

IPKey South-East Asia

WEBINAR SERIES ON PLANT VARIETY PROTECTION

**Benefits of Plant Variety Protection  
and UPOV 1991 Membership  
for Food Security and  
Economic Development in the Context of Climate Change**

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*Legal Counsel and Director of Training and Assistance*

November 12, 2020

Video Conference – UPOV, Geneva, Switzerland



International Union for the Protection of New Varieties of Plants



**Peter Button** @vsgupov · Aug 15

#IPCC Report explains importance of #PlantBreeding to develop varieties resistant to drought, flood, heat and salinity in response to #ClimateChange. #UPOV #PlantVarietyProtection supports breeding.



UPOV on Social Media: **Twitter:** @UPOVint ; @vsgupov



## PREVIEW

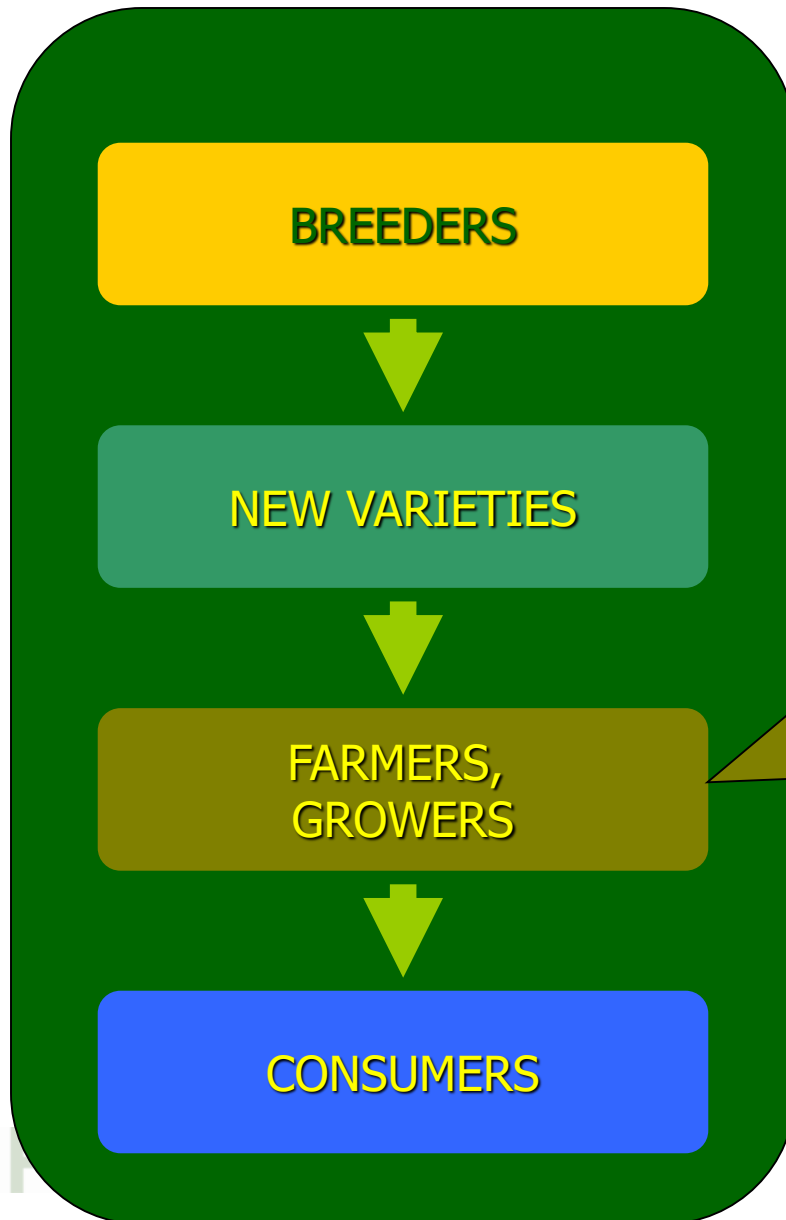
1. What is UPOV and why an effective international system of plant variety protection is important?
2. UPOV in the Asian region
3. What are the challenges in encouraging investment in plant breeding?
4. How plant variety protection and UPOV membership provide the basis for food security, business opportunities while mitigating and responding to climate change?

# **1. What is UPOV and why an effective international system of plant variety protection is important?**



## **UPOV MISSION STATEMENT**

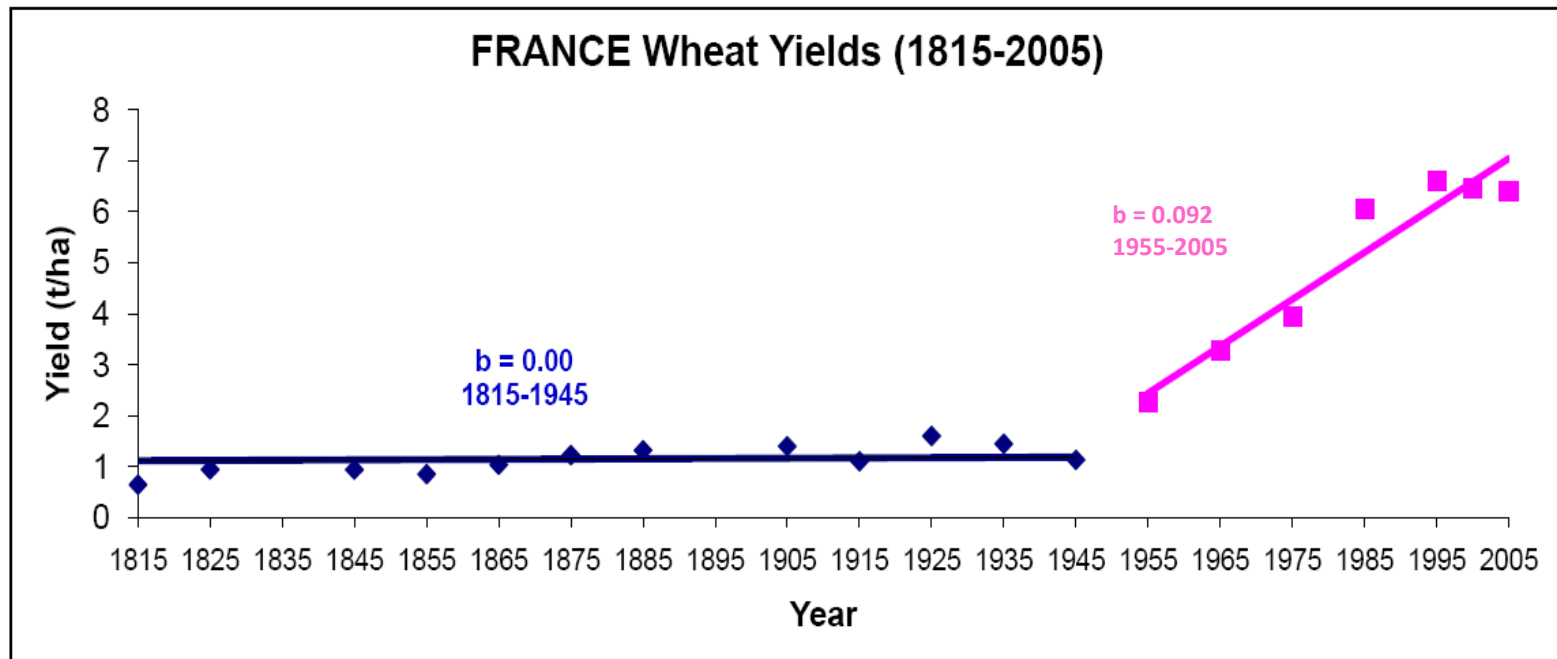
**“To provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society”**



- Yield
- Profitability
- Resistance to pests and diseases
- Stress tolerance
- Harvestability
- Crop quality
- Input efficiency
- Variety diversity
- New markets ...etc.

