



BMT/14/Joint/6

ORIGINAL: English

DATE: November 24, 2014

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

OECD/UPOV/ISTA JOINT WORKSHOP ON MOLECULAR TECHNIQUES

Seoul, Republic of Korea, November 12, 2014

THE OECD SEED SCHEMES
INTERNATIONAL SEED CERTIFICATION FRAMEWORK

Document prepared by an expert from Organization for Economic Co-operation and Development (OECD)

Disclaimer: this document does not represent UPOV policies or guidance

The Annex to this document contains a copy of a presentation "The OECD Seed Schemes, International Seed Certification Framework" made at the OECD/UPOV/ISTA Joint Workshop on Molecular Techniques.

[Annex follows]



THE OECD SEED SCHEMES

International Seed Certification Framework

OECD/UPOV/ISTA JOINT WORKSHOP ON MOLECULAR TECHNIQUES

Gerry Hall

UK OECD Delegate, Chair of Ad Hoc
Working Group On Molecular and
Biochemical Techniques

Seoul, Republic of Korea, 12 November, 2014



OECD Seed Certification Schemes

- **Outline of the presentation**
 - What is the OECD
 - What are the OECD Seed Certification Schemes
 - How are the Schemes implemented in member countries
 - Role of the National Designated Authority (NDA)
 - What are the Benefits of the Schemes to member countries
 - How to join the OECD Seed Schemes
 - Update on use of non field characters



Multilateral Forum ...

- Provides comparative data to underpin multilateral co-operation
- Policy recommendations over a range of issues
- Shares experiences and good practices

- **Aims...**
 - raise living standards
 - develop better policies for better lives
 - sustain stronger, cleaner, fairer world

OECD Trade and Agriculture Directorate

4



Multilateral Forum ...

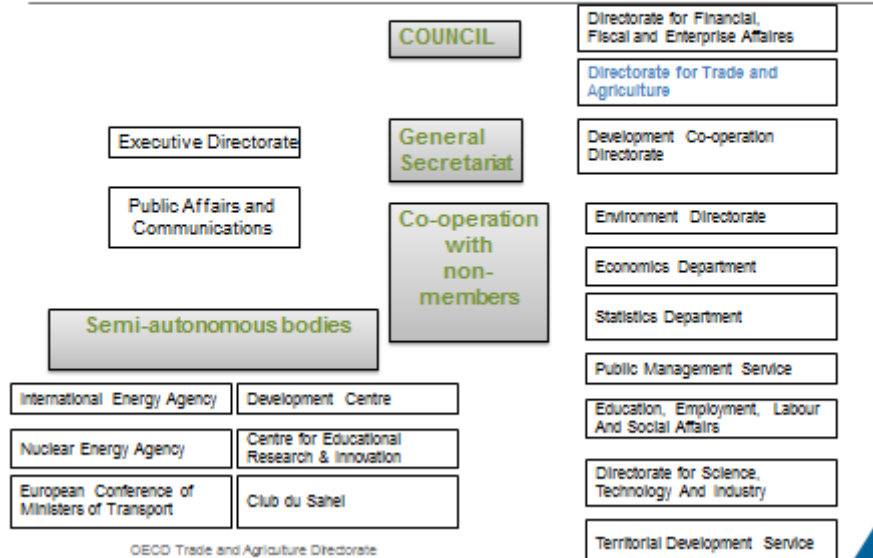
- Provides comparative data to underpin multilateral co-operation
- Policy recommendations over a range of issues
- Shares experiences and good practices

- **Aims...**
 - raise living standards
 - develop better policies for better lives
 - sustain stronger, cleaner, fairer world

OECD Trade and Agriculture Directorate

4

Structure of OECD



5

OECD SEED SCHEMES

• Brief history of the Schemes

- Established in 1958
- 58 participating countries
- Participation is voluntary
- National Designated Authority (NDA)
- 7 Schemes – different groups of species
- 200 species, 57 000 varieties on the List
 - > 90% of field crops' seed internationally traded — OECD certified
- OECD Seed Certification – based on varietal identity and varietal purity

OECD Trade and Agriculture Directorate

6



OECD SEED SCHEMES

- Objectives of the OECD Seed Schemes
 - To provide an international framework for the certification of high quality seed:
 - harmonise certification procedures in member countries;
 - to facilitate trade & reduce non-tariff barriers;
 - to encourage the use of consistently high quality seed in participating countries.

