

Technical Working Party on Automation and Computer Programs **TWC/35/2****Thirty-Fifth Session**
Buenos Aires, Argentina, November 14 to 17, 2017**Original:** English
Date: November 15, 2017

REPORT ON DEVELOPMENTS WITHIN UPOV*prepared by the Office of the Union**Disclaimer: this document does not represent UPOV policies or guidance*

The Annex to this document contains a copy of the presentation to the “Report on Developments within UPOV” to be made by the Office of the Union at the thirty-fifth session of the Technical Working Party on Automation and Computer Programs (TWC).

[Annex follows]

Technical Working Party on Automation and Computer Programs
(BMT)
Thirty Fifth Session

Report on developments in UPOV

Buenos Aires, November 14, 2017

UPOV

International Union for the Protection of New Varieties of Plants

Preview

Developments in UPOV:

- General
 - membership & statistics
 - people & publications
 - PBR application tool (EAF)
 - impact of UPOV membership
 - UN SDGs & plant genetic resources
- Biochemical and molecular techniques

UPOV

MEMBERSHIP OF UPOV

75 members

New member

Bosnia and Herzegovina October 10, 2017*

* Bosnia and Herzegovina will become bound to the 1991 Act on November 10, 2017.

3

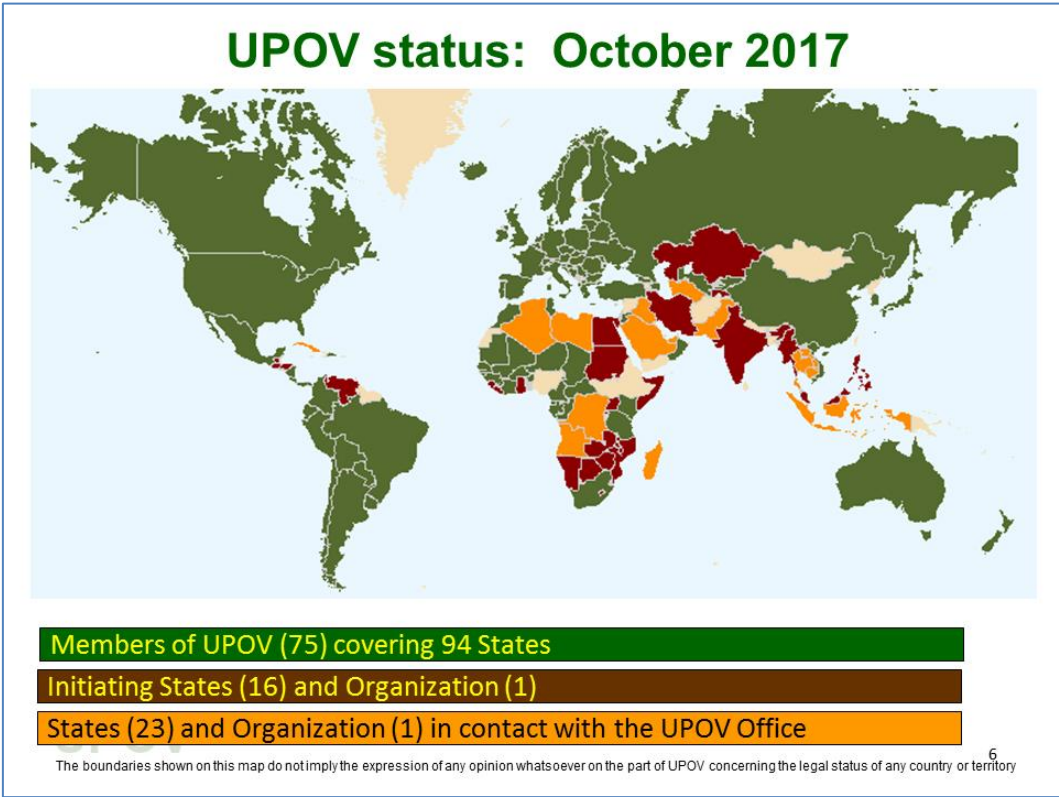
SITUATION in UPOV

Examination of Laws

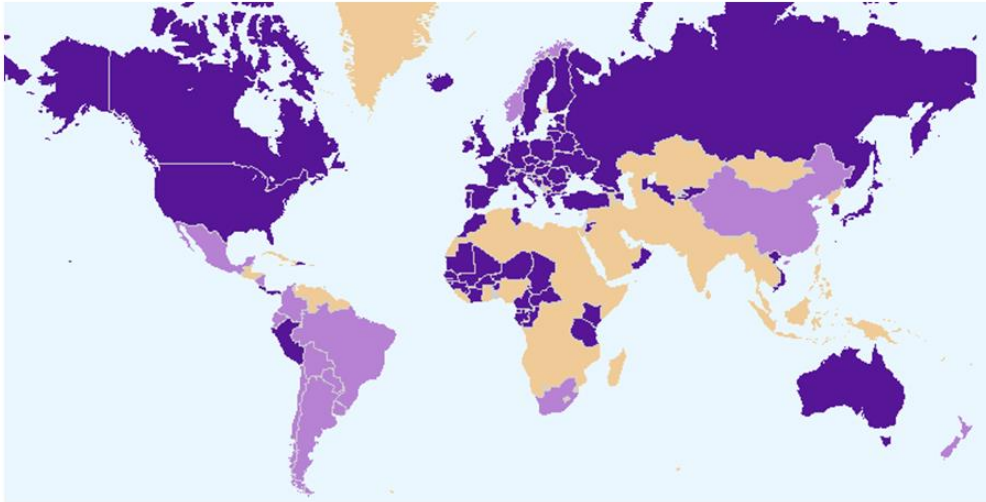
	<u>Council session</u>	<u>Advice</u>
Brunei Darussalam	October 26, 2017	Positive
Guatemala	October 26, 2017	Positive
Myanmar	October 26, 2017	Positive