# Importance of Plant Breeding

## Evolution of Wheat yield in France



Berna  
Second World Seed Conference (Rome, September 2009)



# Improved Varieties

## Hot pepper

Development of disease resistant variety



🟡 **Dok-Ya-Cheong-Cheong**  
Resistant to phytophthora blight/virus

Phytophthora blight (Fungal disease):

- above : **Resistant variety**
- below: **Susceptible variety**

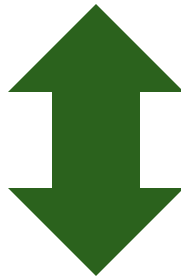
Chang Hyun Kim, Second World Seed Conference



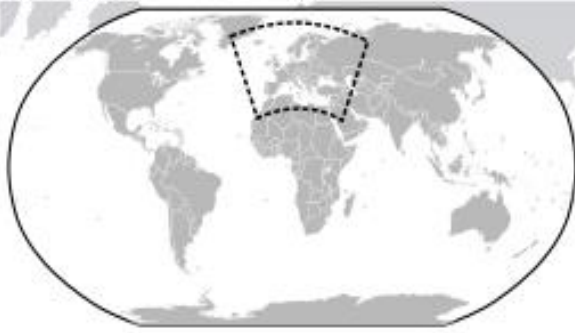
BREEDERS' RIGHTS



FARMERS' BENEFITS



NEEDS OF SOCIETY



UPOV

# HOW TO BECOME A MEMBER OF UPOV

see documents UPOV/INF/13/2 and UPOV/INF/6/5 at  
[http://www.upov.int/members/en/upov\\_membership.html](http://www.upov.int/members/en/upov_membership.html)

## State/Intergovernmental Organization must:

- **Have a law which conforms to the UPOV Convention**
- **Ask advice of the Council of UPOV**
- **If advice positive: deposit instrument of accession**

# UPOV MEMBERSHIP PROCESS

- Policy decision to draft legislation in accordance with the 1991 Act of the UPOV Convention
- Contact the Office of UPOV for assistance provision of the Drafting Guidance Document INF/6 and consultations
- Finalize the Draft Law for its examination by the Council of UPOV
- Ask advice of the Council of UPOV
- If advice positive and Law in force deposit instrument of accession to become a UPOV member



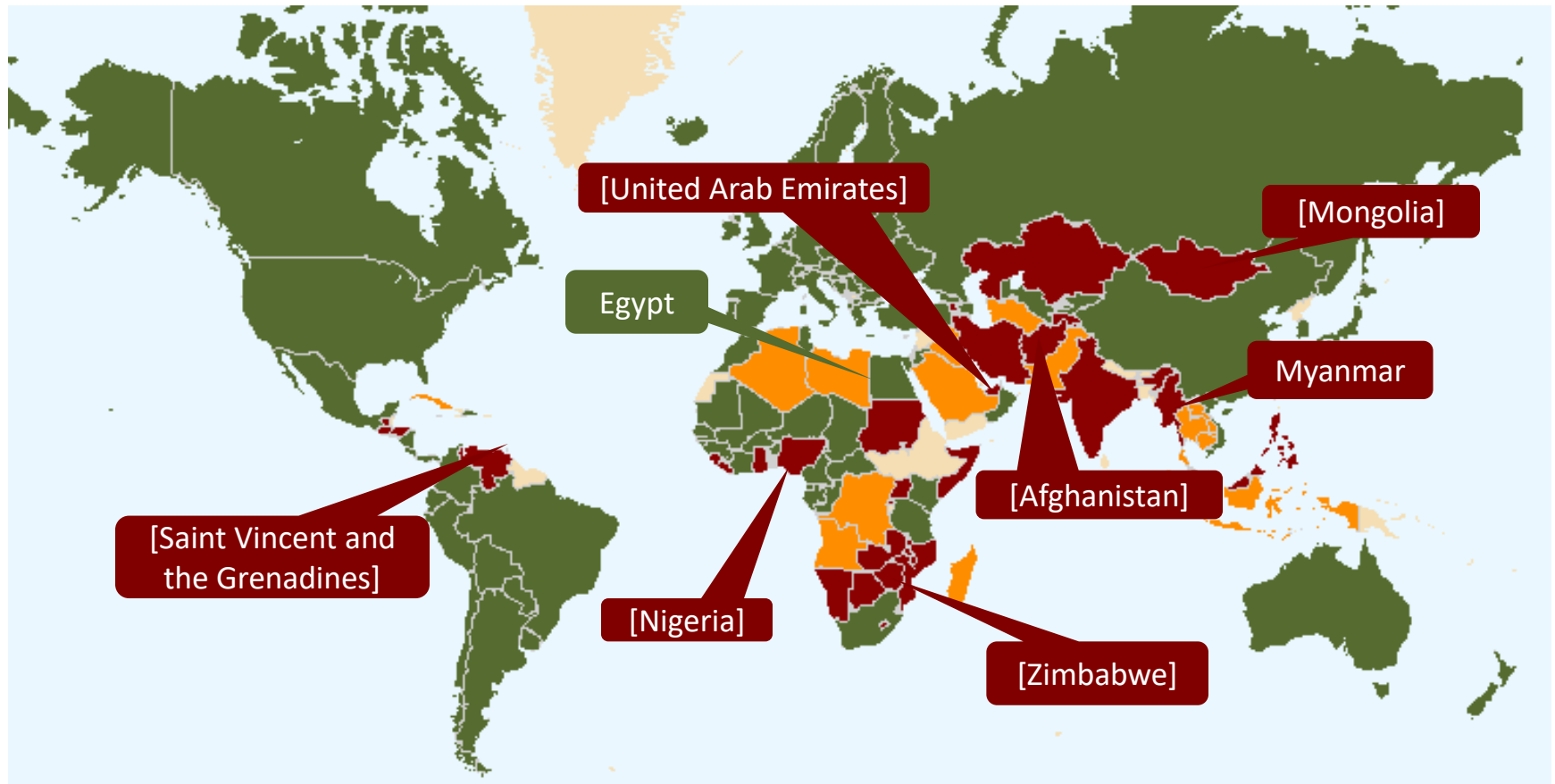
UPOV membership is of importance for **all types of farmers in Egypt**, in particular small holder farmers. Availability in Egypt of **improved varieties**, with high yield and adapted to climate change, from local and foreign breeders is crucial for small farmers to **get quality seed at a fair price in order to produce nutritious food to meet the demand of a growing population** and to provide for **export opportunities and better income** for farmers.

