the further development of new varieties and for training growers to maintain competitiveness."*

**Mr. Yoshiteru Kudo**

*"The UPOV system of PVP is not just a system to favor international companies. You can cross your own old local varieties with the latest varieties developed by international companies to get the best locally adapted varieties."*

**Mr. Derk Gesink**

## CONTACT INFORMATION

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