UPOV

4



UPOV Membership

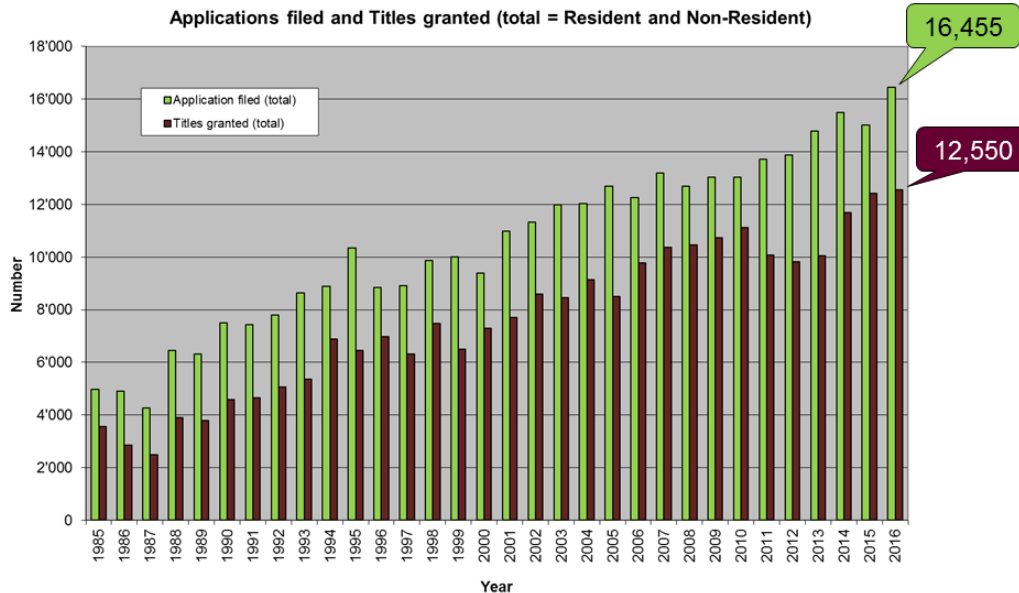


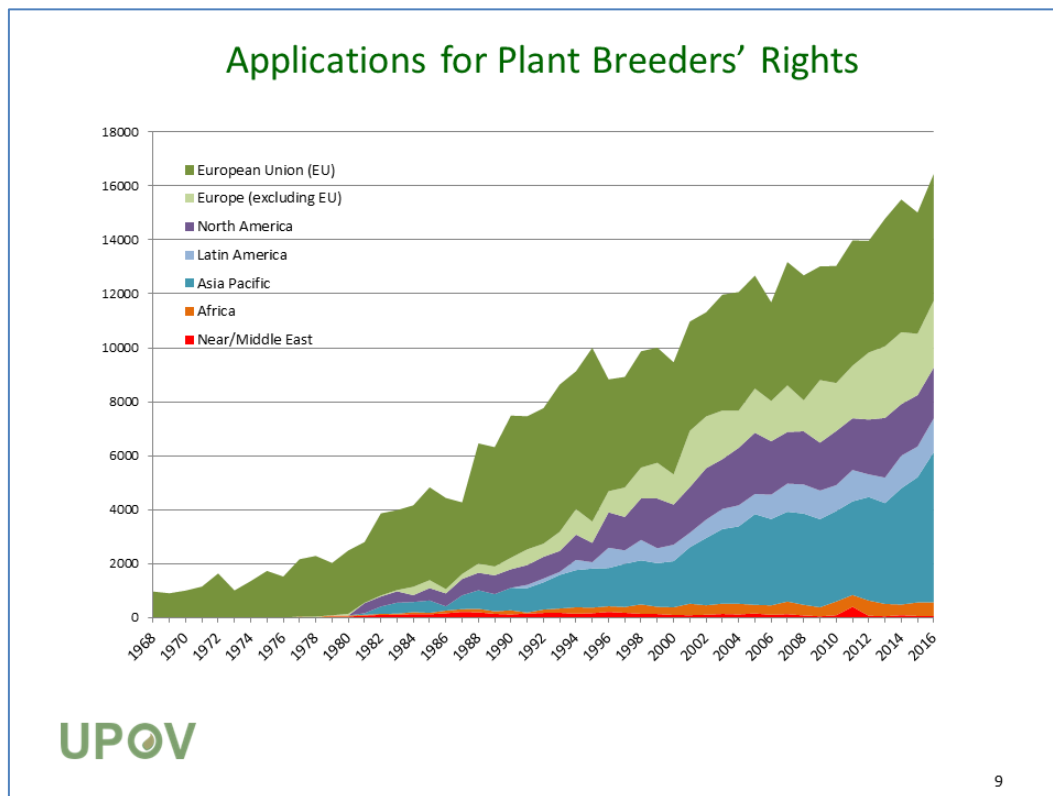
1991 Act: 57 members – Other Acts: 18 members

The boundaries shown on this map do not imply the expression of any opinion whatsoever on the part of UPOV concerning the legal status of any country or territory



Plant variety protection statistics (C/51/7)





Top 10: UPOV members by number of applications

Rank	2007		2015		2016	
	Member	Number of applications	Member	Number of applications	Member	Number of applications
1	European Union	2'968	European Union	3'111	European Union	3'299
2	United States of America	1'485	China ↑3	2'342	China	2'923
3	Japan	1'406	United States of America ↓1	1'634	United States of America	1'604
4	Russian Federation	885	Ukraine ↑3	1'075	Ukraine	1'274
5	China	877	Japan ↓2	914	Japan	977
6	Netherlands	846	Netherlands	799	Republic of Korea ↑1	966
7	Ukraine	560	Republic of Korea ↑1	757	Netherlands ↓1	804
8	Republic of Korea	527	Russian Federation ↓4	743	Russian Federation	772
9	Canada	430	Australia ↑1	359	Australia	387
10	Australia	336	Brazil ↑3	355	Brazil	326

Top 20: Country of residence of applicants (2016)

Rank	Country of residence of breeder	Applications filed as:				
		Resident			Non-resident	Total
		Resident	CPVO (EU member States)	Total		
1	Netherlands	674	1'281	1'955	1'174	3'129
2	China	2'686	0	2'686	34	2'720
3	United States of America	812	0	812	1'223	2'035
4	France	67	467	534	516	1'050
5	Germany	50	395	445	489	934
6	Republic of Korea	860	0	860	26	886
7	Japan	609	0	609	152	761
8	Russian Federation	613	0	613	1	614
9	Ukraine	364	0	364	0	364
10	Australia	140	0	140	176	316
11	Switzerland	5	0	5	307	312
12	Brazil	200	0	200	71	271
13	Denmark	2	101	103	151	254
14	Argentina	171	0	171	62	233
15	United Kingdom	17	95	112	108	220
16	Spain	29	70	99	100	199
17	Italy	11	79	90	109	199
18	Israel	45	0	45	141	186
19	Czech Republic	60	15	75	89	164
20	Viet Nam	162	0	162	0	162
	Sum of top 20	7'577	2'503	10'080	4'929	15'009
	Others	749	118	867	579	1'446
	Total	8'326	2'621	10'947	5'508	16'455