Delegation of Egypt  
Council of UPOV  
November 1, 2019

# Examination of [draft] Laws (2019-2020) (all positive)

## UPOV STATUS

on November 12, 2020

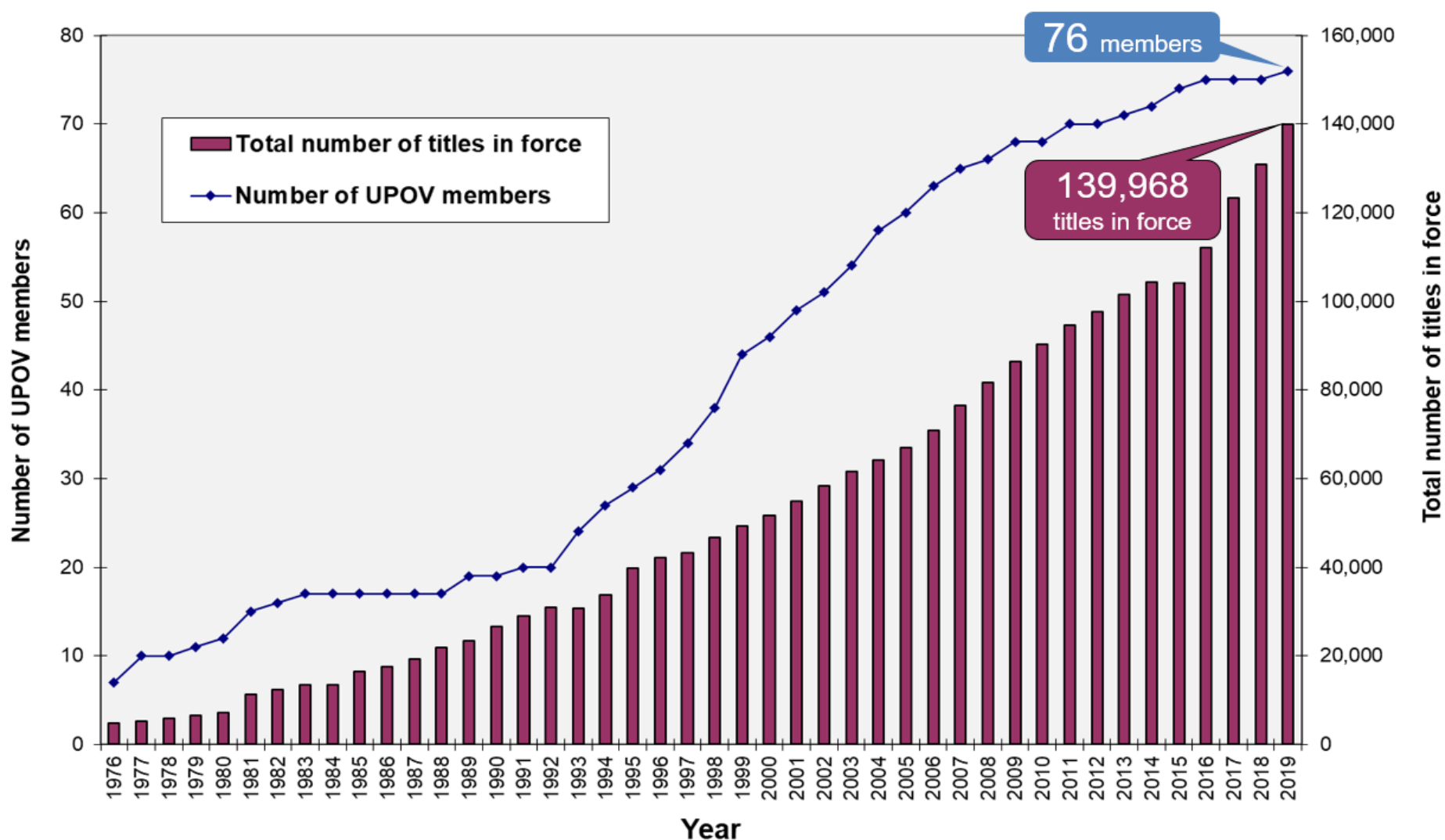


*The boundaries shown on this map do not imply the expression of any opinion whatsoever on the part of UPOV concerning the legal status of any country or territory*






- Members of UPOV (76) (covering 95 States)
- Initiating States (20) and Organization (1)
- States (23) and Organization (1) in contact with the UPOV Office



# Titles in force / Number of UPOV members



# Effective plant variety protection in accordance with the **UPOV Convention** covering **95 States**

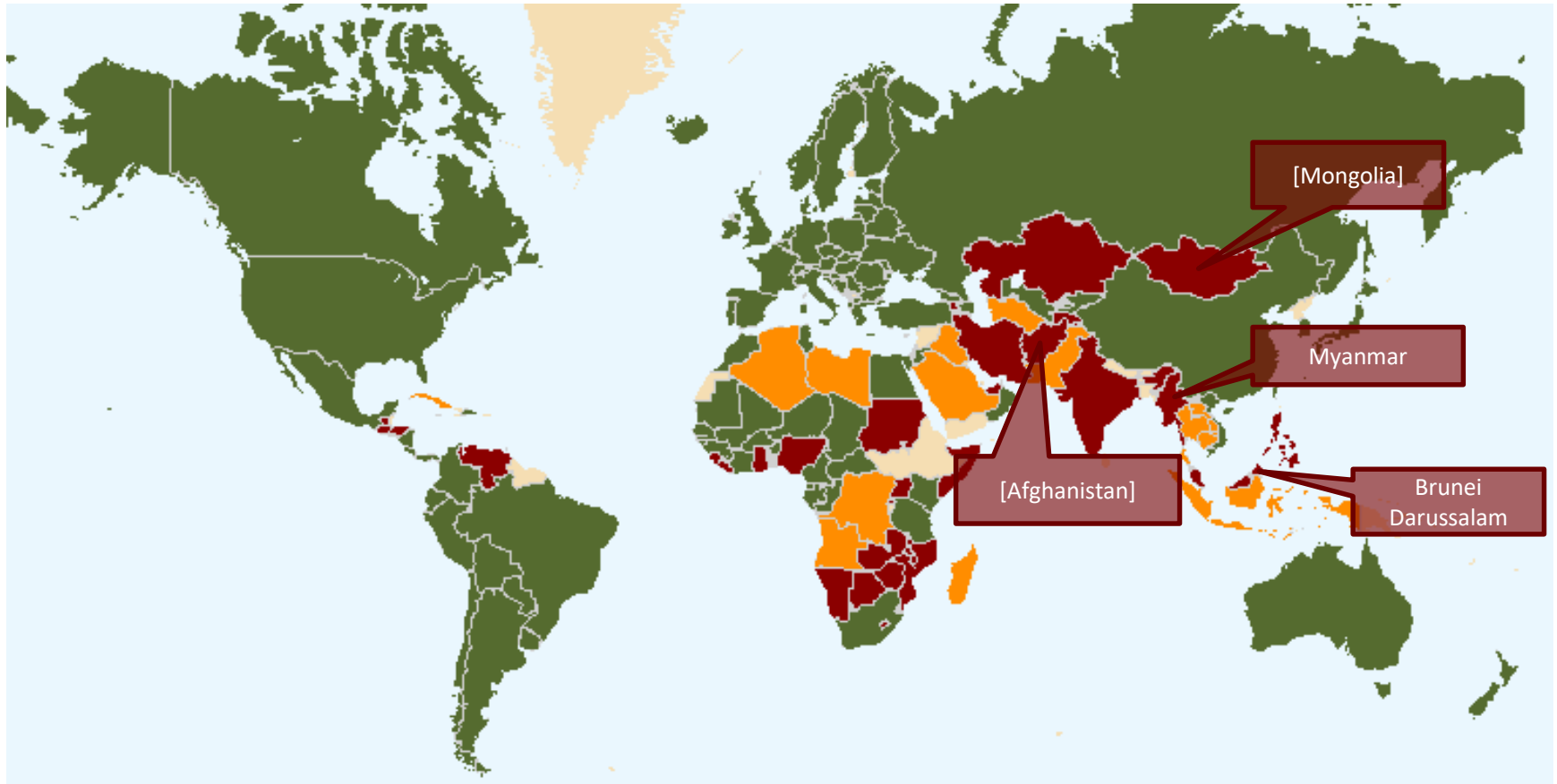
Procedure before UPOV Council		Harmonization	Resources	Training & assistance & Cooperation
IMPLEMENTATION	PVP Law	<ul style="list-style-type: none"><li>UPOV Convention</li><li>Explanatory Notes</li></ul>	 UPOV Lex	<ul style="list-style-type: none"><li>Comparable level of protection for all types of breeders in all UPOV members: same conditions of protection, effective scope and exceptions, same reasons of nullity and cancellation; appropriate enforcement</li><li>Distance learning courses</li><li>UPOV events &amp; activities</li><li>Assistance by individual UPOV members</li></ul>
	PVP Office	<ul style="list-style-type: none"><li>Guidance for Members of UPOV (INF/15)</li></ul>	Cooperation tools in administrative and examination matters	
	➤ Application	<ul style="list-style-type: none"><li>Model Application Form (TGP/5/Section/2)</li></ul>	 UPOV PRISMA	
	➤ Variety Denomination	<ul style="list-style-type: none"><li>Explanatory Notes on Variety Denominations (INF/12)</li><li>UPOV Code</li></ul>	 PLUTO database	
	➤ Novelty	<ul style="list-style-type: none"><li>Explanatory Notes on Novelty (EXN/NOV)</li></ul>		
	➤ Distinctness ➤ Uniformity ➤ Stability	<ul style="list-style-type: none"><li>General Introduction</li><li>TGP Documents</li><li>Test Guidelines</li><li>Model Agreement (cooperation)</li></ul>	 GENIE Database  Exchangeable software	
	➤ Publication	<ul style="list-style-type: none"><li>UPOV Model Plant Breeders' Rights Publication (INF/5)</li></ul>	 PLUTO database	

