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| International Union for the Protection of New Varieties of Plants |  |

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| Working Group on Biochemical and Molecular Techniques  and DNA-Profiling in Particular  Twentieth Session Alexandria, United States of America, September 22 to 24, 2021 | BMT/20/12  Original: English  Date: September 24, 2021 |

REPORT

adopted by the Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular

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## Opening of the session

The Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular (BMT) held its twentieth session, hosted by the United States of America and organized by electronic means, from September 22 to 24, 2021. The list of participants is reproduced in Annex I to this report.

The session was opened by Ms. Beate Rücker (Germany), Chairperson of the BMT, who welcomed the participants and thanked the United States of America for hosting the BMT session.

The BMT was welcomed by Mr. Jeffery Haynes, Commissioner, Plant Variety Protection Office, AMS, Science & Technology Program, United States Department of Agriculture (USDA) and received a video presentation on Plant Variety Protection in the United States of America.

## Adoption of the agenda

The BMT adopted the agenda as reproduced in document BMT/20/1 Rev.

## Reports on developments in UPOV concerning biochemical and molecular techniques

The BMT received a presentation from the Office of the Union on developments in UPOV concerning biochemical and molecular techniques, a copy of which is provided in document TWC/39/2-BMT/20/2.

## Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations

The BMT noted the intervention from France that a training course on the use of molecular techniques in support of DUS examination would be organized by GEVES in March 2022.

## Report of work on molecular techniques in relation to DUS examination

### Update on IMODDUS activities

The BMT received a presentation on “Update on IMODDUS activities” from Ms. Cécile Collonnier (European Union), a copy of which is reproduced in document BMT/20/7.

### Identifying levels of diversity and developing markers to assist in managing the DUS reference collection of field beans (Vicia faba)

The BMT received a presentation on “Identifying levels of diversity and developing markers to assist in managing the DUS reference collection of field beans (*Vicia faba*)” from Ms. Margaret Wallace (United Kingdom), a copy of which is reproduced in document BMT/20/8.

### Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape DUS testing

The BMT received a presentation on “Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape DUS testing” from Mr. Marc Delêtre (France), a copy of which is reproduced in document BMT/20/9.

## Review of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction” (“BMT Guidelines”) (documents BMT/20/3 and UPOV/INF/17/2 Draft 5)

The BMT considered documents BMT/20/3 and UPOV/INF/17/2 Draft 5.

The BMT agreed with the revision of document UPOV/INF/17/2 on the basis of document UPOV/INF/17/2 Draft 5 and the Annex to document BMT/20/3.

The BMT noted the comments provided by ISF in advance of the session in relation to possible improvements to document UPOV/INF/17 regarding certain technical matters. The BMT agreed to invite ISF to make a presentation on these matters at the first session of the TWM.

## Cooperation between international organizations (document BMT/20/4)

The BMT considered document BMT/20/4.

### Inventory on the use of molecular marker techniques, by crop

The BMT noted that the Office of the Union had issued a survey inviting members to report on the use of molecular marker techniques, by crop, as reproduced in the Annex to document BMT/20/4. The BMT noted that the results of the survey would be presented to the Technical Committee, at its fifty‑seventh session.

The BMT noted that the Technical Committee (TC), at its fifty‑seventh session, would be invited to request the Office of the Union to inform OECD of the result of the survey and report developments to the TC, at its fifty-eighth session.

### Lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques

The BMT noted that the TC, at its fifty-sixth session, had agreed that another joint OECD, UPOV, ISTA workshop on molecular techniques should be organized in the near future. The BMT noted that the TC had agreed that a joint OECD, UPOV, ISTA workshop on molecular techniques would be an opportunity to discuss the definitions used in molecular techniques with a view to their harmonization.

The BMT noted that a poll had been conducted during its twentieth session to assess the following information from participants:

* What are the areas of common interest between UPOV, OECD and ISTA on the use of BMT?
* What would be suitable topics for a joint UPOV/OECD/ISTA workshop on BMT?

The BMT considered the responses to the poll, as reproduced in Annex II to this document, and agreed to propose the following possible topics for a future joint UPOV/OECD/ISTA workshop:

* providing information on the use of molecular techniques in each organization;
* procedure for approval of biochemical and molecular methods in each organization; and
* possibilities for harmonizing methods between UPOV, OECD and ISTA.

### Joint document explaining the principal features of the systems of OECD, UPOV and ISTA

The BMT noted that a draft joint document explaining the principal features of the systems of OECD, UPOV and ISTA would be presented for consideration by the TC at its fifty-seventh session, as reproduced in document BMT/20/4.

The BMT noted that, subject to approval by the TC of the draft joint document, the TC would be invited to request the Office of the Union to inform OECD and ISTA accordingly.

### International Seed Testing Association

The BMT received a presentation from Ms. Ana Laura Vicario (International Seed Testing Association (ISTA)) on “ISTA report on biochemical and molecular techniques”, a copy of which is reproduced in document BMT/20/11.

The BMT agreed that it was useful to learn about the progress in ISTA validation methods, as reported in the presentation.