Top 20: Country of residence of applicants

Rank	2007		2015		2016	
	Residence	App. #	Residence	App. #	Residence	App. #
1	Netherlands	2'600	Netherlands	2'720	Netherlands	3'129
2	United States of America	1'764	China	2'100	China	2'720
3	Germany	1'336	United States of America	2'027	United States of America	2'035
4	Japan	1'283	France	1'038	France	1'050
5	China	818	Germany	942	Germany	934
6	Russian Federation	777	Japan	766	Republic of Korea	886
7	France	621	Republic of Korea	647	Japan	761
8	Republic of Korea	388	Russian Federation	640	Russian Federation	614
9	Ukraine	318	Ukraine	412	Ukraine	364
10	Australia	314	Australia	368	Australia	316
11	United Kingdom	253	Switzerland	358	Switzerland	312
12	Argentina	243	Spain	306	Brazil	271
13	Denmark	225	Argentina	248	Denmark	254
14	Italy	193	Brazil	223	Argentina	233
15	Spain	181	United Kingdom	219	United Kingdom	220
16	Switzerland	178	Denmark	191	Spain	199
17	New Zealand	176	Israel	180	Italy	199
18	Israel	174	Italy	148	Israel	186
19	South Africa	144	New Zealand	135	Czech Republic	164
20	Brazil	121	Canada	119	Viet Nam	162

Preview

Developments in UPOV:

- General
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 - **people & publications**
 - PBR application tool (EAF)
 - impact of UPOV membership
 - UN SDGs & ITPGRFA
- Biochemical and molecular techniques

UPOV

13

Elections - for a term of three years ending in 2019

The screenshot shows the UPOV website interface. At the top, there is a search bar and navigation links for 'Contact us', 'Site map', and 'YouTube'. The main navigation menu includes 'ABOUT UPOV', 'MEMBERSHIP', 'UPOV SYSTEM', 'PVP DATA & STATISTICS', 'MEETINGS', and 'NEWS'. The 'ABOUT UPOV' section is expanded, showing a list of links: 'Mission Statement', 'Overview', 'Organigram', 'Office of UPOV', 'Officers', 'UPOV Convention', 'Benefits of UPOV System', 'Key Issues', 'FAQs', and 'Publications'. The 'Officers' page content includes a breadcrumb trail 'HOME > ABOUT UPOV >', a heading 'Officers', and two officer profiles:

- President, Council / Président, Conseil / Präsident, Rat / Presidente, Consejo**
Mr. Raimundo Lavignolle, Presidente del directorio, Instituto Nacional de Semillas (INASE), Venezuela 162. 11°, C1095AAD Buenos Aires, Argentina
(tel.: +54 11 32205432 e-mail: rlavignolle@inase.gov.ar)
- Vice-President, Council / Vice-président, Conseil / Vizepräsident, Rat / Vicepresidente, Consejo**
Mr. Marien Valstar, Senior Policy Officer, Seeds and Plant Propagation Material, Ministry of Economic Affairs, DG AGRO, The Hague, Netherlands
(tel.: +31 70 3 798 911 e-mail: m.valstar@minez.nl)

UPOV

14



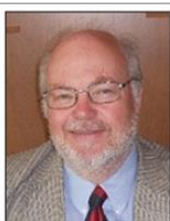
**Chair, Administrative and Legal Committee (CAJ) /
Président, Comité administratif et juridique (CAJ) /
Vorsitzender, Verwaltungs- und Rechtsausschuß (CAJ) /
Presidente, Comité Administrativo y Jurídico (CAJ)**

Mr. Anthony Parker, Commissioner, Plant Breeders' Rights Office, Canadian Food
Inspection Agency (CFIA), Ottawa, Canada
(tel.: +1 613 7737188 e-mail: anthony.parker@inspection.gc.ca)



**Vice-Chair, Administrative and Legal Committee (CAJ) /
Vice-président, Comité administratif et juridique (CAJ) /
Stellvertretender Vorsitzender, Verwaltungs- und
Rechtsausschuß (CAJ) / Vicepresidente, Comité
Administrativo y Jurídico (CAJ)**

Mr. Patrick Ngwediagi, Registrar, Plant Breeders' Rights Office, Ministry of
Agriculture, Food Security and Cooperatives, Dar es Salaam, United Republic of
Tanzania
(tel.: +255 22 2861404 e-mail: ngwedi@yahoo.com)



**Chair, Technical Committee / Président, Comité
technique / Vorsitzender, Technischer Ausschuß /
Presidente, Comité Técnico**

Mr. Kees van Ettehoven, Senior PVP Policy Advisor, Naktuinbouw NL, Sotaweg
22, Postbus 40, NL-2370 AA Roelofarendsveen, Netherlands
(tel.: +31 71 332 6128 e-mail: c.v.ettehoven@naktuinbouw.nl)



**Vice-Chair, Technical Committee / Vice-président,
Comité technique / Stellvertretender Vorsitzender,
Technischer Ausschuß / Vicepresidente, Comité
Técnico**

Mr. Nik Hulse, Chief of Plant Breeders' Rights, Plant Breeder's Rights Office, IP
Australia, Woden, Australia
(tel.: +61 2 6283 7982 e-mail: nik.hulse@ipaaustralia.gov.au)

Elections - for a term of three years ending in 2020

BMT Mr. Nik Hulse (Australia)

TWA Ms. Cheryl Turnbull (United Kingdom)

TWC Mr. Christophe Chevalier (France)

TWF Mr. Jean Maison (European Union)

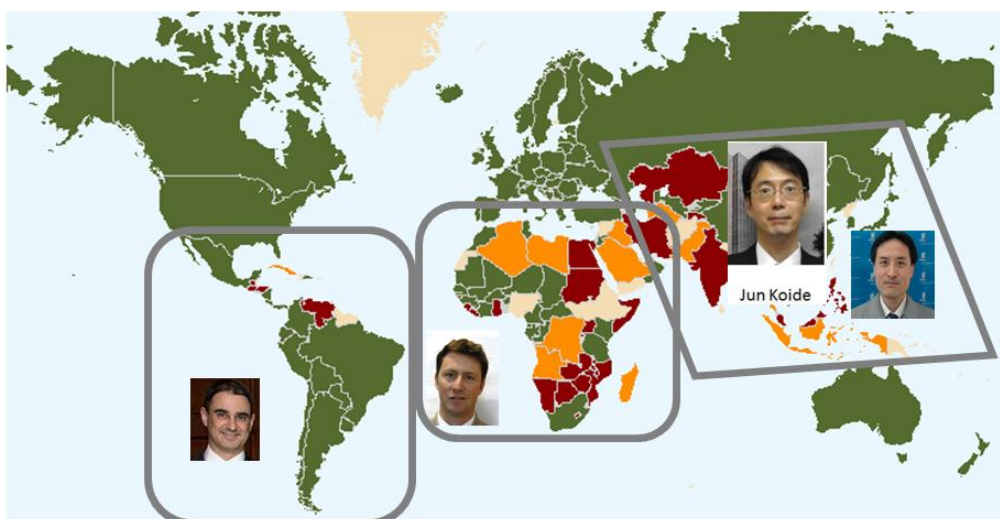
TWO Mr. Henk de Greef (Netherlands)

