



Current issues from ISF's perspective

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Scope of the presentation



- About ISF
- Importance of plant breeding and IP protection
- ISF's multi-level contribution to UPOV's work
- Issues
- Protect your seed – fight against counterfeit products

International seed trade



Growth of international seed trade due to:

- Cheap & fast transportation
- Development of hybrid varieties
- Higher speed of breeding & commercial processes
=> counter season breeding and production

Challenges for Plant Breeding



- 1. Regulation** – seed is one of the highest regulated industries
- 2. Politicization** – seed is becoming an increasingly political and societal issue
- 3. Budget cuts** – public sector investment and innovation in seed is decreasing

International Seed Federation

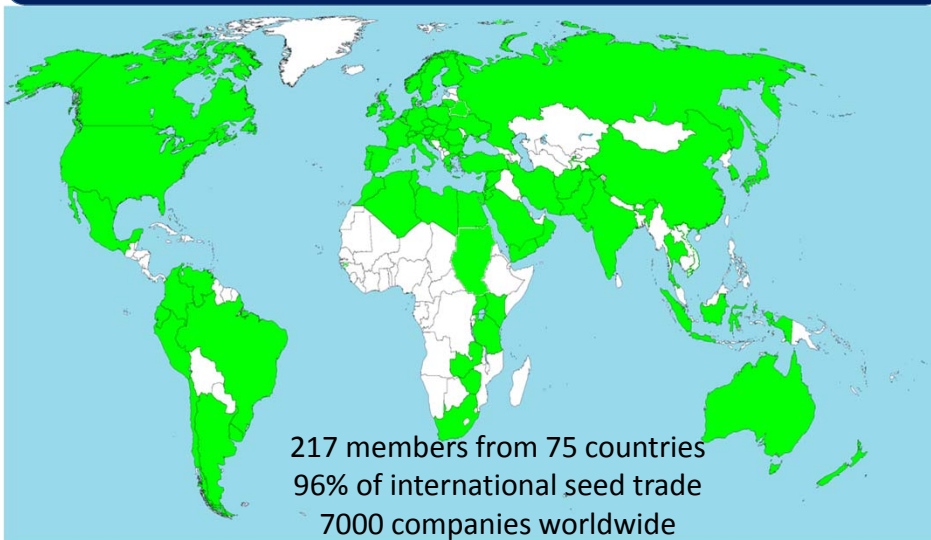


- Vision - to be unveiled soon
- Mission - to be unveiled soon

90+ years working in partnership with organisations responsible for international treaties, conventions and agreements, and those who shape the policies that impact the seed industry ...

=> to bring best quality seed to farmers.

Worldwide Membership



ISF Membership



Ordinary members

- National Associations representing seed companies and enterprises within their countries
- 53 members from 41 countries

Associate members

- Seed companies or enterprises
- 88 members from 42 countries

Affiliate members

- Service providers to the seed industry
- 21 members from 11 countries

Tree & Shrub Seed Group

- National Seed Associations of tree and shrub seed companies and/or individual companies active in this field
- 37 members from 25 countries

Observers

- 3 Associations

Importance of Plant Breeding



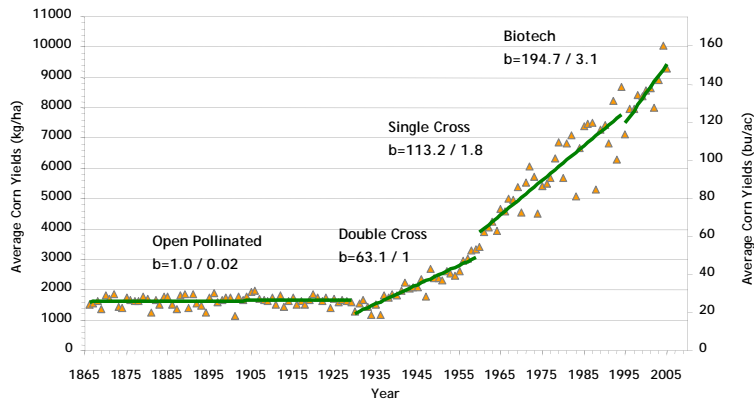
Some examples:

- Yield
- Profitability
- Resistance to pests and diseases
- Tolerance to abiotic stress
- Easy harvest (with machineries)
- Crop quality
- Input efficiency
- Nutritional quality
- Storage quality
- Reduced food cost
- More efficient land use

Importance of Plant Breeding



Corn yield evolution (1865-2005)