*Organisation for Economic Co-operation and Development*

The BMT received a presentation from Mr. Csaba Gaspar (Organisation for Economic Co-operation and Development (OECD)) on “Current status of BMT under the OECD seed Schemes”, a copy of which is reproduced in document BMT/20/10.

The BMT noted the expression of interest by OECD to continue collaborating with UPOV on matters relating to the use of molecular markers in the organizations and agreed that the joint initiatives should be continued.

## Confidentiality, ownership and access to molecular data, including model agreement template

### Confidentiality, ownership and access to molecular data, including model agreement template (document BMT/20/5)

The BMT received a presentation on “Confidentiality, ownership and access to molecular data, including model agreement template” from the representative of CropLife International on behalf of the African Seed Trade Association (AFSTA), the Asia and Pacific Seed Association (APSA), the International Community of Breeders of Asexually Reproduced Horticultural Plants (CIOPORA), CropLife International, Euroseeds, the International Seed Federation (ISF) and the Seed Association of the Americas (SAA). A copy of the presentation is reproduced in document BMT/20/5.

The BMT noted that discussions on confidentiality, ownership and access to molecular data had been held at the Technical Working Parties, at their sessions in 2021. The BMT noted that the TWPs had invited further discussions on this topic for their next sessions.

The BMT agreed to invite presentations on current practices on confidentiality and access to molecular data to be made at the first session of the TWM. The BMT agreed that current practices in UPOV members and observers could provide a suitable basis for further discussions on the topic.

## Session to facilitate cooperation

The BMT considered document BMT/20/6.

The BMT recalled the information provided by participants at the nineteenth session of the BMT on their work on biochemical and molecular techniques and areas for cooperation, as reproduced in the Annex to document BMT/20/6.

The BMT noted the information on the discussion groups that had been formed at the Technical Working Parties, at their sessions in 2021, to allow participants to exchange information on their work on biochemical and molecular techniques and explore areas for cooperation.

On Friday, September 24, 2021, the BMT held a discussion session to allow participants to exchange information on their work on biochemical and molecular techniques and explore possible areas for cooperation.

The BMT considered whether UPOV could support harmonization and cooperation between members already using molecular markers in DUS examination or making information or BMT services available to other UPOV members.

The BMT agreed that information on the use of molecular markers by crop was important to promote cooperation between UPOV members and agreed to propose that the survey on the use of molecular markers was continued to obtain information from a greater number of UPOV members.

The BMT agreed that it would be useful to confirm the reasons for not responding to the first survey.

The BMT agreed that the possibility to form discussion groups during the sessions should be maintained.

## Variety description databases including databases containing molecular data

No documents were received for this agenda item.

## Methods for analysis of molecular data, management of databases and exchange of data and material

No documents were received for this agenda item.

## The use of molecular techniques in examining essential derivation

No documents were received for this agenda item.

## The use of molecular techniques in variety identification

No documents were received for this agenda item.

## Date and place of next session

The BMT noted that no invitations for the venue of the first session of Technical Working Party on Testing Methods and Techniques (TWM) had been received. The BMT noted that a decision on the date and place of the first session of TWM would be taken by the Council, at its fifty-fifth session, to be held on October 29, 2021.

The BMT noted that UPOV members could contact the Office of the Union with offers of date and place to host the session of TWM in 2022. If an offer was received sufficiently before the fifty-fifth session of the Council, the offer could be considered by the Council at its fifty-fifth session.

The BMT considered the proposal by the TWC and agreed to hold the first session of TWM via electronic means from September 19 to 23, 2022, if no alternative offer was received from a member of the Union.

## Future program

The BMT agreed that documents for the first session of TWM should be submitted to the Office of the Union by July 21, 2022. The BMT noted that items would be deleted from the agenda if the planned documents did not reach the Office of the Union by the agreed deadline.

The BMT proposed to discuss the following items at the first session of TWM:

1. Opening of the session

2. Adoption of the agenda

3. Reports on developments in UPOV concerning biochemical and molecular techniques (document to be prepared by the Office of the Union)

4. Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations (reports by participants)

5. Report of work on molecular techniques in relation to DUS examination (document prepared by breeders’ organization and papers invited)

6. Variety description databases including databases containing molecular data (papers invited)

7. Methods for analysis of molecular data, management of databases and exchange of data and material (document prepared by breeders’ organization and papers invited)

8. The use of molecular techniques in examining essential derivation[[1]](#footnote-2) (papers invited)

9. The use of molecular techniques in variety identification1 (papers invited)

10. The use of molecular techniques for enforcement1 (papers invited)

11. Cooperation between international organizations (document to be prepared by the Office of the Union and papers invited)

12. Confidentiality, ownership and access to molecular data, including model agreement template1 (papers invited)

13. Session to facilitate cooperation (possible break-out sessions)

14. Date and place of next session

15. Future program

16. Report of the session (if time permits)

17. Closing of the session

*The BMT adopted this report at the end of the Session.*

[Annex I follows]