TWV Ms. Romana Bravi (Italy)

UPOV

17

UPOV Office by region



UPOV

The boundaries shown on this map do not imply expression of any opinion whatsoever on the part of UPOV concerning the legal status of any country or territory

Preview

Developments in UPOV:

- General
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 - people & **publications**
 - PBR application tool (EAF)
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- Biochemical and molecular techniques

UPOV




Stakeholder features added

The screenshot shows the UPOV website homepage. At the top, there are language options (Deutsch, Español, Français, Other) and a search bar. Below that is a navigation menu with items: ABOUT UPOV, MEMBERSHIP, UPOV SYSTEM, PVP DATA & STATISTICS, MEETINGS, NEWS. A red arrow points to the 'Stakeholder features' link in the main content area. The main content area includes a large image of sunflowers with the text 'Results of the Enforcement Seminar', a 'Welcome' section with introductory text about UPOV, and a 'Quick Links' section with various resources. The footer contains 'Copyright © 2011, UPOV' and 'Terms of use'.

BREEDERS

The screenshot shows the 'Breeders' page on the UPOV website. The navigation menu is the same as the homepage. The main content area is titled 'Breeders' and includes a 'STAKEHOLDERS FEATURES' sidebar with a 'Breeders' sub-menu. The main content is divided into three columns: 'UPOV Information' with links to membership, observers, guidance, protected varieties, cooperation, meetings, and FAQs; 'Resources' with links to databases, guidelines, PVP offices, learning courses, and a YouTube channel; and 'Key Topics' with links to PRR contracts, essentially derived varieties, and the notion of a breeder. Below these columns are 'Databases' for PLUTO (plant varieties) and GENIE (GEMs/species), and 'UPOV Lex' (legislation). A 'FAQs for breeders' section follows with 11 questions and answers regarding protection, discovery, and molecular techniques. The UPOV logo is at the bottom left.

Harmonization, Resources and Assistance

		Harmonization	Resources	Training & assistance
IMPLEMENTATION	PVP Law	• UPOV Convention	• UPOV Lex	<ul style="list-style-type: none"> Distance Learning course Trainers UPOV events & activities Assistance by individual UPOV members
	➤ Application	  	project	
	➤ Variety Denominations		TO database	
	➤ DUS Testing		NIE Database changeable ware	
		(Cooperation)		

UPOV

23

Selected EXN/INF developments

<i>Reference</i>	<i>Explanatory Notes on:</i>	<i>Timetable</i>
UPOV/EXN/EDV/2 (revision)	Essentially Derived Varieties	Adopted by the Council in April 2017
UPOV/EXN/PPM/1	Propagating Material	Adopted by the Council in April 2017
UPOV/INF/13/2	Guidance on how to become a member of UPOV (adoption by correspondence)	Adopted by the Council in April 2017
UPOV/INF/5 (revision)	UPOV model plant breeders' rights gazette	possible revision to be considered by CAJ in October 2018
UPOV/INF/12 (revision)	Variety Denominations	WG-DEN

24

ESSENTIALLY DERIVED VARIETY?



Preview

Developments in UPOV:

- General
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 - **PBR application tool (EAF)**
 - impact of UPOV membership
 - UN SDGs & plant genetic resources
- Biochemical and molecular techniques

New name for the EAF PBR Application Tool

PRISMA



The image is a screenshot of the UPOV (International Union for the Protection of New Varieties of Plants) website homepage. The header features the UPOV logo on the left, a search bar, and navigation links for 'Contact us', 'Site map', and 'YouTube'. Below the header is a horizontal menu with categories: 'ABOUT UPOV', 'MEMBERSHIP', 'UPOV SYSTEM', 'PVP DATA & STATISTICS', 'MEETINGS', and 'NEWS'. The main content area is divided into several sections. On the left, there is a large image of a sunflower with a callout box labeled 'PRISMA tool' pointing to it. Below this is a 'Welcome' section with introductory text. On the right side, there is a 'Stakeholder features' section with a list of users: 'Breeders', 'Farmers and Growers', 'Policy makers', and 'General Public'. Below this is a 'Quick Links' section with a list of links: 'Introduction to UPOV', 'Benefits of UPOV', and 'PBR Application Tool (EAF)'. A callout box labeled 'Information' points to the 'PBR Application Tool (EAF)' link in the Quick Links section. Another callout box labeled 'PBR Application Tool (EAF)' points to the same link in the Stakeholder features section. The UPOV logo is also visible at the bottom of the page.

**UPOV members (16) and crops (5) currently covered by
PBR Application Tool (EAF)**

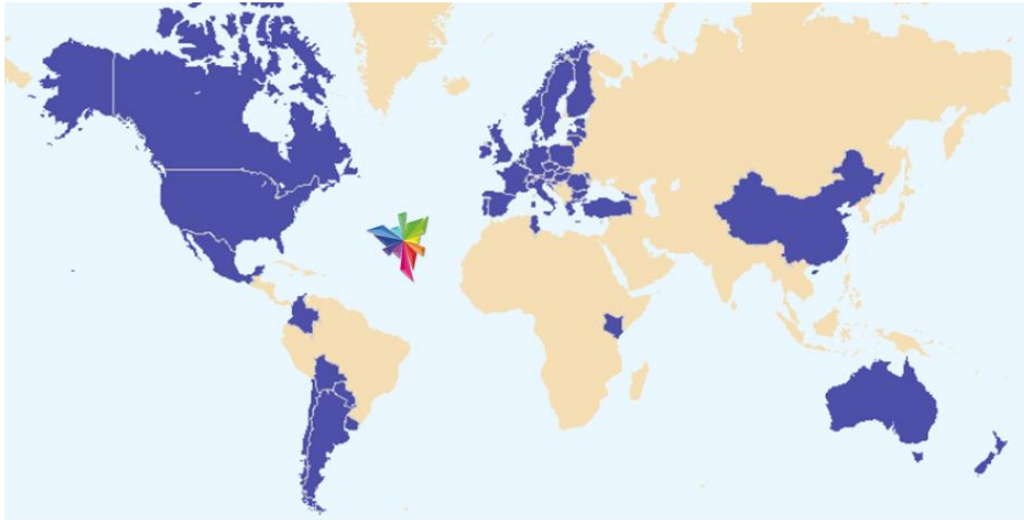
AUTHORITY	APPLE FRUIT VARIETIES	LETTUCE	POTATO	ROSE	SOYABEAN
Argentina	√		√	√	√
Australia	√	√	√	√	√
Chile	√	√	√	√	√
China		√		√	
Colombia				√	
France	√	√	√	√	√
Kenya	√	√	√	√	√
Netherlands	√	√	√	√	√
New Zealand	√	√	√	√	
Norway	√	√	√	√	√
Republic of Moldova	√	√	√	√	√
Switzerland	√	√	√	√	√
Tunisia	√	√	√	√	√
Turkey	√	√	√	√	√
United States of America		√	√		√
Uruguay	√		√		√

