

Activity 7 Closed Workshop on UPOV 1991

UPOV PVP system: Benefits for farmers, breeders and overall country perspectives

Manabu Suzuki, Technical/Regional Officer for Asia, UPOV

December 7, 2023 (Bangkok, Thailand)





What **benefits** do you think **plant breeding** can provide for **farmers** ?

Impact Study in Viet Nam*

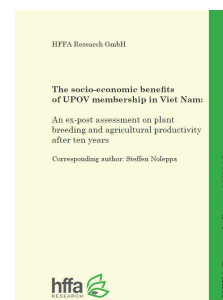
Annual land productivity developments since Viet Nam joined UPOV in 2006 in

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 %**

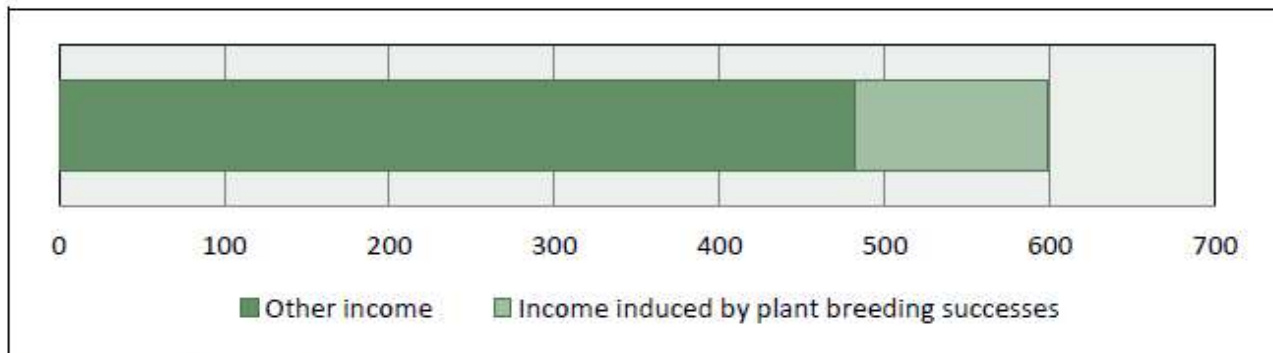
- “The socio-economic benefits of UPOV membership in Viet Nam; An ex post assessment on plant breeding and agricultural productivity after 10 years” (Corresponding author: Steffen Noleppa) by HFFA Research GmbH
- https://www.upov.int/about/en/benefits_upov_system.html



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.

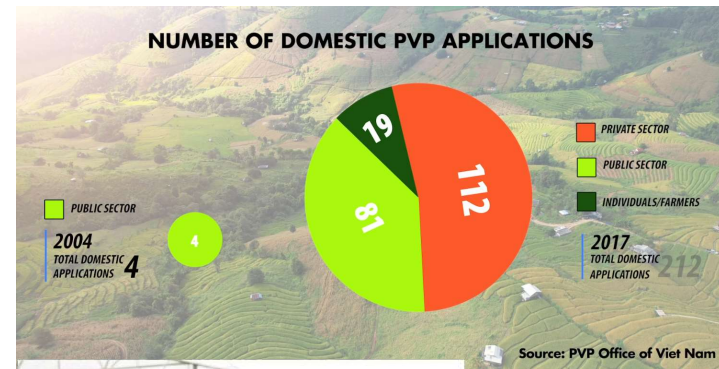
Viet Nam Stories Videos – Farmer’s benefits

Video 2 Flower Industry



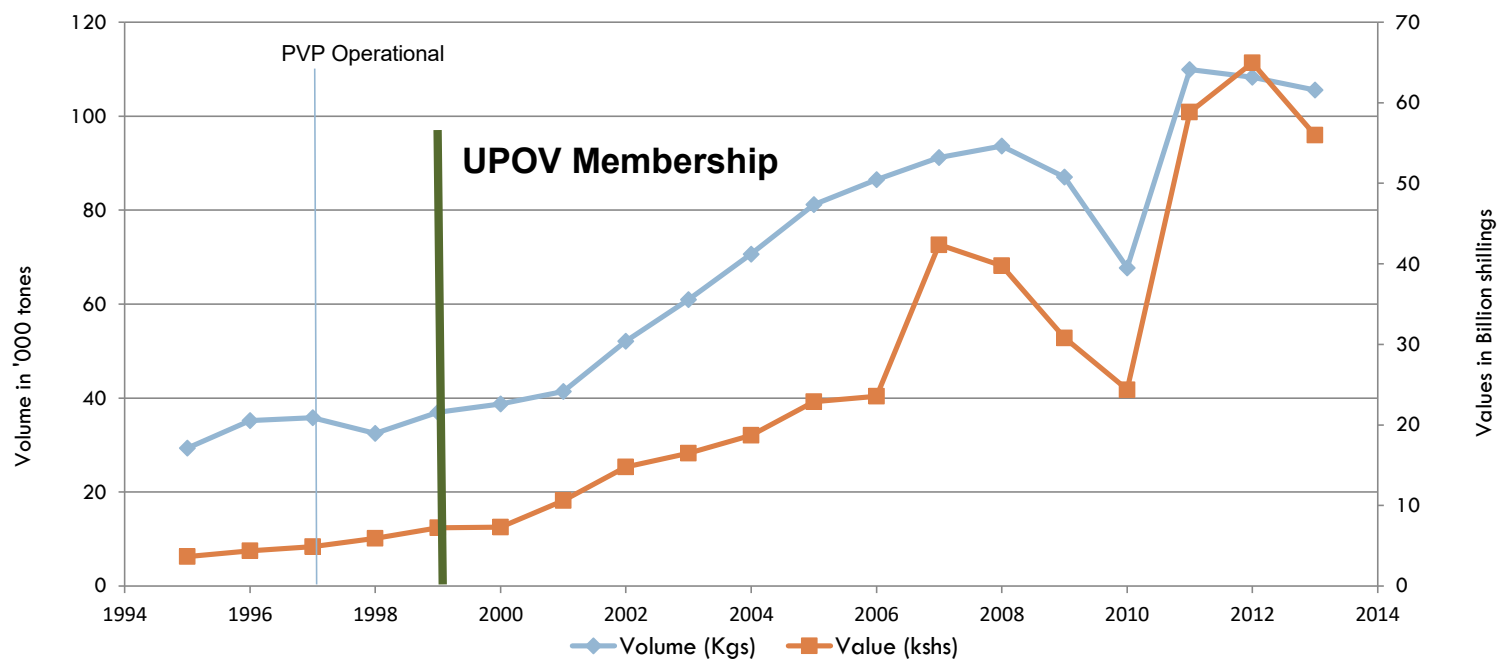
How Da Lat has become the center of the horticultural sector

Video 3 Transformation of Seed Industry



Evolution of seed industry after UPOV membership

Impact of Plant Variety Protection in Kenya



CUT FLOWER EXPORTS 1995 - 2013

Source: HCDA



Impact of PVP in Kenya

Cut Flower Industry

The Kenyan floriculture market was valued at USD 861.6 million in 2018, and is projected to register an annual growth of 4.7% during the forecast period (2020-2025).