ANNEX I

LIST OF PARTICIPANTS

I. mEMBERS

Argentina

Ana Laura VICARIO (Sra.), Jefa del Laboratorio de Marcadores Moleculares y Fitopatología, Dirección de Calidad, Instituto Nacional de Semillas (INASE), Secretaría de Agricultura, Ganadería, Pesca y Alimentación, Buenos Aires  
(e-mail: [alvicario@inase.gob.ar](mailto:alvicario@inase.gob.ar))

Alberto BALLESTEROS (Mr.), Examinador de variedades, Dirección de Registro de Variedades, Instituto Nacional de Semillas (INASE), Secretaría de Agricultura, Ganadería, Pesca y Alimentación, Buenos Aires  
(e-mail: aballesteros@inase.gob.ar)

AUSTRALIA

Edwina VANDINE (Ms.), Chief of Plant Breeders' Rights, Plant Breeder's Rights Office, IP Australia, Woden  
(e-mail: edwina.vandine@ipaustralia.gov.au)

Barkat MUSTAFA (Mr.), PBR Examiner, Plant Breeder's Rights Office, IP Australia, Woden   
(e-mail: Barkat.Mustafa@ipaustralia.gov.au)

BOSNIA AND HERZEGOVINA

Mirjana BRZICA (Ms.), Head, Department of seeds, seedling and protection of new varieties of plants, Administration of Bosnia and Herzegovina for Plant Health Protection, Ministry of Foreign Trade and Economic Relations, Sarajevo   
(e-mail: mirjana.brzica@uzzb.gov.ba)

Brazil

Ricardo ZANATTA MACHADO (Mr.), Federal Agricultural Inspector, Coordinator, Serviço Nacional de Proteção de Cultivares (SNPC), Ministry of Agriculture, Livestock and Food Supply, Brasilia   
(e-mail: ricardo.machado@agricultura.gov.br)

CANADA

Marie-Claude GAGNON (Ms.), Head, Genotyping/Botany Laboratory, Canadian Food Inspection Agency (CFIA), Ottawa  
(e-mail: marie-claude.gagnon@inspection.gc.ca)

Lisa LEDUC (Ms.), Examiner, Plant Breeders' Rights Office, Canadian Food Inspection Agency (CFIA), Ottawa   
(e-mail: lisa.leduc@inspection.gc.ca)

CHINA

Yongqi ZHENG (Mr.), Research Professor, Laboratory of Molecular Identification of Plant Varieties, Office of Protection of New Varieties of Plants, National Forestry and Grassland Administration of China (NFGA), Beijing   
(e-mail: zyq8565@126.com)

Ruixi HAN (Mr.), Deputy Director, Division of DUS Tests, Development Center of Science and Technology (DCST), Ministry of Agriculture and Rural Affairs (MARA), Beijing   
(e-mail: wudifeixue007@163.com)

Kun YANG (Mr.), .), Deputy Director, Associate Researcher, Beijing Sub-Center of New Plant Variety Tests (MARA) affiliated to Institute of Vegetables and Flowers under Chinese Academy of Agricultural Sciences, Beijing   
(e-mail: yangkun@caas.cn)

Jun REN (Ms.), Leader of DNA Section, Research Assistant, Beijing Sub-Center of New Plant Variety Tests (MARA) affiliated to Institute of Vegetables and Flowers under Chinese Academy of Agricultural Sciences, Beijing   
(e-mail: renjun@caas.cn)

Yanfang LIU (Ms.), Professor, Kunming Test Station of New Varieties of Plants, Kunming   
(e-mail: liuyf528@163.com)

Yunxia CHU (Ms.), Researcher, Shanghai Sub-center for New Plant Variety Tests, Ministry of Agriculture and Rural Affairs (MARA), Shanghai   
(e-mail: chuyx@189.cn)

Yilei HOU (Ms.), Lecturer/Researcher of Beijing Forestry University, National Forestry and Grassland Administration of China (NFGA), Beijing   
(e-mail: houyilei427@163.com) [via WebEx]

Dongmei LI (Mr.), Reasearcher Associate, Institute of Crop Breeding, Heilongjang Academy of Agricultural Sciences, Harbin Sub-Center for New Plant VarietyTests, Harbin   
(e-mail: interli02@163.com)

Zhenjiang XU (Mr.), Senior examiner and Associate Professor, Guangzhou Sub-center for New Plant Variety, Guangdong   
(e-mail: zhenjiangxu521@scau.edu.cn)

Mengqiang CHEN (Mr.), DUS Examiner, Guangzhou Sub-center for New Plant Variety Tests, Guangzhou   
(e-mail: 353300205@qq.com)

Yuan JIANG (Mr.), DUS Examiner, Guangzhou Sub-center for New Plant Variety Tests, Guangzhou   
(e-mail: 63440900@qq.com)

Xiansheng WANG (Mr.), DUS Tester, Institute of Germplasm Resources and Biotechnology, Jiangsu Academy of Agricultural Sciences, Nanjing   
(e-mail: wangxiansheng80@126.com)