29

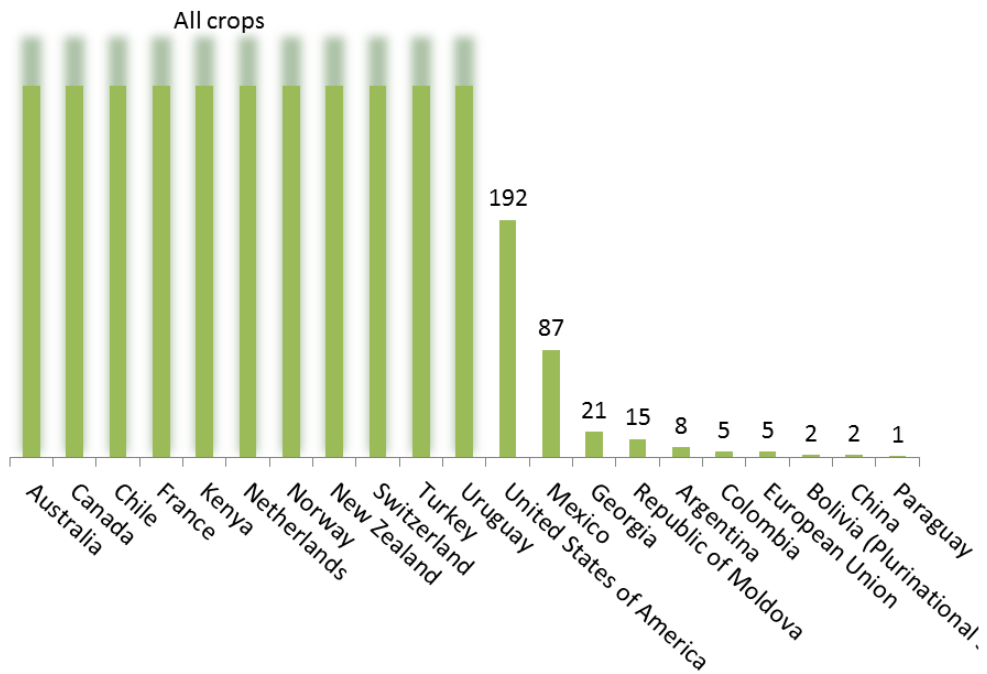
Coverage of the EAF: July 2017



Anticipated coverage January 2018



Anticipated Coverage of crops/ species in PRISMA_EAF Version 2.0



Navigation languages



The screenshot displays the UPOV Electronic Application Form interface. At the top, the UPOV logo and the text "Electronic Application Form" are visible. Below this, there are navigation buttons: "Start a new application", "Copy application", "User Role Management", and "Edit User profile". The main content area is titled "Your Applications" and contains a table with the following columns: International Reference Number, Created On, Modified On, Date of Submission, Crop, Proposed Variety Denomination, Breeder's Variety Reference, and Submitter's Own Variety Reference. Two application entries are listed in the table. To the right of the table, a language selection dropdown menu is open, showing options for English, Français, Deutsch, Español, 中文, and 日本語.

International Reference Number	Created On	Modified On	Date of Submission	Crop	Proposed Variety Denomination	Breeder's Variety Reference	Submitter's Own Variety Reference
XU_3020170000658	28/06/2017	14/09/2017	NA	Rose			1
XU_3020170000659	28/06/2017	28/06/2017	NA	Rose			1

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The screenshot shows the HFFA Research website. The main content area features a publication titled "The socio-economic benefits of UPOV membership in Viet Nam: An ex-post assessment on plant breeding and agricultural productivity after ten years" by HFFA Research GmbH. The corresponding author is Steffen Noleppa. To the right, there are video thumbnails for "Plant variety protection in Uruguay" and "PVP in Japan (As...)", with a link to "Ashiro Rindo Story". A vertical green bar on the right side of the page reads "HFFA Research Paper 03/2017". The left sidebar contains a navigation menu with items like "Mission Statement", "Overview", "Organigram", "Office of UPOV", "Officers", "UPOV Convention", "Benefits of UPOV System", "Key Issues", "FAQs", and "Publications". The UPOV logo is visible at the bottom left of the screenshot.