## 2. UPOV in the Asian region

# Examination of [draft] Laws (2017-2020) (all positive)

## UPOV STATUS (Asia Pacific region)

on November 12, 2020

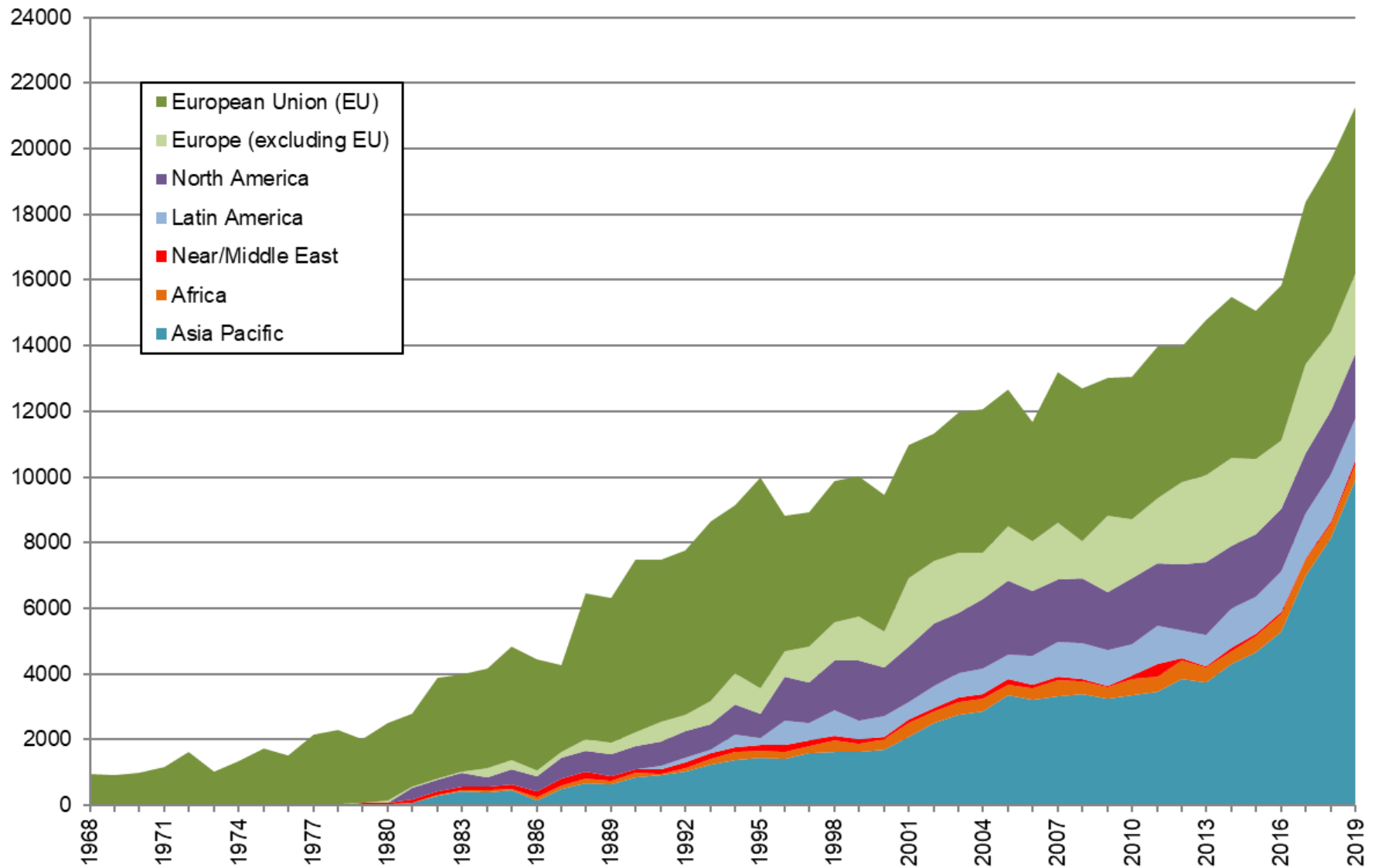


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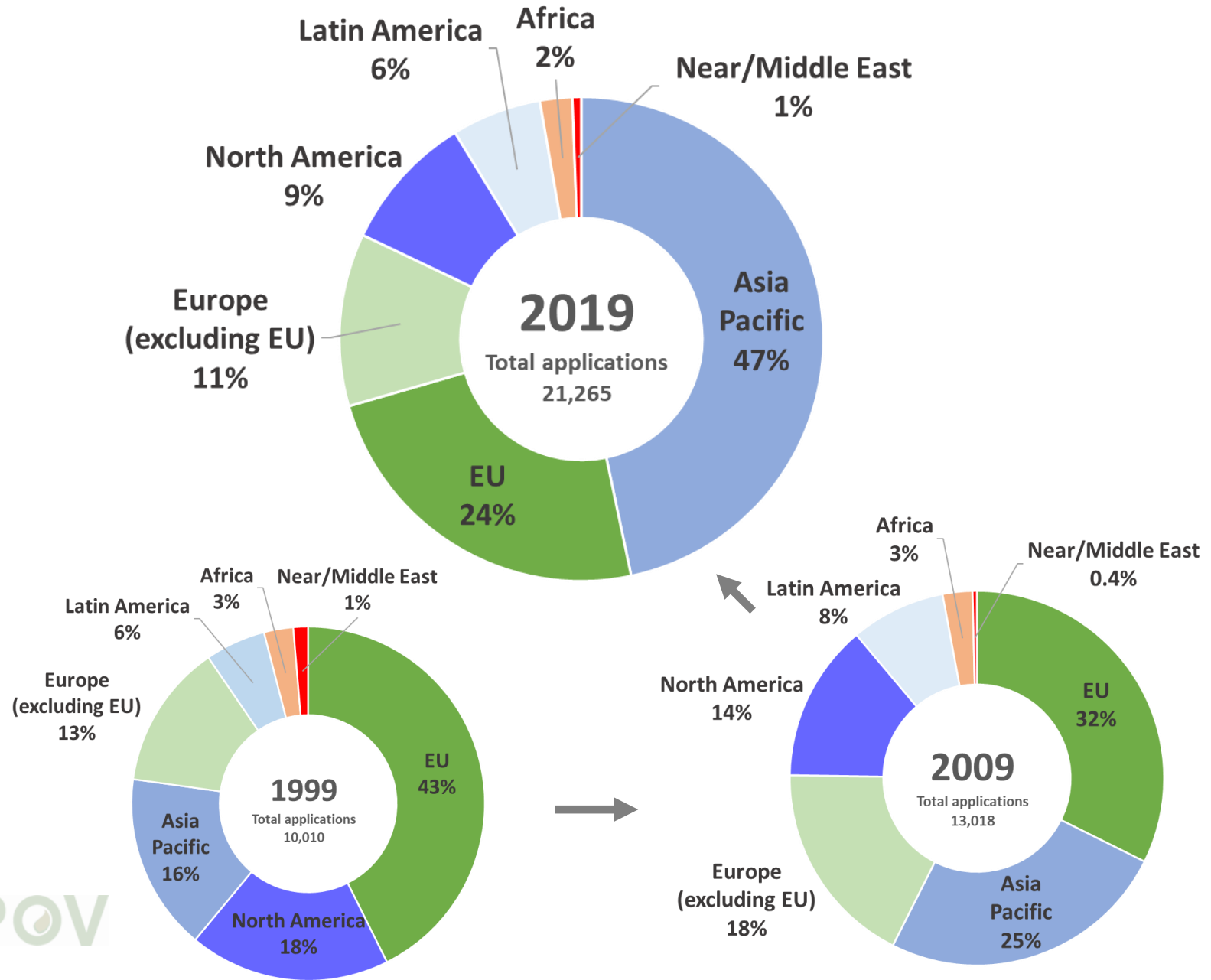
- Members of UPOV (76) (covering 95 States)
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# Plant variety protection statistics