Aixia JIAO (Ms.), Research Assistant, Guiyang Sub-center for New Plant Variety Tests, Guiyang   
(e-mail: jax81@126.com)

Qun XU (Ms.), Research Assistant, China National Rice Research Institute, Hangzhou   
(e-mail: xuqun@caas.cn)

Yu ZHANG (Mr.), Assistant Researcher, Shanghai Sub-center for New Plant Variety Tests, Shanghai   
(e-mail: xinongxiaoyu@163.com)

Yiying ZHANG (Ms.), Research Assistant, Shanghai Sub-Center for Plant New Variety Tests, Shanghai   
(e-mail: zyy425zoey@163.com)

Yongsheng ZHENG (Mr.), Research Assistant, Jinan Sub-center for DUS Tests of New Varieties of Plants, Ministry of Agriculture and Rural Affairs (MARA), Jinan   
(e-mail: zhengyongsheng123@163.com)

Czech Republic

Katerina STANKOVA (Ms.), Molecular Genetics Diagnostician, Central Institute for Supervising and Testing in Agriculture, Brno   
(e-mail: katerina.stankova@tiscali.cz)

Pavel KRCMAR (Mr.), Molecular Genetics Diagnostician, Central Institute for Supervising and Testing in Agriculture, Brno   
(e-mail: Pavel.Krcmar@ukzuz.cz)

Jitka KLEMPOVA (Ms.), Molecular Diagnostics Analyst, Central Institute for supervising and testing in agriculture (ÚKZÚZ), Brno  
(e-mail: jitka.klempova@ukzuz.cz)

DENMARK

Gerhard DENEKEN (Mr.), Director, Tystofte Foundation, Skaelskoer   
(e-mail: gde@tystofte.dk)

DOMINICAN REPUBLIC

Ramon Danilo VERAS JOSÉ (Mr.), Technical coordinator, Oficina para el registro de variedades y obtenciones vegetales (OREVADO), Santo Domingo   
(e-mail: rdverasj@gmail.com)

EGYPT

Zoheir ABOSHOSHA (Ms.), Agronomist, Plant Variety Protection Office (PVPO), Central Administration for Seed Testing and Certification (CASC), Giza   
(e-mail: sh\_z9@hotmail.com)

Mostafa ABU ALKAIR MOHAMED (Mr.), Agricultural Engineer, Plant Variety Protection Office (PVPO), Central Administration for Seed Testing and Certification (CASC), Giza   
(e-mail: pvp\_office@yahoo.com)

ESTONIA

Laima PUUR (Ms.), Counsellor, Organic Farming and Seed Department, Estonian Agricultural and Food Board, Viljandi   
(e-mail: laima.puur@pta.agri.ee)

EUROPEAN UNION

Stefan HAFFKE (Mr.), Policy Officer, Directorate General for Health and Food Safety (DG SANTE), Bruxelles   
(e-mail: stefan.haffke@ec.europa.eu)

Cécile COLLONNIER (Ms.), Technical Expert, Community Plant Variety Office (CPVO), Angers   
(e-mail: collonnier@cpvo.europa.eu)

Bronislava BÁTOROVÁ (Ms.), Technical expert, Seed sector, Community Plant Variety Office (CPVO), Angers   
(e-mail: batorova@cpvo.europa.eu)

Finland

Sami MARKKANEN (Mr.), Senior Officer, Food Chain Division, Plant Production Department, Seed unit, Finnish Food Authority, Loimaa   
(e-mail: sami.markkanen@ruokavirasto.fi)

Kaarina PAAVILAINEN (Ms.), Senior Officer, Seed Unit, Finnish Food Authority, Loimaa   
(e-mail: kaarina.paavilainen@ruokavirasto.fi)

FRANCE

René MATHIS (Mr.), BioGEVES laboratory Director, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Beaucouzé   
(e-mail: rene.mathis@geves.fr)

Arnaud REMAY (Mr.), Head, Genotyping unit, BioGEVES, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Guyancourt   
(e-mail: arnaud.remay@geves.fr)

Frédéric LAFAILLETTE (Mr.), Head of DUS Fodder plant and Turf grasses, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Erdre-en-Anjou   
(e-mail: frederic.lafaillette@geves.fr)

Clarisse LECLAIR (Ms.), Head of DUS Testing, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Beaucouzé   
(e-mail: clarisse.leclair@geves.fr)

Anne BERNOLE (Ms.), Technical Manager Molecular Biology, BioGEVES, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Surgères   
(e-mail: anne.bernole@geves.fr)

Marc DELÊTRE (Mr.), Research Engineer, BioGEVES, Pôle Génotypage / Bioanalyses, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Beaucouzé   
(e-mail: marc.deletre@geves.fr)

Christelle LAVAUD (Ms.), Software developper, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Surgères   
(e-mail: christelle.lavaud@geves.fr)

Muriel THOMASSET (Ms.), Genotyping Bioanalyst, BioGEVES, Groupe d'étude et de contrôle des variétés et des semences (GEVES), Surgères   
(e-mail: muriel.thomasset@geves.fr)