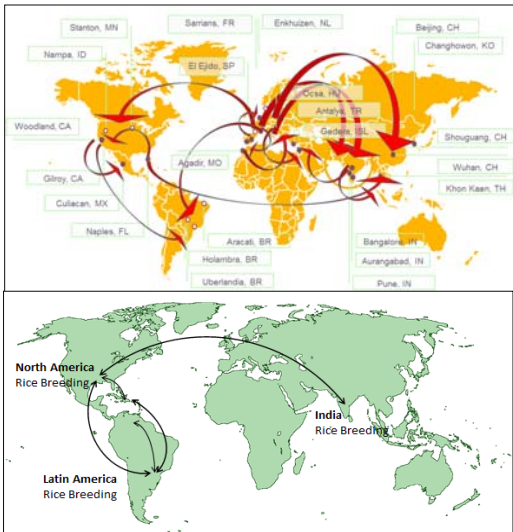
Source: March 2006. Crop Science. Ref# 46:528-543

Long and expensive undertaking



- On average the sector invests 10-15% of its turnover in R&D (can exceed 20% in vegetables)
- Accumulated R&D costs for a variety to market range 1.5 – 2.5 M€ in US/ Europe,
- A global portfolio average of accumulated R&D costs per variety is currently in the range of 1 M€
- Average time to market takes 12 years (R&D/ Regulatory Part/ Multiplication/ Commercialisation)

Breeding as a Global Challenge Importance of Germplasm Security & Transfer



- International exchange of germplasm accelerates breeding programs
- Transfer of the best genetics requires:

trust → legal framework safeguarding germplasm ownership

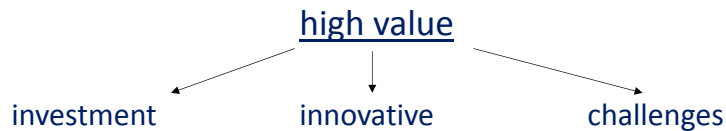
process → pragmatic germplasm import & export regulations

effective IP

Why is IP protection important for plant breeders?



- Products of plant breeding are of high value



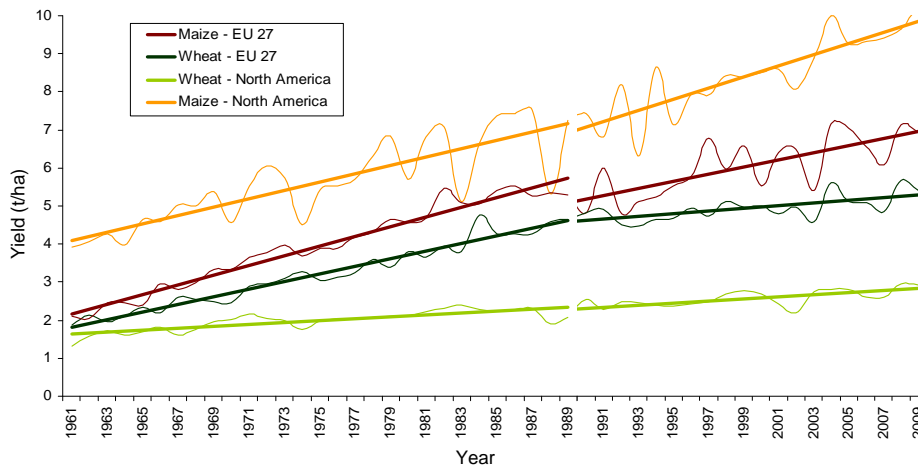
- Creation of such products needs incentives
- IP → allows a fair return on investment

↓
IP stimulates innovation

Return on investment drives innovation



Comparison of the evolution of yield of maize and wheat



Return on investment drives innovation



	Wheat	Maize
Global acreage (mio ha)	225	160
Research expenditure (mio US\$)	735	5100
Research expenditure (US\$ / ha)	3.3	32

10 times higher R&D expenditures for maize than for wheat → why?

ISF's principles of an efficient PVP system



- maximization the innovation potential both for new plant varieties and for patentable inventions.
- facilitation the global movement of seed
- balancing protection as an incentive for innovation and access to enable further improvement.
 - The breeder's exception → is one of the cornerstones of the PBR system
- Ratification the UPOV 1991 Act, or take up as many provisions as possible
- Need for enhancement of the reproducibility, efficiency and harmonization of DUS process

ISF's view on patents for plant related inventions



- PBR and patents are effective protection systems – needed to stimulate the full scope of innovation in agricultural species.
 - Preferred form of protection for varieties is through PBR
- Key requirement for any IP system is to achieve the right balance between **protection** as an incentive for innovation and **access** to enable others to further improve and innovate.
↓
- Benefit of breeder's exception under PBR needs to be preserved even when patents are involved.