 - To enhance co-operation and understanding between:
 - importing and exporting countries;
 - public & private sector;
 - other international organisations (FAO, UPOV, ISF, ISTA, etc.)

OECD Trade and Agriculture Directorate

7



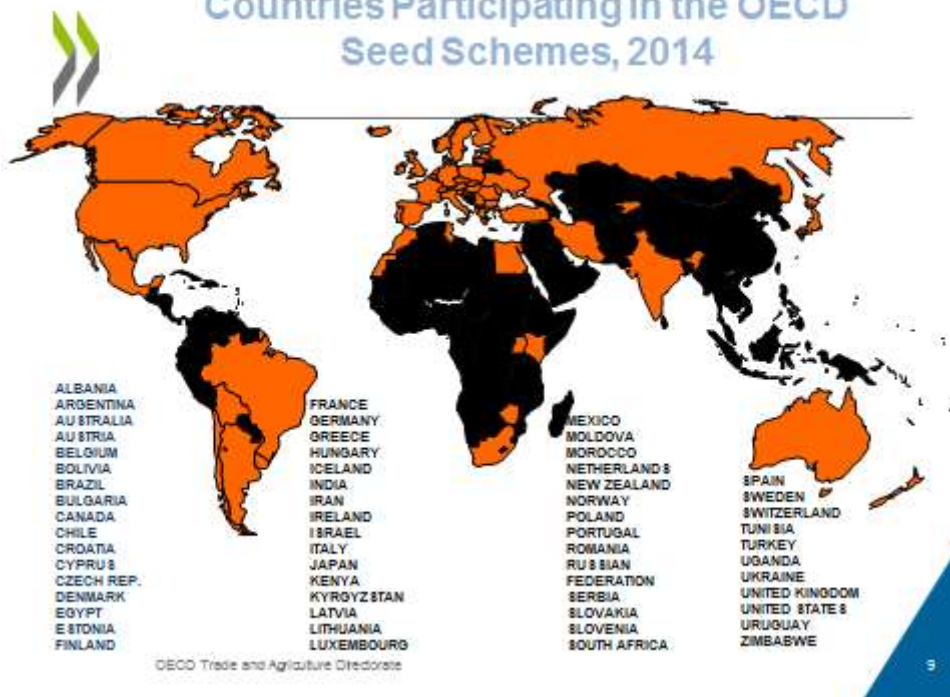
7 OECD Seed Schemes

- Grasses & Legumes (54)
- Crucifers & Other Oil or Fibre Species (54)
- Cereals (56)
- Maize & Sorghum (47)
- Beet (30)
- Vegetables (31)
- Subterranean Clover & Similar Species (6)

OECD Trade and Agriculture Directorate

8

Countries Participating in the OECD Seed Schemes, 2014



Country Participation in Various Schemes

	OECD SCHEMES FOR THE VARIETAL CERTIFICATION OR THE CONTROL OF SEED						
	Cereals and legumes	Cereals and other self or fibre species	Cereals	Fodder for and sugar beet	Malts and longans	Subtropical clover and similar species	Vegetables
ALBANIA							
ARGENTINA							
AUSTRALIA							
AUSTRIA							
BELGIUM							
BOLIVIA							
BRAZIL							
BULGARIA							
CANADA							
CHILE							
CROATIA							
CYPRUS							
CZECH REPUBLIC							
DENMARK							
EGYPT							
ESTONIA							
FINLAND							
FRANCE							
GERMANY							
GREECE							
HUNGARY							
ICELAND							
INDIA							
IRAN ISLAMIC REP. OF							
IRELAND							
ISRAEL							
ITALY							
JAPAN							
KENYA							
KYRGYZSTAN							
LATVIA							
LITHUANIA							
LUXEMBOURG							
MEXICO							
MOLDOVA							
MOROCCO							
NETHERLANDS							
NEW ZEALAND							
NORWAY							
POLAND							
PORTUGAL							
ROMANIA							
RUSSIAN FEDERATION							
SERBIA							
SLOVAK REPUBLIC							
SLOVENIA							
SOUTH AFRICA							
SPAIN							
SWEDEN							
SWITZERLAND							
TUNISIA							
TURKEY							
UGANDA							
UKRAINE							
UNITED KINGDOM							
UNITED STATES							
URUGUAY							
ZIMBABWE							



Main Instruments of the Schemes

- OECD Seed Schemes Rules and Regulations 2014
 - Provide the fundamental framework..... Principles & procedures
 - Methods of operation
 - Rules for accession of new member countries

- OECD List of Varieties
 - OECD Coordinating Centre (NIAB) – Manages the OECD List
 - >57, 0000 varieties listed
 - National List (varietal registration), DUS, VCU
 - Published twice a year (January, July).