GERMANY

Beate RÜCKER (Ms.), Head of Division, Bundessortenamt, Hanover   
(e-mail: beate.ruecker@bundessortenamt.de)

Swenja TAMS (Ms.), Head of Section General affairs of DUS testing, Bundessortenamt, Hanover   
(e-mail: Swenja.Tams@bundessortenamt.de)

Frauke LÜDDEKE (Ms.), Head of Biochemical, Biophysical and Molecular Variety testing, Bundessortenamt, Hanover   
(e-mail: frauke.lueddeke@bundessortenamt.de)

HUNGARY

Márton PÉCS (Mr.), Agricultural IT Expert, Directorate of Plant Production and Horticulture, National Food Chain Safety Office (NÉBIH), Budapest   
(e-mail: pecsm@nebih.gov.hu)

ITALY

Chiara DELOGU (Ms.), Senior Researcher, CREA-DC Seed testing Station, Tavazzano   
(e-mail: [chiara.delogu@crea.gov.it](mailto:chiara.delogu@crea.gov.it))

JAPAN

Koji NAKANISHI (Mr.), Senior Staff, DUS Test Management Section, Center for Seeds and Seedlings NARO (NCSS), Tsukuba   
(e-mail: konaka@affrc.go.jp)

Satoshi OKAMOTO (Mr.), Deputy Adviser, Plant Variety Protection Section, Center for Seeds ans Seedlings (NCSS), Tsukuba   
(e-mail: okamotos275@affrc.go.jp)

Toshiki YAMAMOTO, Deputy Adviser, Plant Variety Protection Section, Center for Seeds and Seedlings (NCSS), Tsukuba   
(e-mail: yamamotot562@affrc.go.jp)

Takeshi SUGISAWA (Mr.), Senior Examiner, Plant Variety Protection Office, Intellectual Property Division, Export and International Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries (MAFF), Tokyo   
(e-mail: takeshi\_sugisawa820@maff.go.jp)

Yoshiyuki OHNO (Mr.), Examiner, Intellectual Property Division , Export and International Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries (MAFF), Tokyo   
(e-mail: yoshiyuki\_ono300@maff.go.jp)

NETHERLANDS

Bert SCHOLTE (Mr.), Head Department Variety Testing, Naktuinbouw NL, Roelofarendsveen   
(e-mail: b.scholte@naktuinbouw.nl)

Amanda VAN DIJK-VELDHUIZEN (Ms.), Manager DUS, Naktuinbouw Rassenonderzoek (Variety Testing), Roelofarendsveen   
(e-mail: a.v.dijk@naktuinbouw.nl)

Hedwich TEUNISSEN (Ms.), Molecular Biologist - Senior scientist, Naktuinbouw, Roelofarendsveen   
(e-mail: h.teunissen@naktuinbouw.nl)

Juan Antonio VIVES-VALLÉS (Mr.), Visiting Professor, Naktuinbouw, Roelofarendsveen  
(e-mail: j.valles@naktuinbouw.nl)

NEW ZEALAND

Cecilia REQUEJO-JACKMAN (Ms.), Senior Plant Variety Rights Examiner, Plant Variety Rights Office, Intellectual Property Office of New Zealand, Intellectual Property Office of New Zealand, Plant Variety Rights, Ministry of Economic Development, Wellington   
(e-mail: Cecilia.R-Jackman@pvr.govt.nz)

Jacqueline BROADHEAD (Ms.), PVR Examiner, Plant Variety Rights Office, Intellectual Property Office of New Zealand, Plant Variety Rights, Ministry of Economic Development, Christchurch   
(e-mail: jacquie.broadhead@pvr.govt.nz)

Scott GREGAN (Mr.), PVR Examiner, Plant Variety Rights Office, Intellectual Property Office of New Zealand, Plant Variety Rights, Ministry of Economic Development, Christchurch   
(e-mail: scott.gregan@pvr.govt.nz)

NORWAY

Knut G. BERDAL (Mr.), Senior science and technology adviser, Minitry of Agriculture and Food, Oslo   
(e-mail: knut.berdal@lmd.dep.no)

Peru

Roger Alberto BECERRA GALLARDO (Sr.), Coordinador de los Componentes de Protección de Obtentores Vegetales y Acceso a Recursos Genéticos, Sub Dirección de Gestión de la Innovación Agraria, Dirección de Gestión de Innovación Agraria (INIA), Lima   
(e-mail: rbecerra@inia.gob.pe)

Pablo Cesar TRELLES DELLISANTI (Mr.), Executive, Commission of Inventions and New Technologies, Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI), Lima   
(e-mail: ptrelles@indecopi.gob.pe)

POLAND

Beata SZAL (Ms.), Laboratory Manager, Experimental Station for Variety Testing, Research Center for Cultivat testing (COBORU), Slupia Wielka   
(e-mail: b.szal@slupiawielka.coboru.gov.pl)

REPUBLIC OF KOREA

Won-Bum CHO (Mr.), Researcher, Plant Variety Protection, National Forest Seed Variety Center (NFSV), Chungju   
(e-mail: rudis99@korea.kr)