In the year 2020, 142,477.8 MT of fresh flowers valued at **USD 1.09 billion** was produced in Kenya.



Impact of Plant Variety Protection in
Kenya

Simon M. Maina,
Head, Seed Certification and Plant Variety Protection,
Kenya Plant Health Inspectorate Service (KEPHIS)
(website: www.kephis.org)

March 2021

PLANT BREEDING THE ECONOMIC IMPACT



1.2 million European farmers and farm workers would be

30% worse off without plant breeding, earning €7,000 less annually (on average), and putting rural jobs at risk.



By 2030, this figure could be up to €14,000.



Research source: <http://bit.do/planttp-HFFAResearch>
More info: www.planttp.org

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



NEW VARIETIES OF COMMON

BEANS

(PHASEOLUS VULGARIS)

IMPACT ACHIEVED BY EMBRAPA
THROUGH PLANT VARIETY PROTECTION
OF NEW VARIETIES IN BRAZIL

FONTE: ARAÚJO, José Cordeiro de. A Lei de Proteção de Cultivares: análise de sua formulação e conteúdo. 2010

NUMBER OF NEW BEAN VARIETIES RELEASED ANNUAL AVERAGE

4
VARIETIES/YEAR



BEFORE PVP

15
VARIETIES/YEAR



AFTER PVP

After plant variety protection was introduced, 15 new varieties were released per year



UPOV = more choice for farmers...

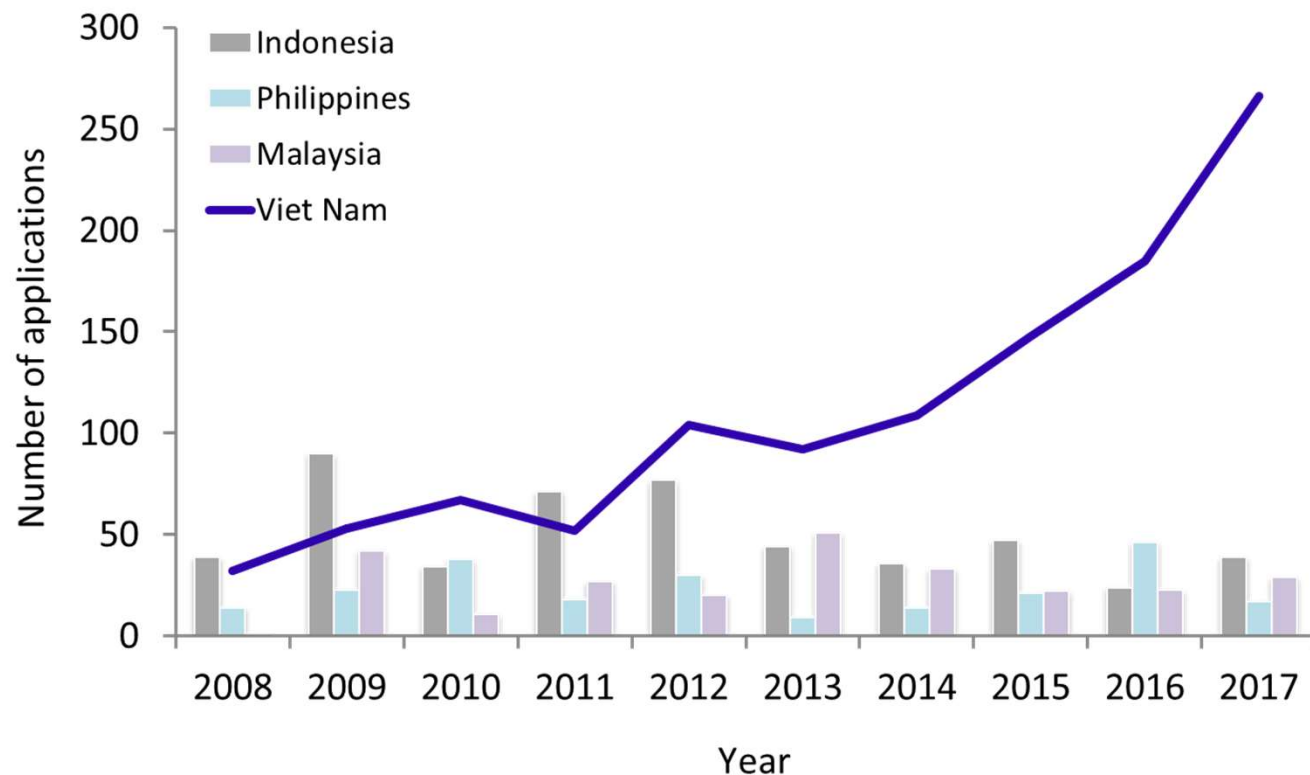
Farmers: income is increased

Example on benefits of Protected Varieties

Items	Protected Varieties	Non protected varieties
Price of Seed (rice, USD/1 kg)	<u>1.39</u>	0.64
Price of commercial grain is sold by farmer (rice, USD/Ton)	<u>292</u>	236
Average income in 1 ha for farmer (rice); USD	<u>1897</u>	1298
Benefits from seed of protected varieties	<ul style="list-style-type: none">✓ Better quality, productivity✓ Better tolerance in bad climate and diseases, insect✓ Reduce of invest for production	<ul style="list-style-type: none">???

* Source: VINA Seed Corporation (report on Nov. 2020)

Applications for Plant Breeders' Rights



1. Erizal Jamal, Director, Center for Plant Variety Protection & Agriculture Permits, Indonesia. 10th 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 (11th 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 (11th EAPVP), August 2, 2018
4. Nguyen Thanh Minh, PVPO, Mard/Viet Nam. National Seminar on Benefit of The Plant Variety Protection System, Philippines (11th EAPVP), August 2, 2018

Benefits of the UPOV Plant Variety Protection System



FARMERS' NEEDS AND EXPECTATIONS ON NEW IMPROVED PLANT VARIETIES

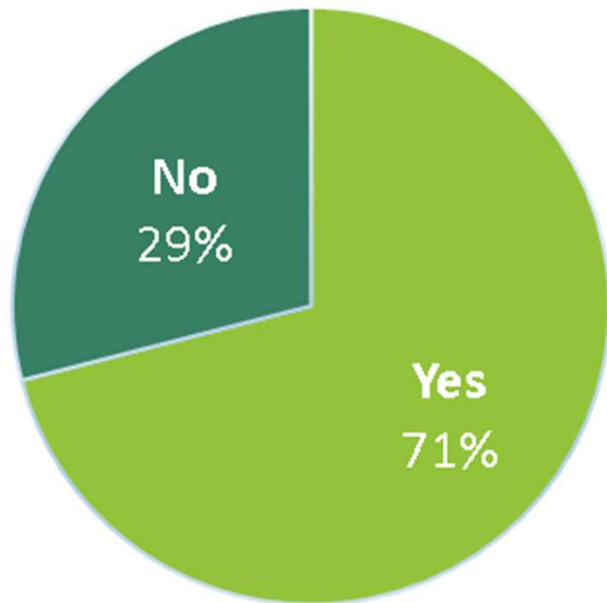
*Highlights from the WFO consultation
and technical workshop*