ISF's view on patents for plant related inventions



Some principles of patentability:

- Inventions relating to traits made by humans and modern technologies should be eligible for patent protection.
 - The results of routine work such as conventional crossing and selection shouldn't be patentable.
- ↓
- As a matter of principle ISF supports that only true invention are patentable and that discoveries are not.

Standard electronic application process



Standard electronic application process (*under development*) will be further streamlined by the following features:

- standard application fee paid to a single bank account
- single application fee for several countries
- single application for several countries
- standard check of Novelty

PBR: Parental lines of hybrids



- Material used in breeding should only be accessed in a manner that respects the legal rights of the owner.
- Extraction of parent seed from hybrid seed is not considered legal access.
- Proprietary parental lines developed solely for the purpose of producing hybrids should not be used by third party without the consent of the owner.

PBR: Farm saved seed



- FSS of protected varieties erodes incentives for further breeding by reducing the appropriate share of value the breeder created.
- ISF believes that farm-saved seed of protected varieties should not be permitted.
- However, if authorities choose to include the optional exception, as described in Art 15 (2) of the UPOV 1991 Act, the implementation should include an obligation to pay reasonable remuneration to the breeder.

PBR: EDV



- The EDV principle appropriately strengthens PBR, yet does not restrict the breeders' exception which is a key feature of the UPOV Convention.
- The concept of EDV has drastically decreased plagiarism in plant breeding because all plagiaristic varieties are also EDVs.

PBR: Use of DNA markers



- ISF endorses the use of DNA-based markers for variety identification purposes and to help determine genetic similarity between varieties to help resolve disputes on essential derivation.
 - ✓ Use for improvement of the management of reference collections and planning of DUS trials
 - ✓ Use when fully predictive of the expression of DUS characteristics to simplify the testing of these characteristics.
- ISF supports the work of UPOV Working Group on BMT to find new and acceptable applications of DNA – based markers in the field of DUS testing.

Most common infringements of IP in the seed sector



- Open pollinated varieties (cereals, forage crops) – production of farm saved seeds
- Hybrid vegetable seeds – vegetative propagation
- Hybrid seeds (maize, sunflower,) – counterfeit seeds

Offenders:

- Competitors
- Farmers
- Plant-raisers
- Organized crime

Why seeds are counterfeited



- Recession, low income for farmers
- Relatively easy to organize

Low risk – not in the main focus of the law enforcement means:

- no harm to the human health (pharmaceuticals, foods)
- not such a big loss on tax revenue (tobacco, alcoholic beverages)

High profit

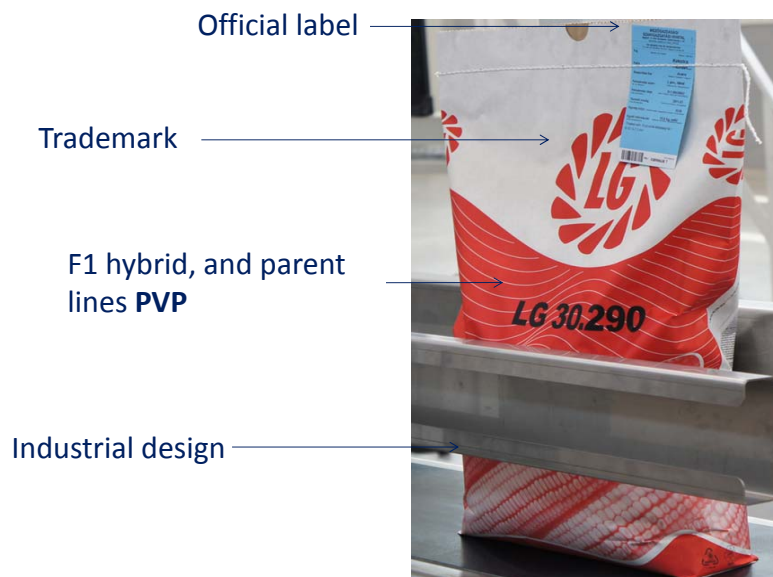
Complex protection needed



Other forms of possible protection complementing PVP:

- Copyrights
- Patents
- Trademarks
- Geographical denomination
- Industrial design
- Bag tags
- Strict contractual conditions
- Monitoring of users

Example of different elements of protection



Other seed industry examples



- Barcodes
- Holograms
- Other non visible security elements



Conclusion



- Tremendous progress in agricultural productivity in various parts of the world is largely based on improved varieties.
- Plant Breeding is a very costly activity in both time and money.
- IP rights are indispensable to protect and sustain breeder's efforts and investments.
- UPOV constitutes the international standard system for *sui generis* PVR.
- Effectiveness of PVR greatly depends on national laws and supportive regulatory framework.
- Breeders have to make use of every form of legal protection and other existing tools to protect their varieties and seeds.