Ki Yoon KIM, Researcher (Mr.), National Forest Seed Variety Center (NFSV), Korea Forest Service   
(e-mail: kky0607@korea.kr)

REPUBLIC OF MOLDOVA

Evghenia PARTAS (Ms.), Head of DUS Testing Department, State Commission for Crops Variety Testing of the Republic of Moldova, Chisinau   
(e-mail: e.partas@cstsp.md)

Russian Federation

Ilya SHILOV (Mr.), Deputy Director, Center of Quality Control of Crops, State Commission of the Russian Federation for Selection Achievements Test and Protection, Moscow   
(e-mail: vcoksf@mail.ru)

Ekaterina BOYKO (Ms.), Deputy Head, Department for Methodology and International Cooperation, State Commission of the Russian Federation for Selection Achievements Test and Protection, Moscow   
(e-mail: metod@gossortrf.ru)

Pavel POPADIN (Mr.), Head, Molecular Biology Department, Center for Quality Assessment of Agricultural Crops Varieties, State Commission of the Russian Federation for Selection Achievements Test and Protection, Moscow  
(e-mail: gossort.rf@yandex.ru)

Slovakia

Miroslava FEKETOVA (Ms.), National Coordinator for the Cooperation of the Slovak Republic with UPOV, Senior Officer, Department of Molecular Biology NRL, Central Control and Testing Institute in Agriculture (ÚKSÚP), Bratislava   
(e-mail: miroslava.feketova@uksup.sk)

Spain

Nuria URQUÍA FERNÁNDEZ (Sra.), Jefe de Área de Registro de Variedades, Subdirección General de Medios de Producción Agrícola y Oficina Española de Variedades Vegetales (OEVV), Dirección General de Producciones y Mercados Agrarios, Ministerio de Agricultura, Pesca y Alimentación, (MAPA), Madrid   
(e-mail: nurquia@mapa.es)

Ana Patricia FERNÁNDEZ-GETINO GARCÍA (Ms.), Head, Seeds and Nursery Plants Test Station, Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA), Madrid   
(e-mail: fgetino@inia.es)

Ukraine

Larysa PRYSIAZHNIUK (Ms.), Head, Laboratory Molecular Genetic Analysis, Ukrainian Institute for Plant Variety Examination, Kyiv   
(e-mail: prysiazhniuk\_l@ukr.net)

UNITED KINGDOM

Adrian ROBERTS (Mr.), Head of Operations, Biomathematics & Statistics Scotland (BioSS), Edinburgh   
(e-mail: a.roberts@bioss.ac.uk)

Alexander REID (Mr.), Senior Molecular Biologist, Head of Genotyping, Science and Advice for Scottish Agriculture (SASA), Edinburgh  
(e-mail: alex.reid@sasa.gov.scot)

Haidee PHILPOTT (Ms.), Senior Statistician, National Institute of Agricultural Botany (NIAB), Cambridge   
(e-mail: haidee.philpott@niab.com)

Margaret WALLACE (Ms.), Senior Technical Manager, (Agricultural Crop Characterisation), National Institute of Agricultural Botany (NIAB), Cambridge   
(e-mail: margaret.wallace@niab.com)

Alex TALIBUDEEN (Mr.), DUS Technical Manager, Agricultural Crops Characterisation, National Institute Of Agricultural Botany (NIAB), Cambridge   
(e-mail: alex.talibudeen@niab.com)

Vanessa MCMILLAN (Ms.), Technical Manager, National Institute Of Agricultural Botany (NIAB), Cambridge   
(e-mail: vanessa.mcmillan@niab.com)

UNITED STATES OF AMERICA

Ruihong GUO (Ms.), Deputy Administrator, AMS, Science & Technology Program, United States Department of Agriculture (USDA), Washington D.C.  
(e-mail: ruihong.guo@usda.gov)

Jeffery HAYNES (Mr.), Commissioner, Plant Variety Protection Office, AMS, Science and Technology Program, United States Department of Agriculture (USDA), Washington D.C.   
(e-mail: Jeffery.Haynes@usda.gov)

Mara SANDERS (Ms.), Plant Variety Examiner, Plant Variety Protection Office, USDA, Washington D.C.  
(e-mail: mara.sanders@usda.gov)

David CHALKLEY (Mr.), Plant Variety Examiner, Plant Variety Protection Office, USDA, Washington D.C.   
(e-mail: david.chalkley@usda.gov)

James MANTOOTH (Mr.), Plant Variety Examiner, Plant Variety Protection Office, USDA, Washington D.C.   
(e-mail: james.mantooth@usda.gov)

Uruguay

Mariana MENONI (Ms.), Head of Molecular and Plant Health Laboratory, Seed Quality Laboratory, Instituto Nacional de Semillas (INASE), Canelones   
(e-mail: mmenoni@inase.uy)

Vanessa SOSA (Ms.), Seed Quality Laboratory Manager, Instituto Nacional de Semillas (INASE), Canelones   
(e-mail: vsosa@inase.uy)