## Applications for Plant Breeders' Rights by regions

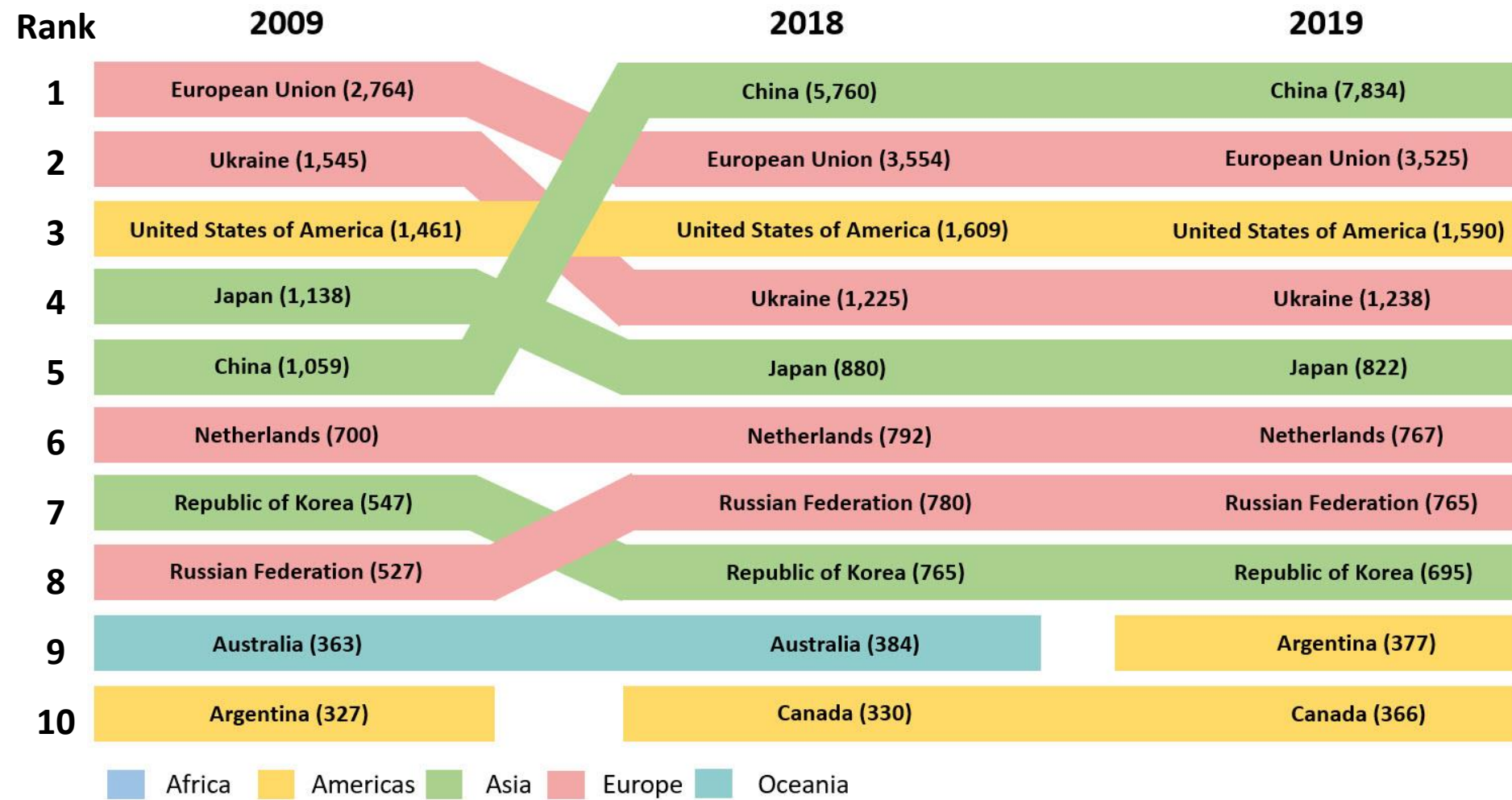


# Applications received by Region – 1999 to 2019





# Top 10: UPOV members by number of plant variety protection applications received



# Benefit of Society

Food  
security

Economy

Climate  
change

Environ-  
ment

Technology  
transfer

Better,  
cheaper  
food

Export  
International  
competitiveness

Adapted  
crops

Sustainable  
production

Usable  
technology  
(varieties)