- OECD On-Line List of Varieties:
 - Easy access on line (www.oecd.org/tad/seed).
 - It is updated on a regular basis (monthly).

OECD Trade and Agriculture Directorate

11



Main Instruments of the Schemes

- Guidelines
 - **Control Plot Tests & Field Inspection of Seed Crops**
 - critical in the seed certification system
 - Pre & post control plots
 - **Multiplication Abroad...**
 - **Capacity Building...**

- OECD certificates and labels
 - Final step in the process of varietal certification
 - Correct labels and complete information on the labels is critical

- Implementation of the Schemes
 - **Under the authority of the NDA**

OECD Trade and Agriculture Directorate

12

Publications (hard and e-versions)



OECD Trade and Agriculture Directorate



13

Online OECD List of Varieties

- Can be accessed at www.oecd.org/tad/seed



OECD Trade and Agriculture Directorate

OECD Labels

- **Striped label** : Pre-basic Seed (PB)
- **White label** : Basic Seed (SB)
- **Blue label** : Certified Seed 1st Generation (C1)
- **Red label** : Certified Seed (C2)

OECD Labels





Role of the NDA

- Implements the OECD Schemes in the Member country according to the Rules
 - Authority to issue OECD labels & certificates
 - Liaise (key contact point) with OECD Secretariat, industry, NDAs in other countries
 - Participates in OECD Seed Schemes Meetings; Annual Meeting, TWG meetings, etc.
 - Responsible for completing the annual Questionnaire on weight of seed certified & post control test results
 - Provide the relevant information (completed template) to the OECD Coordinating Centre on varieties to be added to the OECD List

OECD Trade and Agriculture Directorate

17



Role of the NDA

- Appointed by the Ministry of Agriculture
 - Usually a Division or Unit within the Ministry or Agency authorised by the Minister
- Good technical knowledge of the OECD Schemes and understanding of the key criteria for varietal certification
- Good procedural knowledge of the workings of the Schemes
- Works closely with the OECD Secretariat in resolving trade related concerns

OECD Trade and Agriculture Directorate

18

Benefits of OECD Seed Certification

- Facilitates trade by improving market access
 - by harmonisation of certification procedures
 - use of internationally recognised labels/certificates
- Enhances transparency along the supply chain
 - Improves traceability
 -
- Simplify international rules for seed certification
 - rules and procedures continue to evolve
 - use of the Schemes (Domestic, International)

OECD Trade and Agriculture Directorate

19

Benefits of OECD Seed Certification

- Enhances cooperation between countries
 - Develop and set standards that are internationally acceptable
 - Multiplication of seed in third countries
- Enhances co-operation between the public/private sectors (APSA, ESA, ISF, etc.)
- Regular sharing of information, experiences and best practices
 - information and experiences with NDAs
 - information with stakeholders in the seed supply chain

OECD Trade and Agriculture Directorate

20



How to Join the OECD Seed Schemes

- **Official letter**
Ministry of Agriculture to the OECD Secretariat
- **Basic documentation**
Seed certification in the country, imports and exports, varieties registered on the National List, post-control etc.
- **Evaluation mission**
Undertaken by the OECD (2 experts, 3-5 days)
- **Evaluation Report**
– Annual Meeting of the Seed Schemes
- **Official admission procedures**
Approval by consensus: OECD Annual Meeting, OECD Committee for Agriculture and the OECD Council

OECD Trade and Agriculture Directorate

21



Certification Process

- OECD Seed Scheme –
 - Varietal certification
 - Based entirely on
 - Crop inspection
 - Control plots
- Required National Listing of varieties
- Schemes specify varietal purity characters for some 77 species

OECD Trade and Agriculture Directorate

22



Certification Process II

- Characters are field based
- However, schemes recognise that it is not always possible to be definitive with varietal identity in a field situation
- Can be more problematic with varietal purity
- Request from some Members to use non field based characters
- OECD Annual meeting 2011 set up ah hoc working group to look at the issues and make recommendations



Terms of reference

- Carry out a survey of methods available to NDAs which will enhance ability to determine varietal identity/ purity / hybridisation
- Evaluate usefulness of these techniques and their validation
- Recommend relevant validated tests
- Recommend how seed schemes should use the techniques
- Recommend rules changes to facilitate the use of these tests