II. Observers

GREECE

Alexandra CHATZIGEORGIOU (Ms.), Head, Variety Research Department of Cultivated Plants, Directorate of Propagating Material of Cultivated Plant Species and Plant Genetic Resources, Hellenic Ministry of Rural Development and Food, Sindos - Thessaloniki   
(e-mail: varinst@otenet.gr)

Thailand

Pan PANKHAO (Mr.), Director, Plant Variety Protection Research Group, Plant Variety Protection Office, Ministry of Agriculture and Cooperatives, Bangkok   
(e-mail: ppk1969@hotmail.com)

Paniphat KRITSMAK (Mr.), Agricultural Research Officer, Plant Varieties Protection Office, Ministry of Agriculture and Cooperatives, Bangkok   
(e-mail: paniphatk@yahoo.com)

Orporn PHUEAKKHLAI (Ms.), Agricultural Research Officer, Plant Variety Protection Office, Ministry of Agriculture and Cooperatives, Bangkok   
(e-mail: orpornpk@gmail.com)

Auttaporn SITWIPUSIRI (Mr.), Agricultural Research Scientist, Plant Variety Protection Research Group, Plant Variety Protection Office, Ministry of Agriculture and Cooperatives, Bangkok   
(e-mail: dragonbotany@gmail.com)

ZIMBABWE

Tambudzai MUCHOKOMORI (Ms.), Principal Seed Technologist, Plant Breeders' Rights Officer, Seed Services Institute, Ministry of Lands, Agriculture, Water, Climate and Rural Resettlement, Harare   
(e-mail: muchokomorit@gmail.com)

III. organizations

SEED ASSOCIATION OF THE AMERICAS (SAA)

Diego A. RISSO (Mr.), Director Ejecutivo, Seed Association of the Americas (SAA), Montevideo, Uruguay   
(e-mail: drisso@saaseed.org)

Alfredo PASEYRO (Sr.), Director Ejecutivo, ASA Asociación Semilleros Argentinos, Caba, Argentina  
(e-mail: alfredo.paseyro@asa.org.ar)

Carlos AZAMBUJA (Mr.), Director, GENIA - Laboratory of molecular biology, Zonamerica, Montevideo, Uruguay  
(e-mail: azambuja@genia.com.uy)

Marymar BUTRUILLE (Ms.), Germplasm IP Scientist Lead, Bayer Crop Science, Ankeny, United States of America   
(e-mail: marymar.butruille@bayer.com)

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD)

Csaba GASPAR (Mr.), Programme Manager, OECD Seed Schemes & OECD Forest Seed and Plant Scheme, Organisation for Economic Co-operation and Development (OECD), Paris, France   
(e-mail: csaba.gaspar@oecd.org)

CROPLIFE INTERNATIONAL

Marcel BRUINS (Mr.), Consultant, CropLife International, Bruxelles, Belgium   
(e-mail: marcel@bruinsseedconsultancy.com)

INTERNATIONAL COMMUNITY OF BREEDERS OF ASEXUALLY REPRODUCED HORTICULTURAL PLANTS (CIOPORA)

Jan DE RIEK (Mr.), Molecular Genetics & Breeding - Group Leader, Plant sciences unit, ILVO-Plant, Flanders research institute for agriculture, fisheries and food, Melle, Belgium   
(e-mail: jan.deriek@ilvo.vlaanderen.be)

INTERNATIONAL SEED FEDERATION (ISF)

Hélène KHAN NIAZI (Ms.), International Agriculture Manager, International Seed Federation (ISF), Nyon, Switzerland   
(e-mail: h.khanniazi@worldseed.org)

Szabolcs RUTHNER (Mr.), Regulatory Affairs Manager, International Seed Federation (ISF), Nyon, Switzerland   
(e-mail: s.ruthner@worldseed.org)

Barry K. NELSON (Mr.), Research Scientist, Pioneer Hi-Bred International Inc., Johnston, United States of America   
(e-mail: barry.nelson@corteva.com

Paul T. NELSON (Mr.), Corn Product Design Lead, Bayer Crop Science, Chesterfield, United States of America   
(e-mail: paul.nelson@bayer.com)

Nathalie RIVIÈRE (Ms.), Head of Genotyping Laboratory, Limagrain, Chappes, France   
(e-mail: nathalie.riviere@limagrain.com)

Astrid M. SCHENKEVELD (Ms.), Specialist, Plant Breeder's Rights & Variety Registration | Legal, Rijk Zwaan Zaadteelt en Zaadhandel B.V., De Lier, Netherlands   
(e-mail: a.schenkeveld@rijkzwaan.nl)

Sietske WOUDA (Ms.), Global Market Access Lead, Syngenta Crop Protection AG, Basel, Switzerland   
(e-mail: sietske.wouda@syngenta.com)

Jan KNOL (Mr.), Plant Variety Protection Officer, Crop Science Division, BASF Vegetable Seeds, Nunhems Netherlands B.V., Nunhem, Netherlands   
(e-mail: jan.knol@vegetableseeds.basf.com)