Reduce  
high cost  
imports

Less  
inputs

Public  
Private  
Partner-  
ships

Rural  
employ-  
ment

Farmers: increased, sustainable income; high quality seed; incentive to innovate

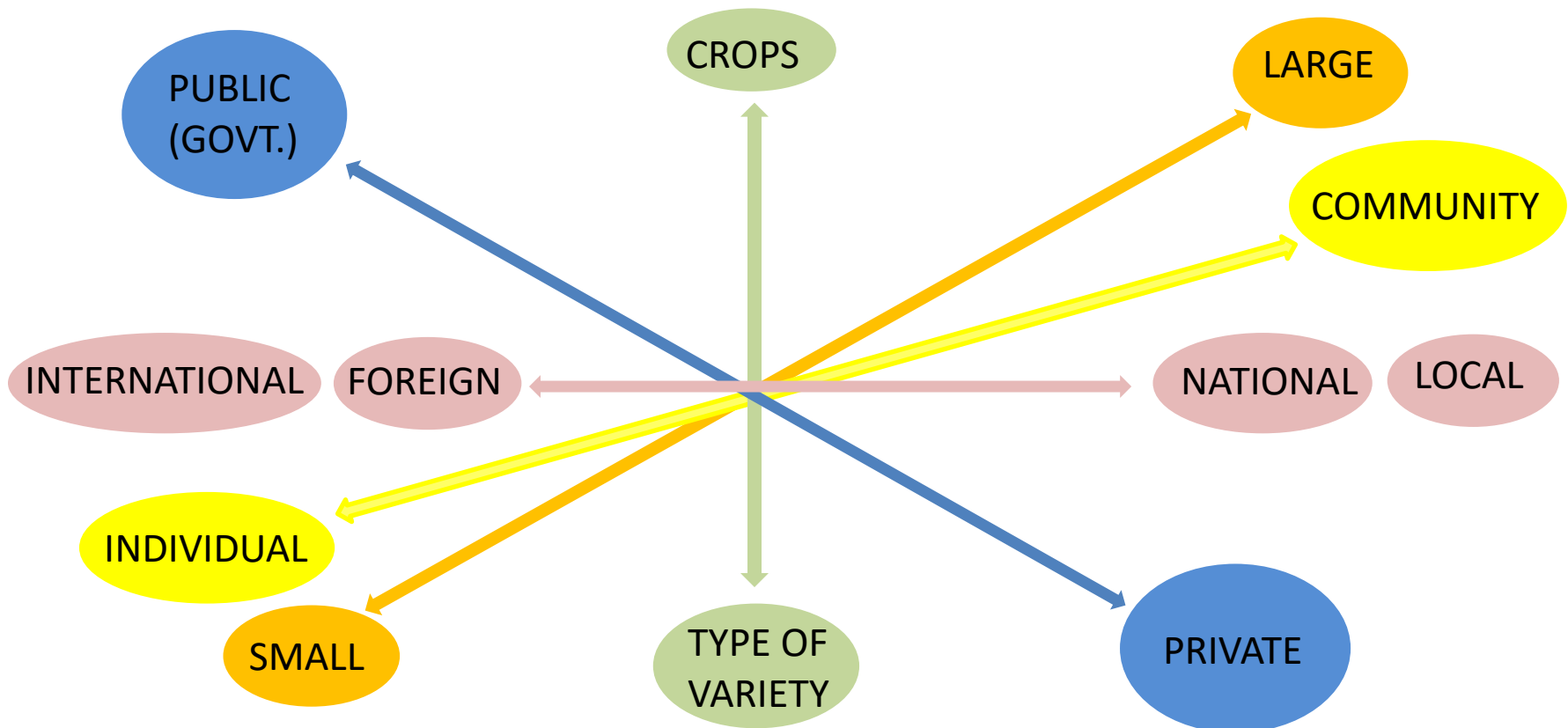
encouraging the development of  
breeding new, improved varieties

new varieties of plants

Capture value of native plant genetic resources

### **3. What are the challenges in encouraging investment in plant breeding?**

# Different types of Breeders



What are the practical challenges for technology transfer and commercialization?  
or...

How to:

- identify important variety **performance** and **quality** characteristics for farmers and consumers
- breed **new varieties** with those characteristics
- deliver **good quality seed /propagating material** in a timely way
- professional **distribution**, SMEs engagement in national, regional and international **trade**

## PUBLIC SECTOR

## PRIVATE SECTOR

BREEDERS

International  
Breeding  
(Institute)

National  
Breeding  
Institute

Large enterprises  
(e.g. companies,  
cooperatives)

SME's

Individuals  
(e.g. farmers)

SEED PRODUCERS / PLANT PROPAGATORS

DISTRIBUTORS

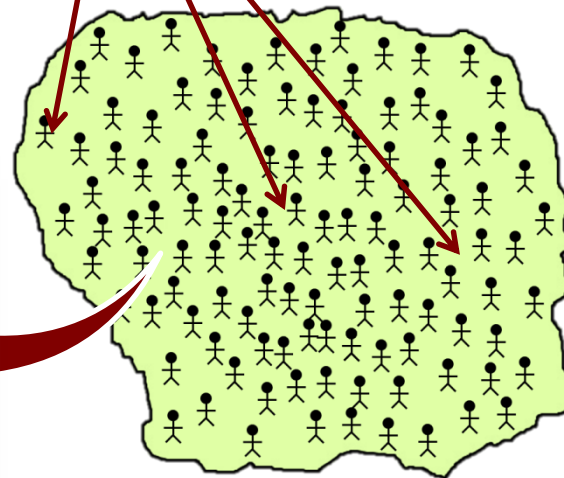
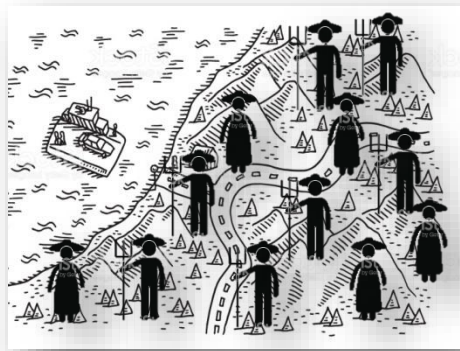
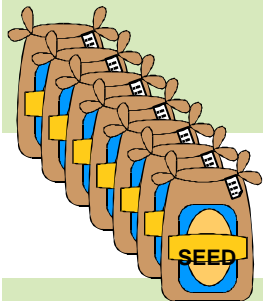
PBR  
LICENCES

PRODUCTION  
&  
DISTRIBUTION

SEED

INFORMATION

FARMERS





# Change the mode on the agriculture production (Viet Nam (Minh 2017))

## Seed distribution system of new varieties

### BEFORE PVP

Breeders

No Professional  
distribution  
system

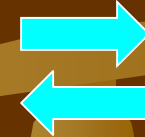
Farmer

Not professional  
Seed quality  
control difficult

### AFTER PVP

Breeders

License



Company

Royalty



Good professional  
distribution  
system

Farmer

Good service for the  
farmer;  
Better seed quality  
due to professional  
distribution