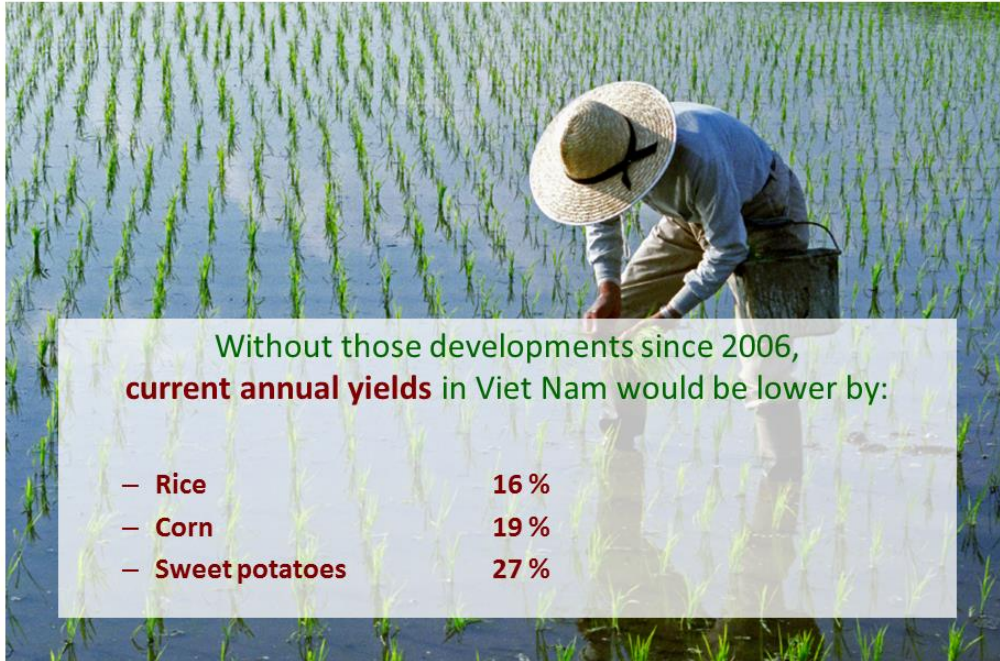
STUDY in VIET NAM*

Annual land productivity developments since Viet Nam joined UPOV in 2006 in Rice, Corn (maize) and Sweet Potatoes

- **1995-2005:** increase in yield mainly through increased level of inputs – no detectable increase due to plant breeding
- **2006-2016:** annual land productivity increase due to plant breeding
 - Rice 1.7 %
 - Corn 2.1 %
 - Sweet potatoes 3.1 %

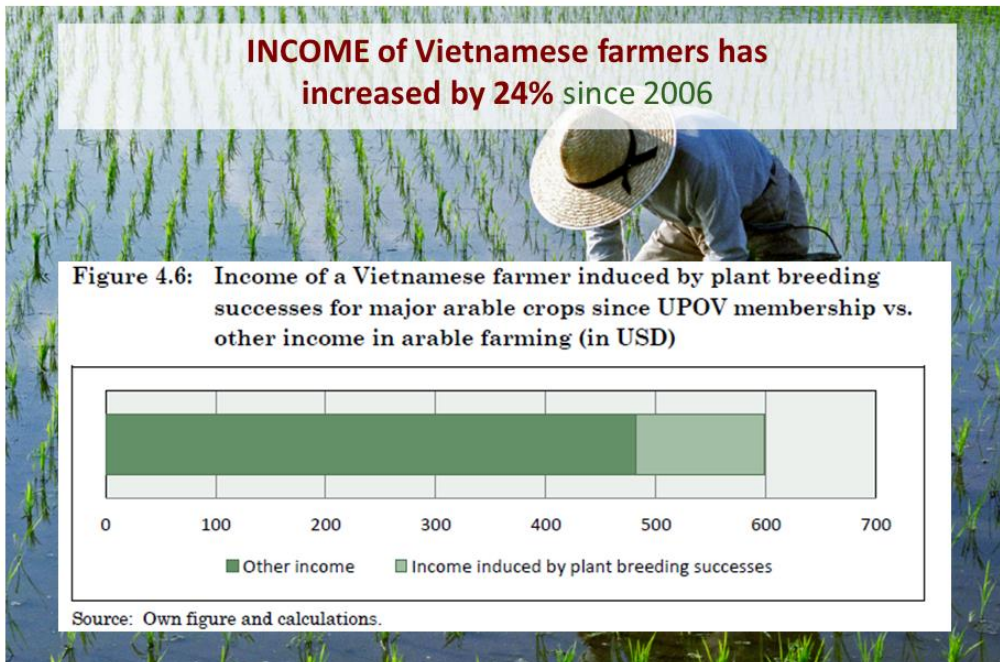
* "The socio-economic benefits of UPOV membership in Viet Nam; An ex post assessment on plant breeding and agricultural productivity after 10 years" (Corresponding author: Steffen Noleppa) by HFFA Research GmbH

STUDY in VIET NAM



37

STUDY in VIET NAM



38

Preview

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- Biochemical and molecular techniques

UPOV

39

UPOV

Question:
How does the UPOV system contribute to the United Nations Sustainable Development Goals (SDGs)?

ABOUT

The vision of the 2030 Agenda for Sustainable Development (see <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>) includes a world where "food is sufficient, safe, affordable and nutritious", there is "sustained and inclusive economic growth, social development, environmental protection and the eradication of poverty and hunger" and one in "which development and the application of technology are climate-sensitive, respect biodiversity and are resilient". The mission of UPOV is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. The benefits that the UPOV system provides to society will be an important component in realizing the vision of the 2030 Agenda for Sustainable Development.

UPOV's mission is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. In particular, new varieties of plants are an important means of responding to the challenges of a growing and increasingly urbanized population, climate change, parallel demands for food and energy production and evolving human needs.

The tremendous progress in agricultural productivity in various parts of the world is largely based on improved varieties, together with improved farming practices, and future food security depend on them. There is also a need to further increase food production in the years leading up to 2030. World population is anticipated to grow until 2050, and urbanization will continue. Therefore, the need for increased productivity in sustainable agricultural production will continue for the foreseeable future. New varieties of plants with features such as improved yield, resistance to plant pests and diseases, salt and drought tolerance, or better adaptation to climatic stress are a key element in increasing productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment. Due to the continuous evolution of new pests and diseases as well as changes in climatic conditions and users' needs, there is a continuous demand by farmers/growers of new plant varieties and development by breeders of such new plant varieties.¹

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Diversity of breeders and breeding is needed to develop new varieties that are able to respond to such a wide range of challenges. The UPOV system of plant variety protection provides an effective mechanism for breeders in both the public and private sectors, and facilitates public-private partnerships. It is a system that is equally relevant for individual breeders, SMEs and larger breeding institutes/enterprises. Plant variety protection supports long-term investment in breeding and provides a framework for investment in the delivery of seed and other propagating material of varieties suited to farmers' needs.

aim of encouraging the development of new varieties of plants, for the benefit of society.

▲ Top of page

Search

Contact us Site map YouTube

Stakeholder features

- Breeders
- Farmers and Growers
- Plant Variety Breeders
- Plant Variety Makers
- General Public

PBR Application Tool (EAF)

GENIE Database

UPOV Lex

Plant Variety Database (PLUTO)

Quick Links

- Introduction to UPOV
- Benefits of UPOV
- UPOV Collection
- PBR Application Tool (EAF)
- Plant Variety Guidelines
- Distance Learning Courses
- FAQs

UPOV

Search

Contact us Site map YouTube

ABOUT UPOV

Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

UPOV INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

SYMPOSIUM ON POSSIBLE INTERRELATIONS BETWEEN THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE (ITPGRFA) AND THE INTERNATIONAL CONVENTION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS (UPOV CONVENTION)

PROCEEDINGS

Welcome

The International Intergovernmental

UPOV was established by the International Convention for the Protection of New Varieties of Plants. The Convention was adopted in Paris in 1961 and it was revised in 1972, 1978 and 1991.