Survey

- Membership was asked to list and provide information on any biochemical or molecular test that was used
- From membership of 58, 26 replies were received;
- 6 replies were to note that no such tests were allowed in their schemes

Survey results

- Internationally validated tests:
 - 14 different species
 - 14 different NDAs



Survey Results - Internationally Validated

- Avena sativa (oats)
- Brassica napus (rapeseed)
- B. Juncea (mustard)
- B. nigra (black mustard)
- Helianthus annuus (sunflower)
- Hordeum vulgare (barley)
- Lolium (ryegrass)
- Linum usitatissimum (flax)
- Pisum sativum (pea)
- Solanum lycopersicum (tomato)
- Solanum tuberosum (potato)
- Triticosecale
- Triticum aestivum (wheat)
- Zea mays (maize)

OECD Trade and Agriculture Directorate

27



Information for A. sativa

NAME OF TEST	Country	Purity	Identity	Hybridisation	Validated	if "yes" by whom
A-PAGE	Argentina	✓	✓		Yes	ISTA method
PAGE	Czech Republic	✓	✓		Yes	ISTA method
Storage Protein Electrophoresis	Germany	✓	✓		Yes	ISTA method
A-PAGE	Italy	✓	✓		Yes	UPOV / ISTA
Polyacrylamide Gel Electrophoresis (PAGE)	Serbia	✓			Yes	ISTA / National Accreditation Board of Serbia
Acid-PAGE (avenins) method	Spain	✓	✓		Yes	ISTA
SDS PAGE electrophoresis	United Kingdom	✓	✓		Yes	UPOV / DUS Test Guideline

OECD Trade and Agriculture Directorate

28

Information for Brassica sp

SPECIES	NAME OF TEST	Country	Purity	Identity	Hybridisation	Validated	If 'yes' by whom
Brassica napus (rapeseed)	Fatty acid composition	France		✓		Yes	ISO Method
	Determination of Glucosinolates Content	France		✓		Yes	ISO Method
	Isozymes in starch gels	France		✓	✓	Yes	CPVO
Brassica juncea (mustard)	Fatty acid composition and erucic acid quantification	France		✓		Yes	ISO method
Brassica nigra (black mustard)	Fatty acid composition and erucic acid quantification	France		✓		Yes	ISO method

OECD Trade and Agriculture Directorate

29

Information for Triticum aestivum (wheat)

NAME OF TEST	Country	Purity	Identity	Hybridisation	Validated	If 'yes' by whom
A-PAGE	Argentina	✓	✓		Yes	ISTA
SDS-PAGE	Austria	✓	✓		Yes	UPOV & ISTA
A-PAGE	Austria	✓	✓		Yes	ISTA
PAGE	Czech Republic	✓	✓		Yes	UPOV & ISTA
Protein marker systems	Denmark		✓		Yes	UPOV
Storage Protein Electrophoresis	Germany		✓		Yes	UPOV / CPVO
A-PAGE	Italy	✓	✓		Yes	UPOV / ISTA
SDS-PAGE	Italy	✓	✓		Yes	UPOV
Polyacrylamide Gel Electrophoresis (PAGE)	Serbia	✓			Yes	ISTA / National Accreditation Board of Serbia
Polyacrylamide Gel Electrophoresis	Slovenia	✓			Yes	ISTA
Acid-PAGE (glutens)	Spain	✓	✓		Yes	ISTA
SDS-PAGE (glutens)	Spain	✓	✓		Yes	UPOV
SDS-PAGE electrophoresis	United Kingdom	✓	✓		Yes	UPOV DUS Test Guideline
Phenol test	United Kingdom	✓	✓		Yes	CPVO

30



Information for Zea mays (maize)

Name of test	Country	Purity	Identity	Hybridisation	Validated	If "yes" by whom
Isoelectric Focusing of proteins	Chile	✓			Yes	ISTA
Isozyme electrophoresis	Germany		✓		Yes	UPOV, CPVO
IEF PAGE	Hungary	✓	✓	✓	Yes	ISTA
Isozymes	Italy	✓	✓	✓	Yes	UPOV
Ultra Thin Layer Isoelectric Focusing (UTLIF)	Serbia	✓	✓	✓	Yes	ISTA, Serbian Accreditation Body
Isozymes in starch gels	Spain	✓	✓	✓	Yes	UPOV