**4. How plant variety protection  
and UPOV membership provide  
the basis for food security,  
business opportunities  
while mitigating and responding  
to climate change?**

# BENEFITS OF PVP SYSTEM AND UPOV MEMBERSHIP

## (a) Breeders

- Diversity of breeders
- Number of breeders
- Investment in breeding

## (b) Improved varieties

## (c) Farmers, Growers, Consumers

- Delivering improved varieties to farmers growers
- Delivering added value to consumers
- Income and Knowledge

## (d) International dimension

- Development of new industry on foreign markets
- Access to foreign varieties and enhanced domestic programs

## Breeders



## FARMERS

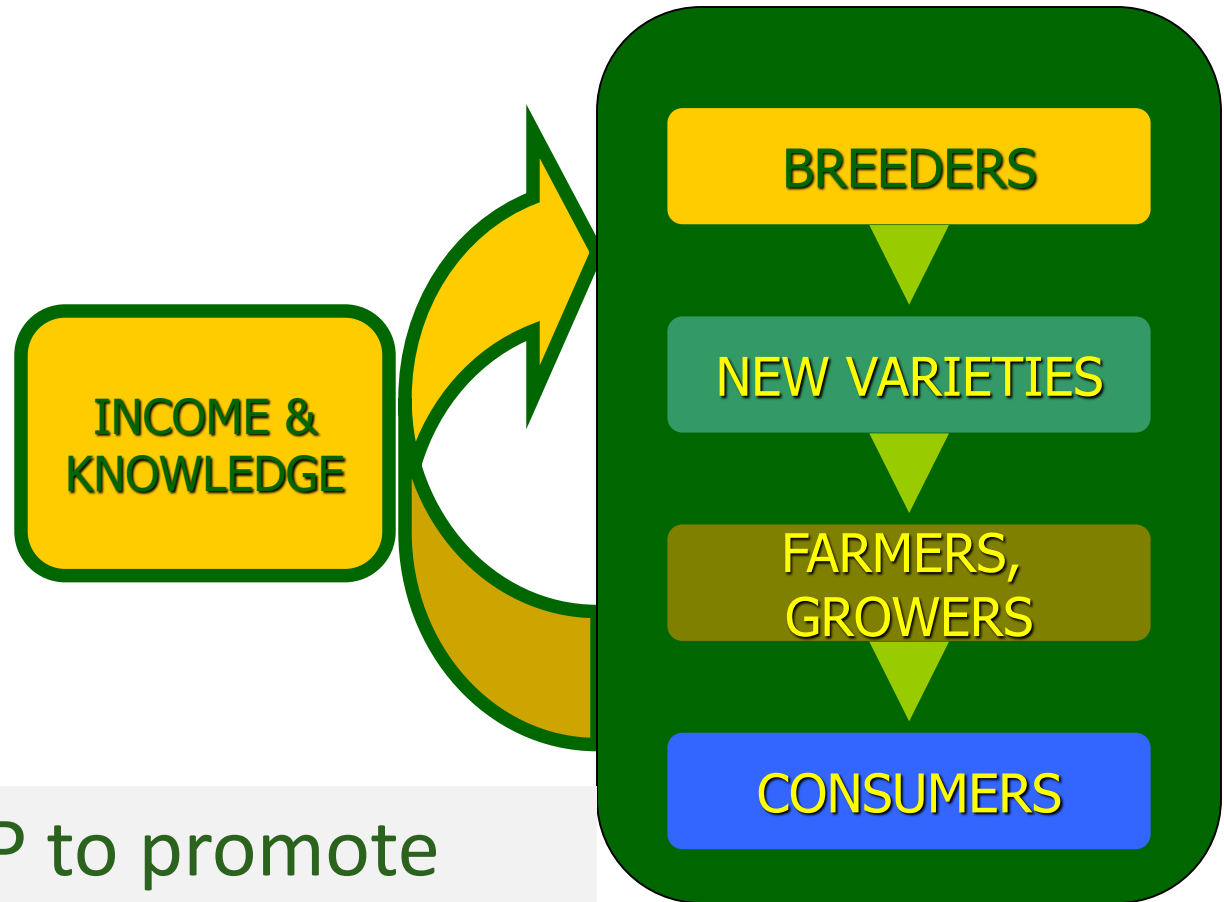


# AGRICULTURE: Economic development; rural development; climate change...

## TECHNOLOGY TRANSFER



Photo: iStock / valentinart



The role of PVP to promote  
development of new varieties

## Successes/Impact Resulting from PVP cont'

### Employment creation

- It is estimated that over 500,000 people (including over 90,000 flower farm employees) depend on the floriculture industry.





## High Level Study Tour (Japan, July 2016)



Koshihikari (越光)  
(1,580 ¥)

Tsuyahime  
(2,480 ¥)



## Rice variety “Tsuyahime”



- High quality variety (good taste)
- Yamagata prefectural government holds the plant breeder's right
- Royalty free for Yamagata farmers, royalty paid by other farmers
- Location and agronomy (less fertilizer and pesticide) controlled to maintain quality (= high market price)
- Increased farmers' income