UPOV's mission is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society.

▲ Top of page

Stakeholder features

Breeders

Breeders and Growers

Variety makers

General Public

PBR Application Tool (EAF)

GENIE Database

UPOV Lex

Plant Variety Database (PLUTO)

Quick Links

Introduction to UPOV

Benefits of UPOV

- UPOV Collection
- PBR Application Tool (EAF)
- Test Guidelines
- Seminars & Symposia**

Interrelations with ITPGRFA

October 2017

The Council agreed the following concerning interrelations with the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA):

- (i) to **review the FAQ** on the interrelations between the UPOV Convention and the ITPGRFA; and
- (ii) **exchange of experience and information** on the implementation of the UPOV Convention and the ITPGRFA, **with the involvement of stakeholders.**

As a next step, the Consultative Committee would consider the need for a revision of the current guidance in the “Explanatory Notes on Exceptions to the Breeder's Right under the 1991 Act of the UPOV Convention” (document UPOV/EXN/EXC/1).

The screenshot shows the UPOV website's 'Benefits of the UPOV System' page. On the left is a navigation menu with items like 'Mission Statement', 'Overview', 'Organigram', 'Office of UPOV', 'Officers', 'UPOV Convention', 'Benefits of UPOV System' (highlighted), 'Key Issues', 'FAQs', and 'Publications'. The main content area has a breadcrumb trail 'HOME » ABOUT UPOV »', the title 'Benefits of the UPOV System', and a 'VIDEOS' section. Two video thumbnails are shown: 'Using the UPOV...' featuring a field of purple flowers, and 'PVP in Ecuador' featuring a blackberry with the text 'MUYU'. Below the thumbnails are short descriptions of each video. The UPOV logo is at the bottom left, and the page number '43' is at the bottom right.

Using the UPOV System to benefit custodians of native wild germplasm in Argentina



"The royalties derived from commercialization of the variety are shared between the breeder and the provinces that contributed the native plant genetic resource."

Using the UPOV System to benefit custodians of native wild germplasm in Argentina



*“A large part of the profits, basically, **50 per cent**, that are generated from the commercialization **return to those provinces.**”*

UPOV

Using the UPOV System to benefit custodians of native wild germplasm in Argentina



*“**the erosion/loss from their natural habitat is reduced** and this is therefore our own contribution, working together with INTA, for the conservation of our native natural resources.”*

Preview

Developments in UPOV:

- General
 - Membership of UPOV
 - PVP statistics
 - UPOV officers
 - UPOV PBR application tools (EAF)
 - Revision of EXN/ INF documents
 - Other topics
- Concerning Biochemical and Molecular Techniques

UPOV

47

Question: Is it possible to obtain protection of a variety on the basis of its DNA-profile?

For a variety to be protected, it needs to be clearly distinguishable from all existing varieties on the basis of characteristics that are physically expressed, e.g. plant height, time of flowering, fruit color, disease resistance etc. The DNA-profile is not the basis for obtaining the protection of a variety, although this information may be used as supporting information.

A more detailed explanation is provided in the FAQ 'Does UPOV allow molecular techniques (DNA profiles) in the examination of Distinctness, Uniformity and Stability ("DUS")?'

See also:

UPOV "What are the requirements for protecting a new plant variety?"⁴⁸

STATUS OF UPOV DOCUMENTS CONCERNING MOLECULAR TECHNIQUES

Document reference	Title
UPOV/INF/17/1	Guidelines for DNA Profiling: Molecular Marker Selection and Database Construction (“BMT Guidelines”) (2010)

Document reference	Title
TGP/15	Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)
UPOV/INF/18/1	Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (2011)

UPOV/INF/17/1 (**INF**ormation document)

“Guidelines for DNA Profiling: Molecular Marker Selection and Database Construction (“BMT Guidelines”)”

The purpose of this document (BMT Guidelines) is to provide guidance for developing harmonized methodologies with the aim of generating high quality molecular data for a range of applications. The BMT Guidelines are also intended to address the construction of databases containing molecular profiles of plant varieties [...]

UPOV/INF/18/1 (INFormation document)



“Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability”

The purpose of this document is to provide guidance on the possible use of biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS). [...]

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UPOV/INF/18 POSSIBLE APPLICATION MODELS

MODELS WITH A POSITIVE ASSESSMENT

- Characteristic-specific molecular markers 
- Combining phenotypic and molecular distances in the management of variety collections
- Calibrated molecular distances in the management of variety collections 

MODELS WITHOUT A POSITIVE ASSESSMENT

- Use of molecular marker characteristics

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TGP/15/1 (Technical Guidelines Protocol)

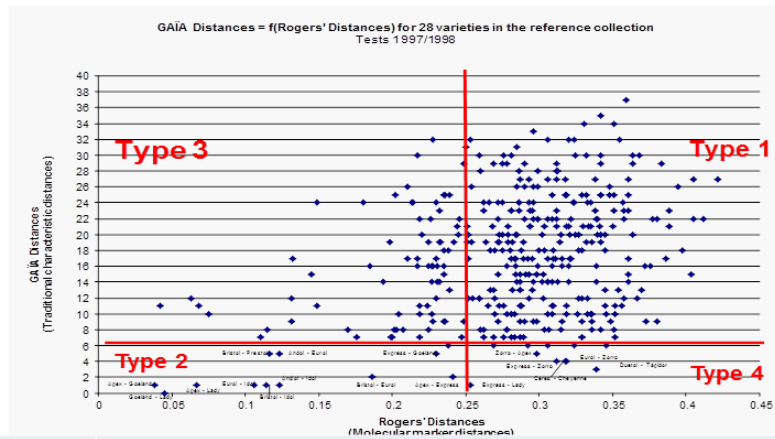
“Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”

The purpose of this document is to provide guidance on the use of biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS) on the basis of the models in document UPOV/INF/18 that have received a positive assessment and for which accepted examples have been provided.

→ Adopted by the Council of UPOV in October, 2013.



Calibrated molecular distances in the management of variety collections



	Distinctness plus (Traditional characteristics)	Distinctness plus (Molecular markers)
Type 1	Yes	Yes
Type 2	No	No
Type 3	Yes	No
Type 4	No	Yes





Model 1: Characteristic-specific molecular markers

Example: gene specific marker for herbicide tolerance introduced by genetic modification

On the basis that:

[...]