THE BIGGEST INDEPENDENT
GLOBAL FARMERS' VOICE

UPOV

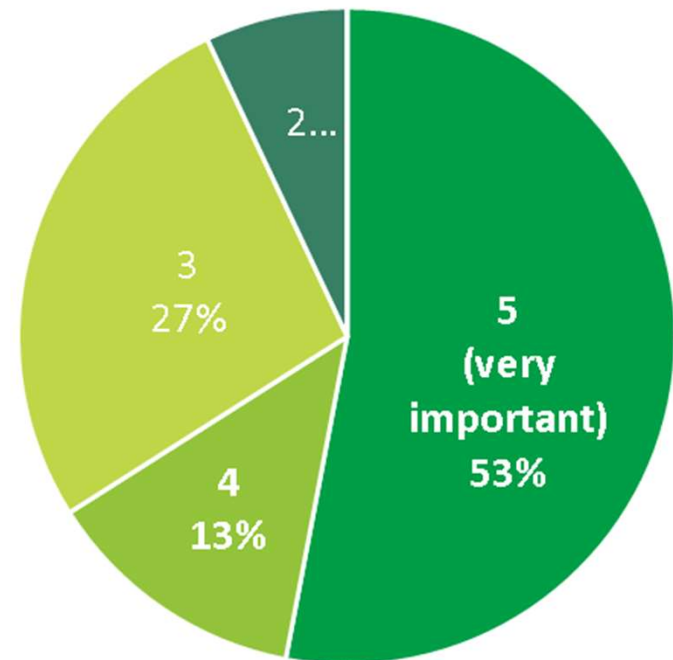
Benefits of the UPOV Plant Variety Protection System

THE CONSULTATION
- Do Farmers use
New Improved Plant Varieties?



THE CONSULTATION
- If Respondents use
New Improved Plant Varieties?

Importance of New Improved Plant Varieties
for the success of your farm

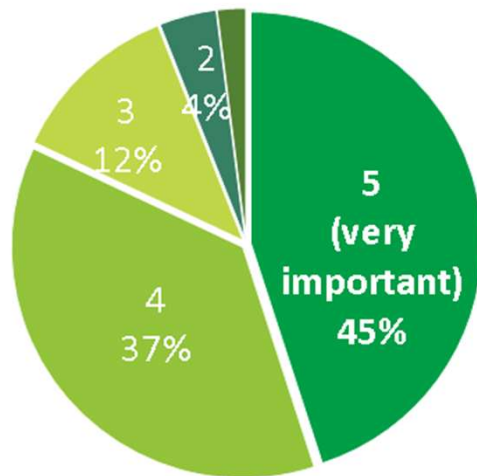


IF RESPONDENTS USE NEW IMPROVED PLANT VARIETIES
WHY?