Survey results - II

- Other validated tests:
 - 19 different species
 - 10 different NDAs

Survey Results – Other Validated

- Avena sativa (oats)
- Beta vulgaris (sugar beet)
- Brassica napus (rapeseed)
- Endiva
- Glycine max (soyabean)
- Helianthus annuus (sunflower)
- Hordeum vulgare (barley)
- Lactuca sativa (lettuce)
- Linum usitatissimum (flax)
- Lolium (ryegrass)
- Rice
- Phaseolus vulgaris
- Solanum lycopersicum (tomato)
- Solanum tuberosum (potato)
- Sorghum
- Triticosecale
- Triticumaestivum (wheat)
- Triticumdurum (Durum wheat)
- Triticumspelta (spelt wheat)
- Zea mays (maize)

33

Survey results - III

- Non validated tests:
 - 9 different species
 - 6 different NDAs

34



Survey Results – No Validation

- Avena sativa (oats)
- Brassica napus (rapeseed)
- Glycine max (soyabean)
- Hordeum vulgare (barley)
- Hybrid cereals
- Lolium (ryegrass)
- Panicum spp
- Pisum sativum (pea)
- Vicia faba (faba bean)

35



Recommendations

- Only Internationally validated tests are considered;
- That the annual meeting adopt ISTA electrophoresis methods for barley and wheat;
- That the methods are used for identity only;
- Proposed wording for a Rules change;
- Proposed wording to change Part III of the Guidelines;
- That where a variety description includes an internationally validated test, it can be used as part of the OECD process;

36

Use of Internationally Validated Laboratory Tests for Varietal Identity

CONDITIONS

- Annual Meeting to approve specific tests for specific species;
- Will be applied by NDA in Country of multiplication at their discretion;
- Apply to any category of seed;
- Identity only;
- Complementary process to Field Inspection/control plot process only

OECD Trade and Agriculture Directorate

37

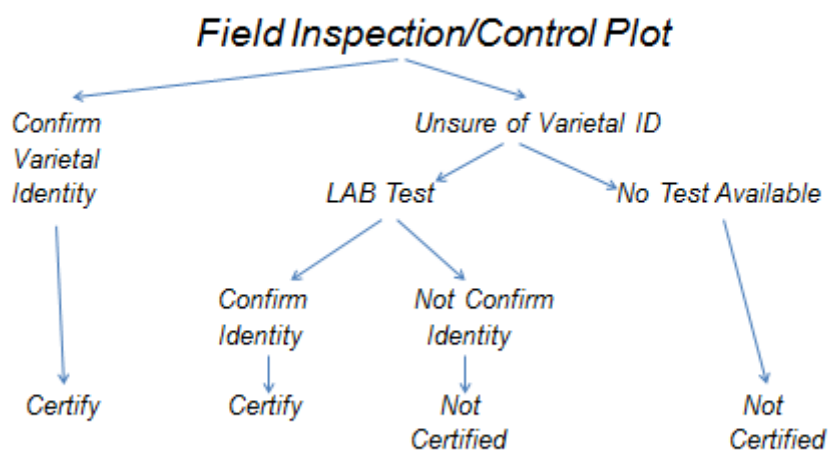
ISSUES

- Have been unable to agree conditions under which such tests can be used.
- Annual meeting wants to ensure that any such tests are in ADDITION to field inspection and control plot tests.
- Only where there is doubt
- Legal issues in some countries in using characters/tests that are not part of the variety description at Registration.

OECD Trade and Agriculture Directorate

38

Use of Internationally Validated Laboratory Tests for Varietal Identity



OECD Trade and Agriculture Directorate

39

Further tasks

- Conditions for varietal Purity
- To recommend adding additional internationally validated laboratory tests
- If each test is suitable for varietal identity or purity or both

OECD Trade and Agriculture Directorate

40



Concerns expressed by NDAs

1. Where the test to be used is not part of the variety description, using a further test might cause problems with varietal purity that otherwise might not be there, and experience of their use in these situations needs to be sought
2. Should the OECD specify minimum number of seeds to test? And should this vary with species/generation?
3. Should the OECD concern itself with the ability of NDA to carry out the test and the facilities available? Is some kind of audit required such as on accession to the schemes?



Concerns expressed by NDAs

4. Some NDAs have expressed concern that ISTA/UPOV laboratory methods are more designed to deal with determining distinctness, and not for determining varietal identity and or purity.
5. Concern that the other international organisations will not be prepared to develop / pay for the development of additional validated methods for the OECD to use.



Thank you

www.oecd.org/tad/seed

OECD Trade and Agriculture Directorate



[End of Annex and of document]