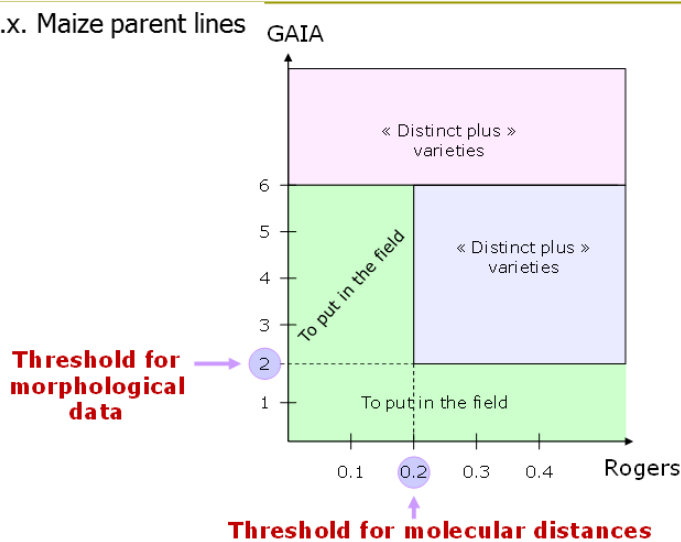
- there is verification of the reliability of the link between the marker and the characteristic;
- different markers for the same characteristic are different methods for examining the same characteristic;

[...]

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Model 2: Combining phenotypic and molecular distances in the management of variety collections

e.x. Maize parent lines



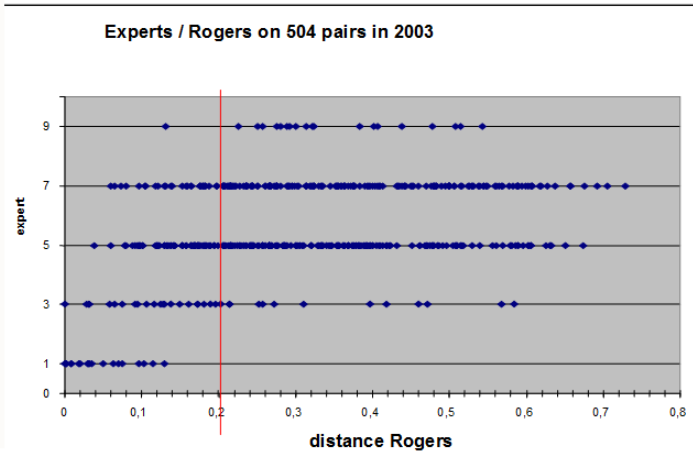
U

EVALUATION OF THE LEVEL OF CORRELATION BETWEEN MOLECULAR AND MORPHOLOGICAL DATA

EXPERTS

Scale of similarity:

1. the two varieties are similar or very close;
3. the two varieties are distinct but close;
5. the comparison was useful, but the varieties are clearly distinct;
7. the comparison should have been avoided because the varieties are very different;
9. the comparison should have been avoided because the varieties are totally different;



Each data point corresponds to the lowest note determined by the panel of experts and the Roger's distance, for a given pair

FAQs

The screenshot shows the UPOV website interface. At the top, the UPOV logo is on the left, and a navigation menu includes 'ABOUT UPOV', 'MEMBERSHIP', 'UPOV SYSTEM', 'PVP DATA & STATISTICS', 'MEETINGS', and 'NEWS'. A banner for 'New member: Bosnia and Herzegovina' features a sunflower image. Below the banner is a 'Welcome' section with introductory text about UPOV. On the right, a 'Stakeholder features' sidebar lists 'Dreaders', 'Farmers and Growers', 'Policy makers', and 'General Public'. Below this are links for 'PBR Application Tool (EAF)', 'GENE Database', 'UPOV Lex', and 'Plant Variety Database (PLUTO)'. A 'Quick Links' sidebar at the bottom right lists: 'Introduction to UPOV', 'Benefits of UPOV', 'UPOV Collection', 'PBR Application Tool (EAF)', 'ICSI Guidelines', 'Distance Learning Courses', 'Conferences & Symposia', and 'FAQs'. The 'FAQs' link is circled in red.

Other Developments to be Reported

- Joint OECD/UPOV/ISTA/AOSA Workshop
- Practical Workshops on “DNA Techniques and Variety Identification”
- Variety Description Databases containing molecular data

***The use of molecular markers (SNP) for maize
DUS testing in France (2013 to 2016)***

The BMT agreed that France should propose a revision to document TGP/15 “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”, Annex II, “Example: Parent Lines in Maize”, to reflect the refinements that had been made in France on the basis of its experience in the application of the Model “Combining Phenotypic and Molecular Distances in the Management of Variety Collections”, for consideration by the Technical Committee at its fifty-fourth session.

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***Genetic selection of similar varieties for the
first growing cycle: example French bean***

The BMT agreed that the approach presented in document BMT/16/19 and BMT/16/19 Add. was a suitable use of molecular techniques in the examination of DUS and should be proposed for inclusion in document TGP/15. On that basis, it was agreed that the Netherlands should prepare an explanation of the method as a basis for a revision of document TGP/15 to be considered by the Technical Committee at its fifty-fourth session.

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International guidelines on molecular methodologies including cooperation between the OECD, UPOV, ISTA and ISO

The BMT agreed that the initiatives above, and consideration of possible harmonization of terms and methodologies used for different crops and the possible development of standards, might be advanced through a **further international practical workshop**, to be jointly coordinated by OECD, UPOV and ISTA and supported by Naktuinbouw and/or another partner with the relevant facilities.

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63

Development on Use of Molecular Technique for PVP in Republic of Korea

The BMT noted the proposal made in the presentation to organize an international consortium to work on molecular techniques and agreed to discuss that matter during the cooperation session.

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Review of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction (‘BMT Guidelines’)”

The BMT agreed to invite members and observers **to provide comments** on document UPOV/INF/17 “Guidelines for DNA-profiling: Molecular Marker Selection and Database Construction (‘BMT Guidelines’)”. The comments would be compiled by the Office of the Union in a document that would form the basis of a review of document UPOV/INF/17 by the BMT at its seventeenth session. The BMT further agreed to propose to introduce a new chapter concerning **cooperation in the exchange of data and construction of databases** in document UPOV/INF/17 on the basis of document BMT/16/5.

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66

[End of Annex and of document]