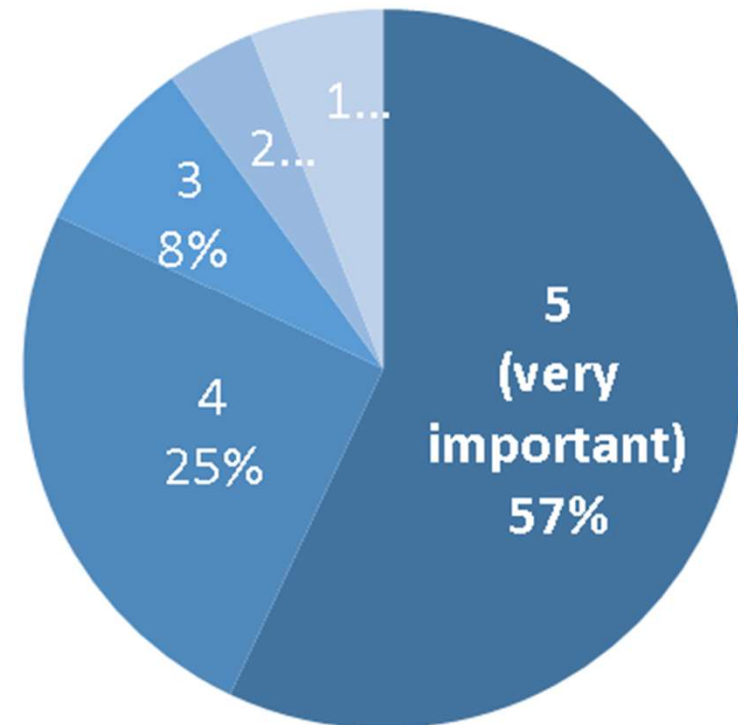


Benefits of the UPOV Plant Variety Protection System

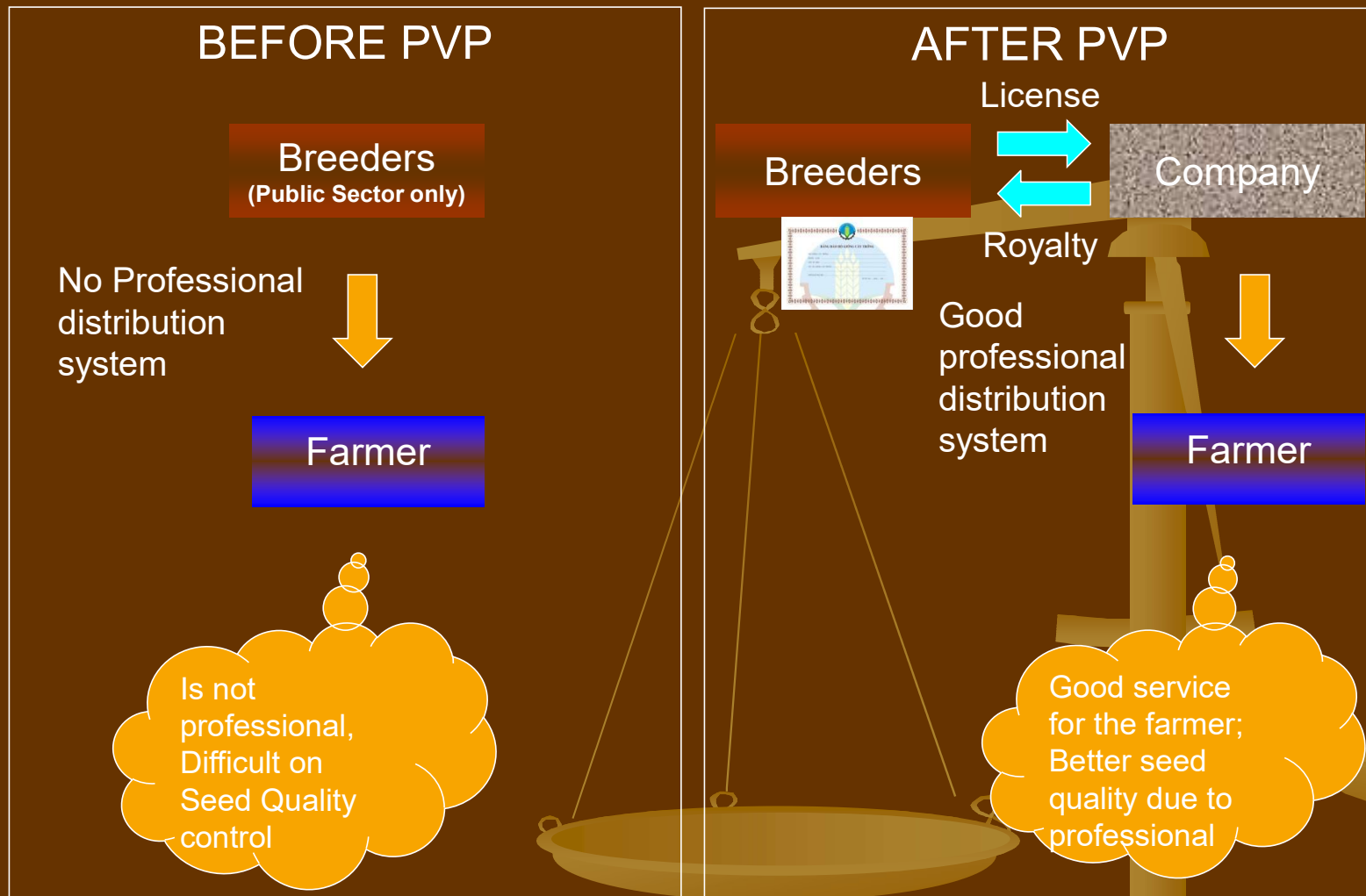
Consider New Plant Varieties important to **respond to climate change**



Consider New Plant Varieties important for the **sustainability of food systems**



Seed Quality and Service is improved by a new system





WHO do you think
could be a BREEDER
according to the UPOV
system?

Definition of Breeder

BREEDER

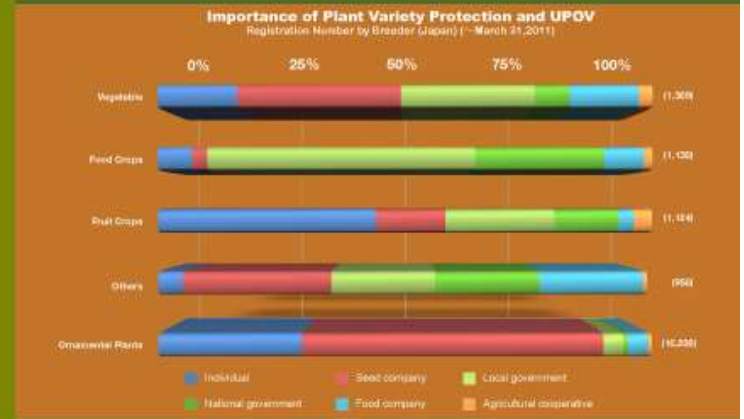
The person

who bred, or discovered
and developed,

a variety

Who can protect a plant variety?

There are no restrictions on who can be considered to be a breeder under the UPOV system: a breeder might be an individual, a farmer, a researcher, a public institute, a private company etc.

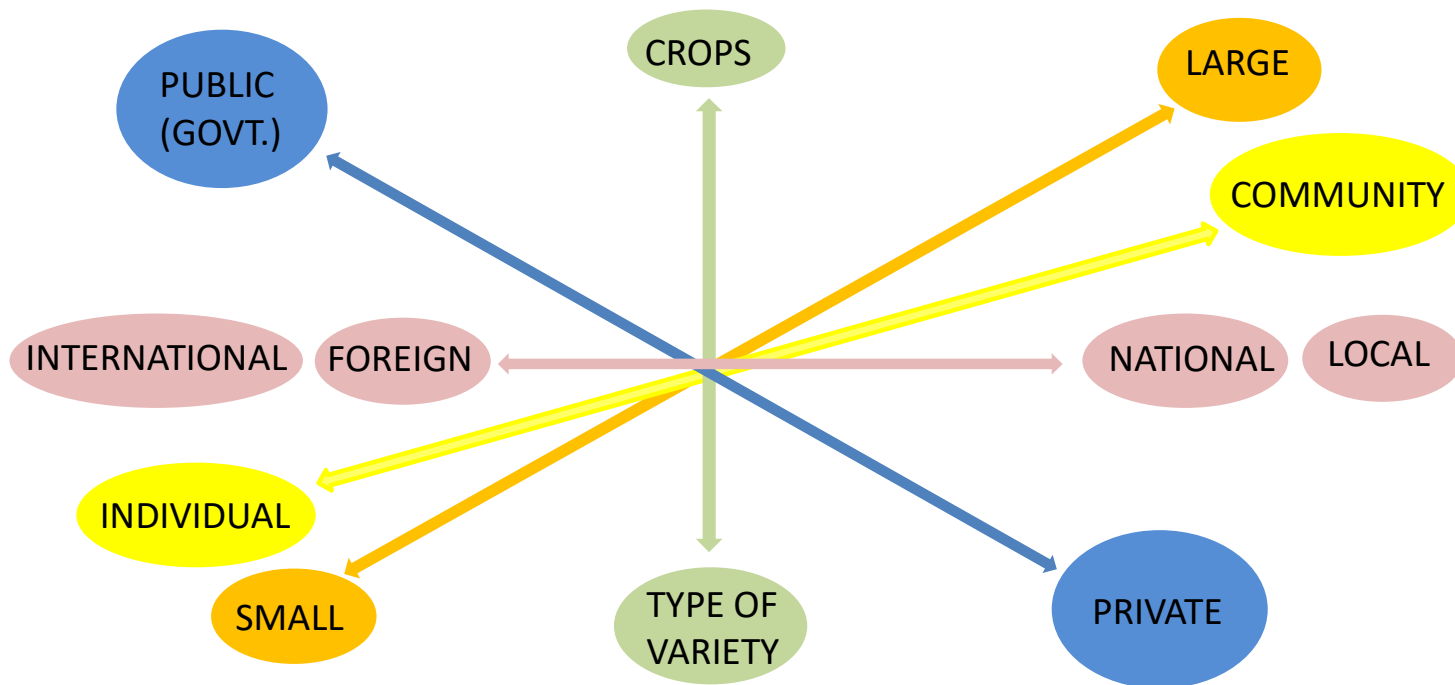


Japan Registration Case Study

(click to see full view)