# KSVS Symposium on Plant Variety Protection Seoul, Republic of Korea (September 3, 2015)

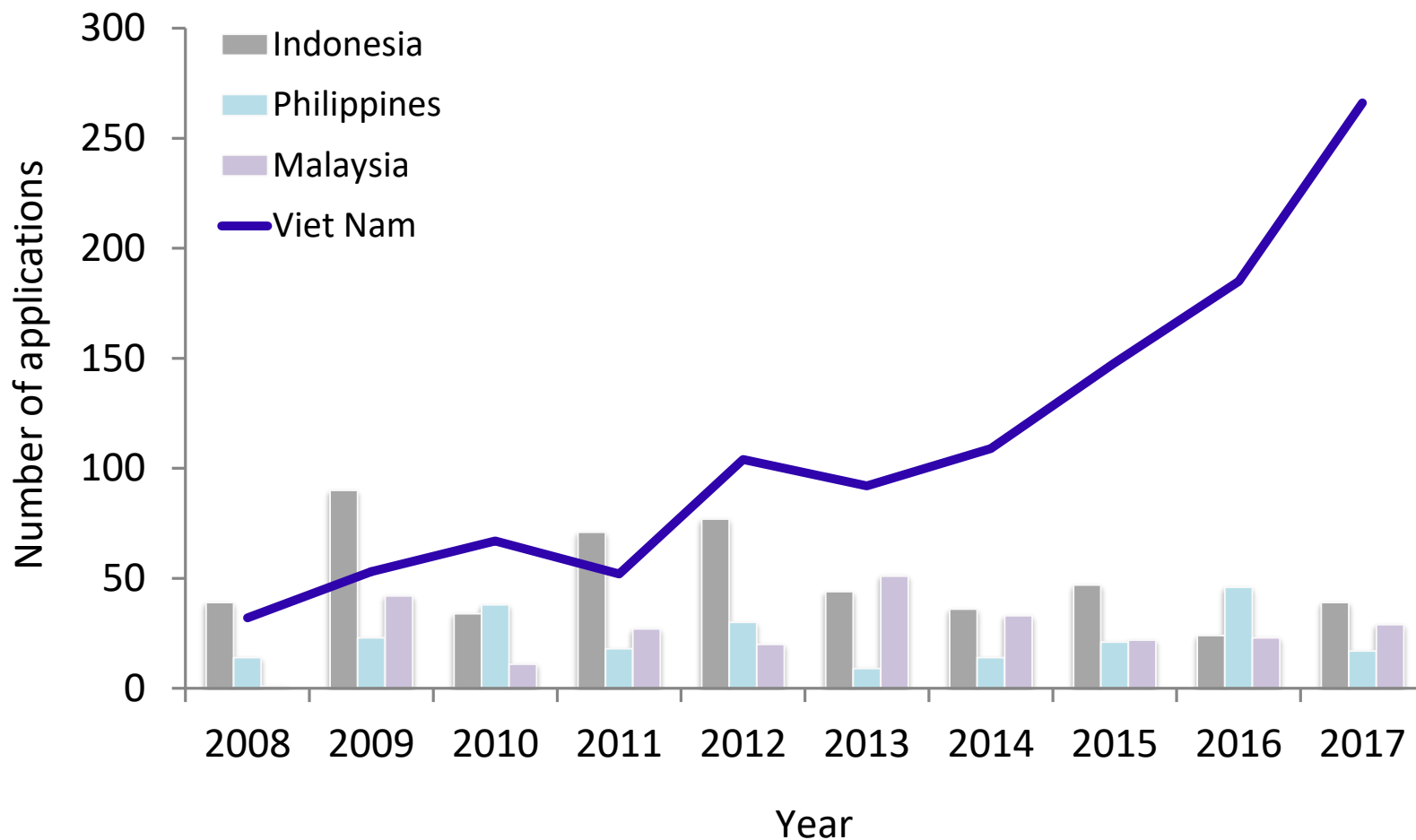
## Korean Rose Breeding Converts a Royalty Payer into a Receiver

Charlie Jeong/wonwoo trading

## Becoming Royalty Receiver

1. Korean pay rose royalty abroad about 1,040,000plants in year 2014
2. GARES rose varieties are sold about million in year 2014
3. Korea change from royalty payer to royalty receiver

# Applications for Plant Breeders' Rights



1. Erizal Jamal, Director, Center for Plant Variety Protection & Agriculture Permits, Indonesia. 10<sup>th</sup> East Asia Plant Variety Protection Forum Meeting
2. Dr. Mary Ann P. Sayoc, President, Philippine Seed Industry Association. National Seminar on Benefit of The Plant Variety Protection System, Philippines (11<sup>th</sup> EAPVP ), August 2, 2018
3. Sri Ikarostika Rahayu Binti Muhammad Ghazi. Department Of Agriculture, Malaysia. National Seminar on Benefit of The Plant Variety Protection System, Philippines (11<sup>th</sup> EAPVP ), August 2, 2018
4. Nguyen Thanh Minh, PVPO, Mard/Viet Nam. National Seminar on Benefit of The Plant Variety Protection System, Philippines (11<sup>th</sup> EAPVP ), August 2, 2018

# 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



**The socio-economic benefits  
of UPOV membership in Viet Nam:**

An ex-post assessment on plant  
breeding and agricultural productivity  
after ten years

Corresponding author: Steffen Noleppa



HFFA Research Paper 03/2017

# STUDY in VIET NAM



Photo: iStock / Rawpixel

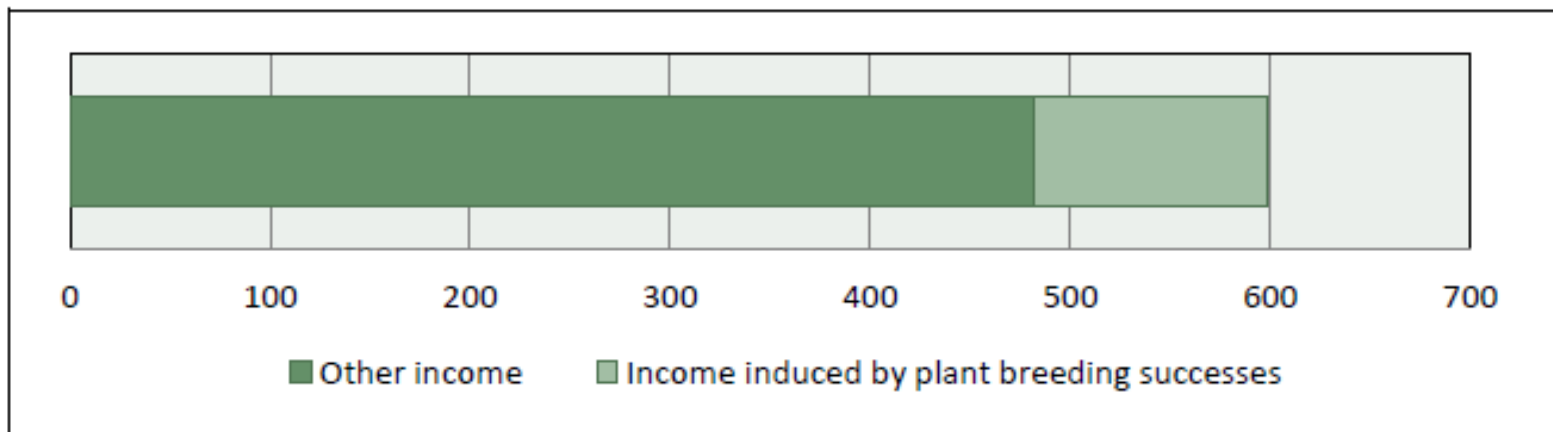
Without those developments since 2006,  
**current annual yields** in Viet Nam would be lower by:

- |                  |      |
|------------------|------|
| – Rice           | 16 % |
| – Corn           | 19 % |
| – Sweet potatoes | 27 % |

# STUDY in VIET NAM

**INCOME of Vietnamese farmers has increased by 24% since 2006**

**Figure 4.6: Income of a Vietnamese farmer induced by plant breeding successes for major arable crops since UPOV membership vs. other income in arable farming (in USD)**



Source: Own figure and calculations.

# STUDY in VIET NAM

## Annual value added:

- Arable farming \$2.3 billion
- Horticulture \$1.0 billion
- Floriculture \$ 0.2 billion
- GDP added upstream/downstream (value chains)  
\$1.5 billion

**TOTAL ADDED: \$5 billion**

**(> 2.5% GDP)**





Protected  
plant varieties

Unprotected plant varieties

**Not regulated by UPOV**

(ITPGRFA, CBD, seed marketing regulations  
etc.)

Wild populations



# 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.”

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

“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.”

UPOV





## Vuyisile Phehane



• Delivering high performance varieties to subsistence/smallholder farmers

- Local licensing agreement with a South African company
  - for the commercialization of some of the ARC's citrus varieties.
  - A condition of the license: ensure the participation of smallholder citrus producers in the commercialization value-chain.
- Facilitated partnership with the Citrus Growers' Association to access ARC

# BENEFITS FOR FARMERS AND TRADE OPPORTUNITIES