Emerson LIMBERGER (Mr.), Research Scientist, Corteva Agriscence, Aussonne, France   
(e-mail: emerson.limberger@corteva.com)

Frank MICHIELS (Mr.), Global PVP Manager, BASF Belgium coordination center, Gent, Belgium   
(e-mail: frank.michiels@basf.com)

Maria José VILLALÓN-ROBLES (Ms.), EMEA Vegetable Seeds PVP Lead, Bayer - Crop Science, Bergschenhoek, Netherlands   
(e-mail: mariajose.villalonrobles@bayer.com)

INTERNATIONAL SEED TESTING ASSOCIATION (ISTA)

Ana Laura VICARIO (Sra.), Jefa del Laboratorio de Marcadores Moleculares y Fitopatología, Dirección de Calidad, Instituto Nacional de Semillas (INASE), Ministerio de Agricultura, Ganadería y Pesca, Buenos Aires, Argentina   
(e-mail: alvicario@inase.gov.ar)

EUROSEEDS

Szonja CSÖRGÖ (Ms.), Director, Intellectual Property & Legal Affairs, Euroseeds, Bruxelles, Belgium   
(e-mail: szonjacsorgo@euroseeds.eu)

Petra JORASCH (Ms.), Manager Plant Breeding and Innovation Advocacy, Euroseeds, Bruxelles, Belgium   
(e-mail: petrajorasch@euroseeds.eu)

V. Officer

Beate RÜCKER (Ms.), Head of Division, Bundessortenamt, Hanover   
(e-mail: beate.ruecker@bundessortenamt.de)

VI. OFFICE OF UPOV

Peter BUTTON (Mr.), Vice Secretary-General

Yolanda HUERTA (Ms.), Legal Counsel and Director of Training and Assistance

Ben RIVOIRE (Mr.), Head of Seed Sector Cooperation and Regional Development (Africa, Arab Countries)

Leontino TAVEIRA (Mr.), Head of Technical Affairs and Regional Development (Latin America, Caribbean)

Manabu SUZUKI (Mr.), Technical/Regional Officer (Asia)

Jessica MAY (Ms.), Secretary I

Kasumi FALQUET (Ms.), Administrative support

[Annex II follows]

SURVEY ON BMT FOR COOPERATOIN WITH OECD AND ISTA

1. **What are the areas of common interest between UPOV, OECD and ISTA on the use of BMT?**

* Seed purity/uniformity
* Harmonization of SNP marker sets in specific crops for identification purposes
* variety verification tools
* Identifying off-types/impurities. Identifying and describing a variety.
* Harmonization of molecular markers.
* To have sets of validated markers to be used for the purpose of each organization. Discuss how to work together to take advantage of each organization potential.
* guidance on how to validate an alternative method against a reference method ; variety identity
* standards for Uniformity, variation thresholds, use of MM to support uniformity (lessen impact of environmental influence or variable expertise/training for data collectors)
* Variety identity
* new variety of plants
* Agreement, harmonization of definitions. Knowledge sharing and creating common database of used methods for various purposes in the member countries
* The use DNA markers for DUS of grain and oil crops
* Use of validated methods for the identification of varieties
* variety identification
* There might be an interest for UPOV and OECD to apply comparable marker sets for identity issues.
* The effectiveness of the use of DNA technology is in identifying the variety
* Variety verification, Description, and also PBR
* Cooperation, information sharing
* technology
* list of agreed markers and procedures to identify a variety
* DNA variety identification
* Enforcing PVP in connection with seed certification, developing identification methods for protected varieties.
* variety identification
* recognition of methods; joint research effort

**2.     What would be suitable topics for a joint UPOV/OECD/ISTA workshop on BMT?**

* The use of Markers for variety identification
* how to harmonize methods and test for consistency
* Applied methods, current hot topics and future work.
* Study on relationship between molecular markers and DUS characteristics.
* Validation scheme of ISTA, UPOV use of molecular markers, OECD use of molecular markers. Discussion on which are the best molecular markers for different crops and uses.
* new technologies and potential uses
* Standards for Uniformity determination, variation thresholds
* identity - distinctness - methods
* the rules regarding seed propagation and processing are prescribed by the OECD
* Limitations and potentials of using molecular markers for seed testing, varietal certification and PVP purposes. Common areas of concerns and ways for further developments
* Type of DNA markers for different crops
* Comparison between systems and activities involving BMT, possible areas of harmonization, ways of developing cooperation and exchange of information
* clarify the positions of the various associations regarding the use of molecular markers, evaluate available methodologies, make practical examples of their use by seed certification and examination office. How to harmonize these methodologies among offices to obtain comparable results?
* Common markers database per specie / validation and recognition of current techniques and protocols / Thresholds / private sector initiatives already in place with markers
* development
* harmonization of suitable markers and procedures for the DNA profile of varieties so that the profiles could be exchanged or compiled in databases of common use
* Scenes where DNA variety identification is required
* variety identification
* respective strategy on the use of BMT; organization of BMT expertise; method validate

[End of Annex II and of document]

1. Breeders’ Day [↑](#footnote-ref-2)