UPOV



UPOV – all types of plant breeders

Viet Nam Stories Videos - Farmer-Breeders

Longan fruit



Rice



How farmers can benefit from
using PVP to protect their own new varieties

European Union: Community Plant Variety Rights by firm size



www.euiipo.europa.eu

size	%CPVR	Number of CPVR	% firms	Number of firms	CPVRs per firm
physical	8.0	1 510	36.8	451	3.3
micro	21.7	4 116	32.8	402	10.2
small	11.5	2 171	15.5	190	11.4
medium	18.8	3 554	8.5	104	34.2
large	40.0	7 580	6.5	80	94.8
SME + physical	60.0	11 351	93.5	1 147	9.9

Table 5.4: Registered CPVRs by size of owner (end 2021)

IMPACT OF THE COMMUNITY PLANT VARIETY RIGHTS SYSTEM ON THE EU ECONOMY AND THE ENVIRONMENT



https://www.upov.int/export/sites/upov/about/en/pdf/cpvo_euiipo_study_full_report_2022.pdf



WIPO Seminar on Intellectual Property, Innovation, and Exports: A Look at the Cocoa Industry in Trinidad and Tobago

Port of Spain - August 2, 2017

Best Practices of Plant Variety Protection (case study)

Michael D. Carriere, Ph.D.
UC Davis InnovationAccess



Connecting research to market

A UNIT OF THE OFFICE OF RESEARCH



The World

\$16.50/1000 plants royalty¹

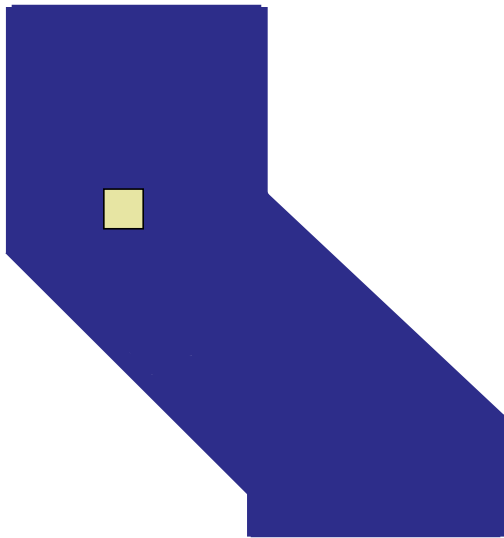
¹royalty shared between UC and master licensees

United States

\$9.00/1000 plants royalty

California

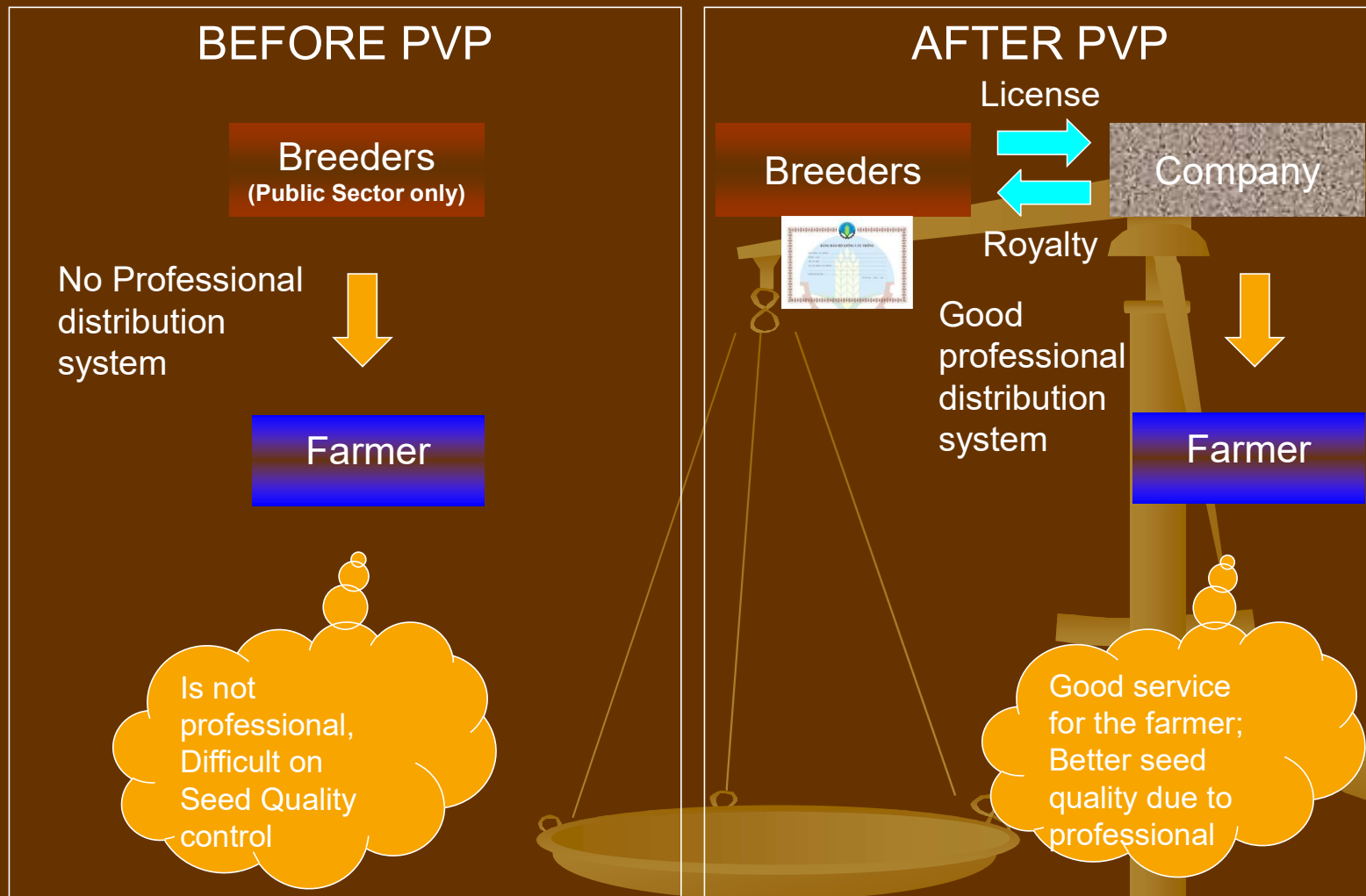
\$8.00/1000 plants royalty



UPOV Plant Breeders' Rights (PBR) Filings for UC Davis Strawberry Varieties 'Benicia' and 'Mojave'

Argentina	PBR
Australia	PBR
Belarus	PBR
Brazil	PBR
Canada	PBR
Chile	PBR
China	PBR
Columbia	PBR
Ecuador	PBR
EU	PBR
India	wait for UPOV PBR availability
Israel	PBR
Japan	PBR
Jordan	PBR
Lebanon	wait for UPOV PBR availability
Mexico	PBR
Morocco	PBR
New Zealand	PBR
Peru	PBR
Republic of Korea	PBR
Saudi Arabia	wait for UPOV PBR availability
South Africa	PBR
Switzerland	PBR
Tunisia	PBR
Turkey	PBR
Uruguay	PBR

Seed Quality and Service is improved by a new system





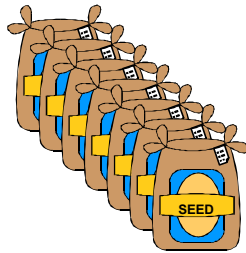
PUBLIC SECTOR **PRIVATE SECTOR**

- International Breeding (Institute)
- National Breeding Institute
- Large enterprises (e.g. companies, cooperatives)
- SME's
- Individuals (e.g. farmers)

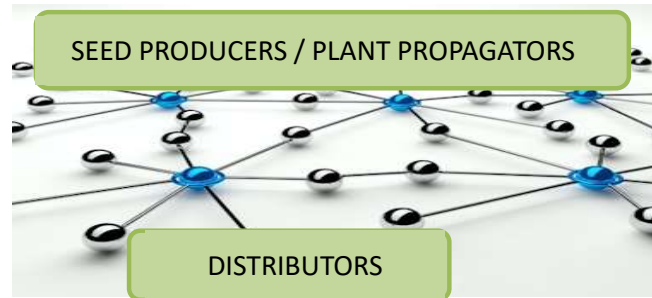
BREEDERS



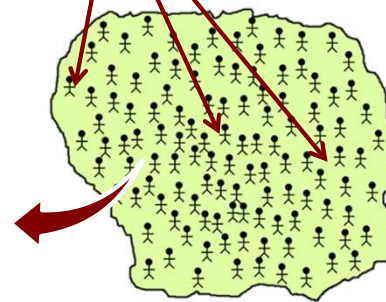
PRODUCTION & DISTRIBUTION

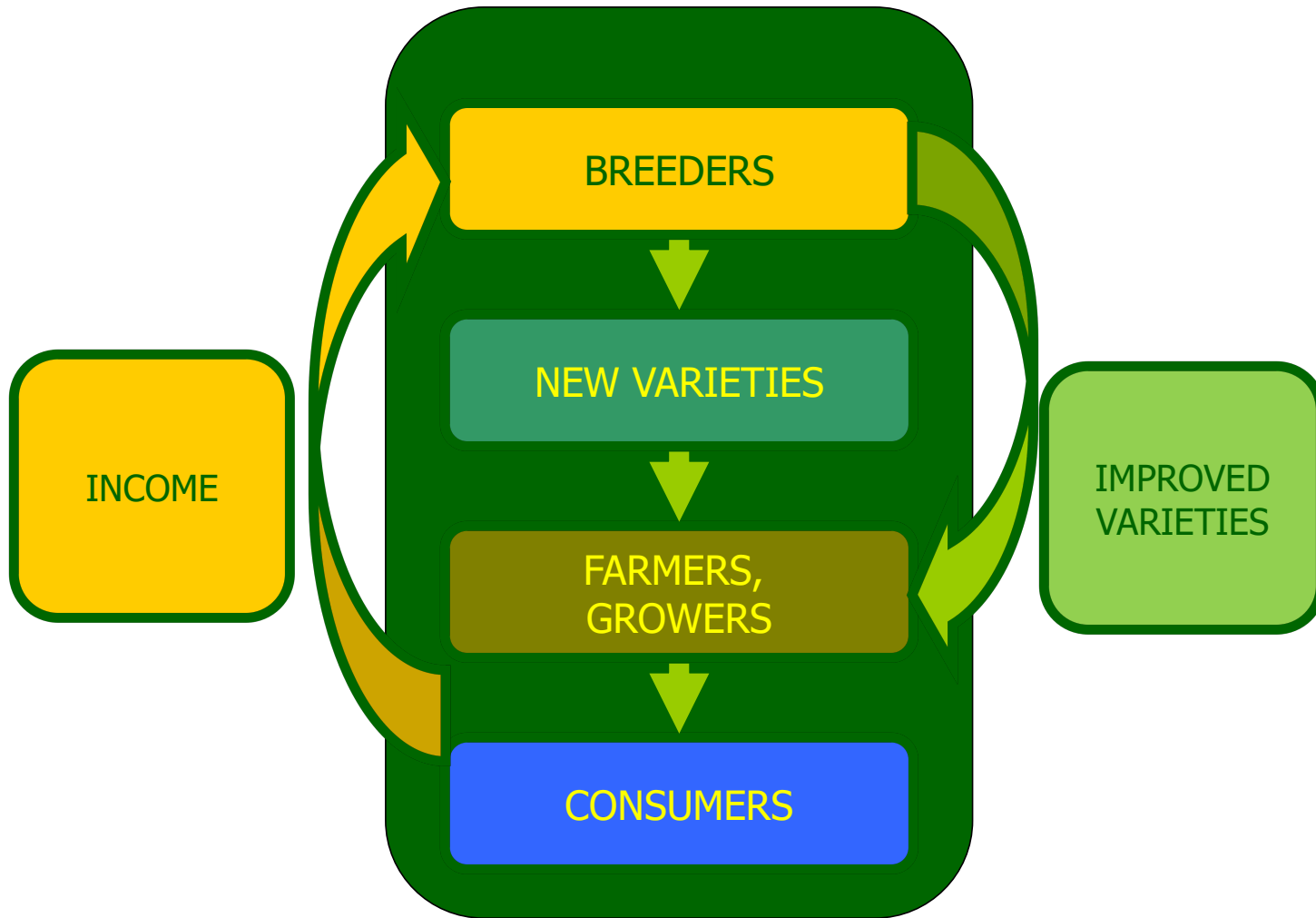


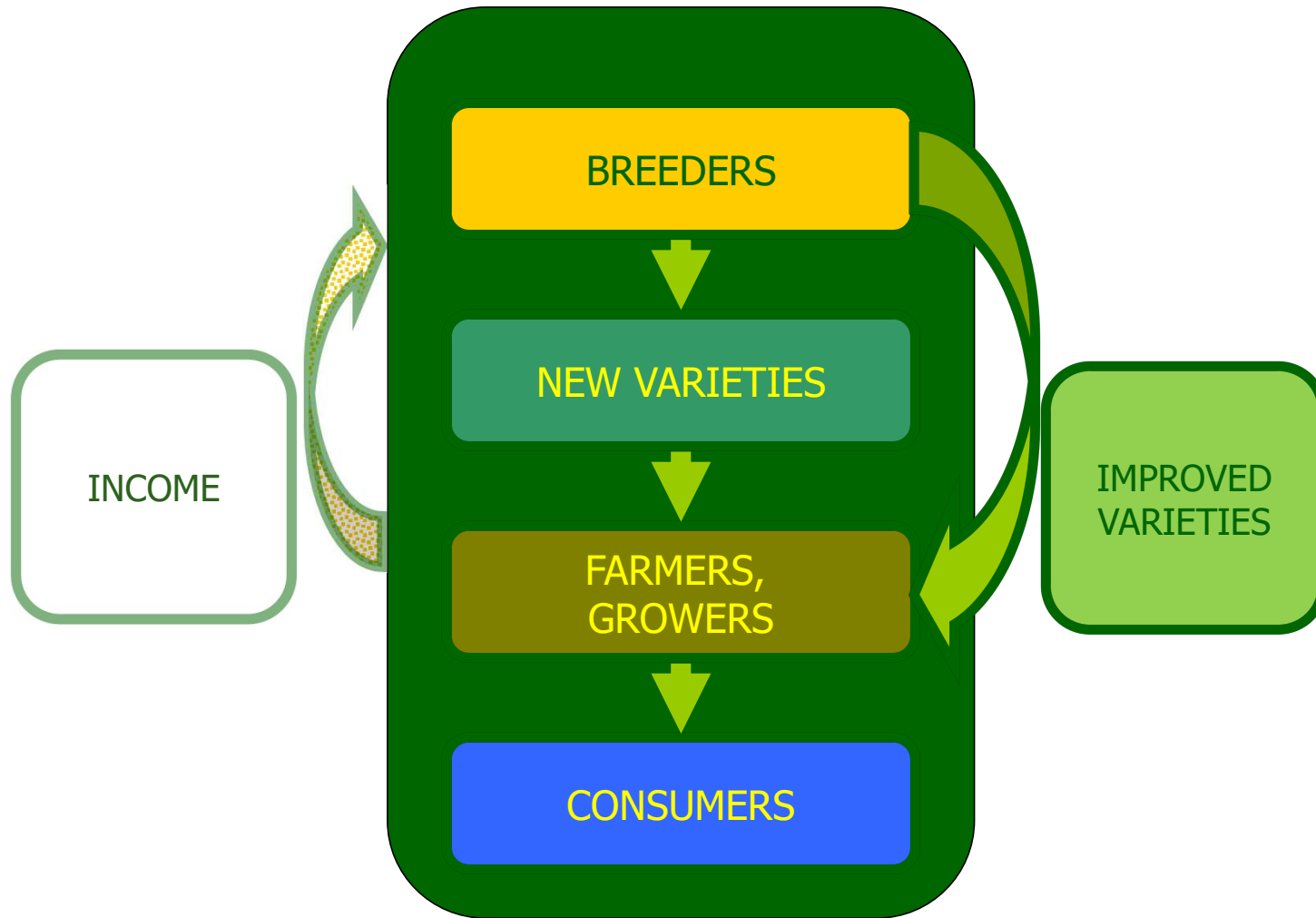
PBR LICENCES

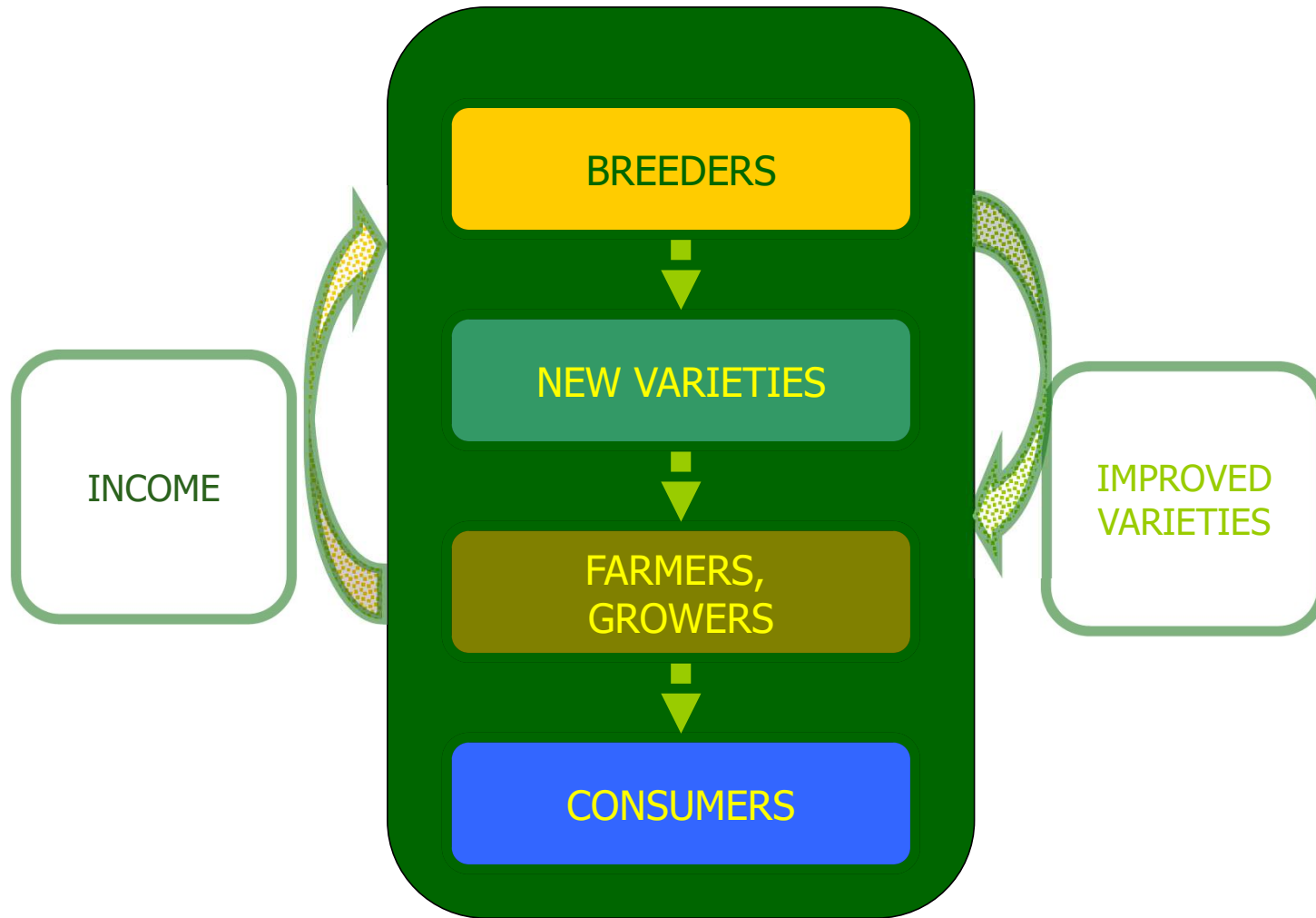


FARMERS



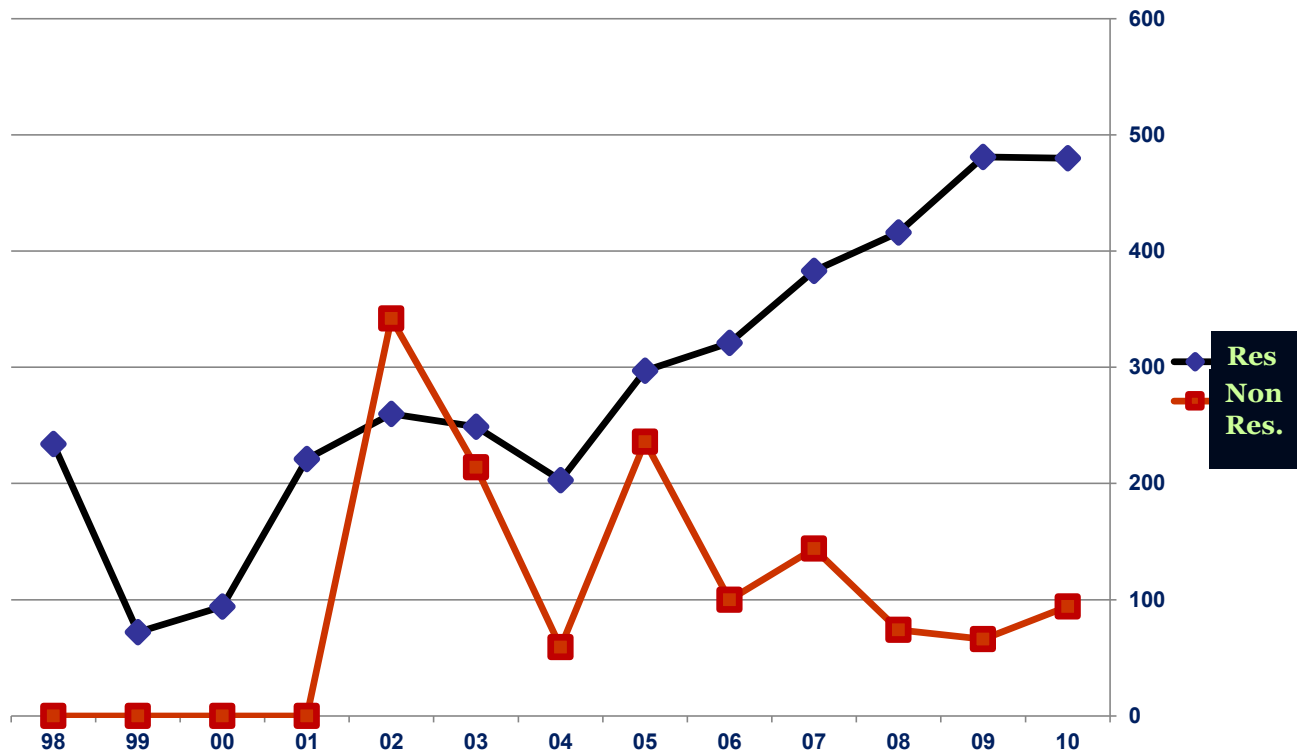






Republic of Korea

Application Ratio of Residents/Non Res.



EXCEPTIONS TO THE BREEDER'S RIGHT

Compulsory

Acts done:

- privately and for non-commercial purposes
- for experimental purposes
- **breeding other varieties (“breeder’s exemption”)**

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



What **benefits** do you think **plant breeding** can provide for **society** (agriculture development) ?

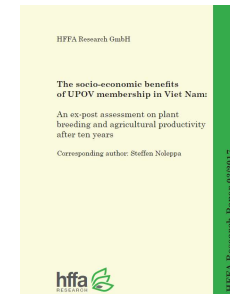
Impact Study in Viet Nam*

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)



Impact of PVP in Kenya

Cut Flower Industry

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March 2021

Impact of PVP in Kenya

Employment creation

It is estimated that the floriculture industry **employs over 150,000 people directly** and **more than 500,000 indirectly** who supply goods and services

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March 2021





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JUNIO 17, 2021

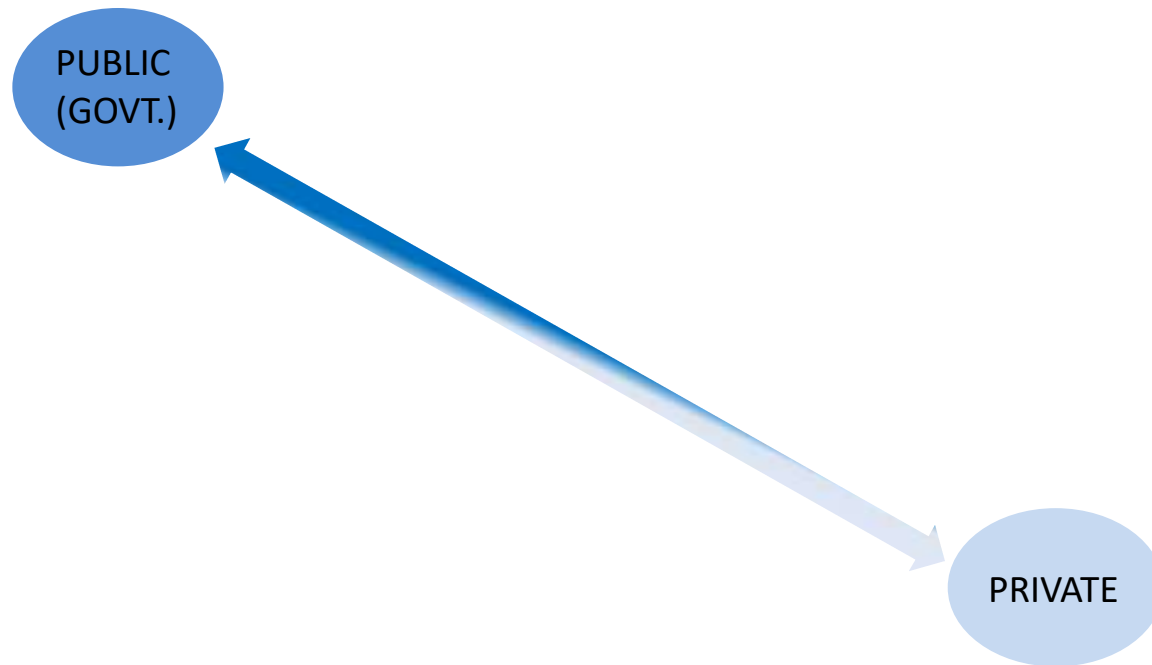
NORMA ROJAS MARROQUIN

Perú exportó arándanos por US\$
1,000 millones y fue el principal
exportador del mundo por
segunda vez



<https://arandanosperu.pe/2021/06/17/peru-exporto-arandanos-por-us-1000-millones-y-fue-el-principal-exportador-del-mundo-por-segunda-vez/>

How can PVP be used to achieve maximum
“public good”?



Symposium on the Benefits of Plant Variety Protection for Farmers and Growers



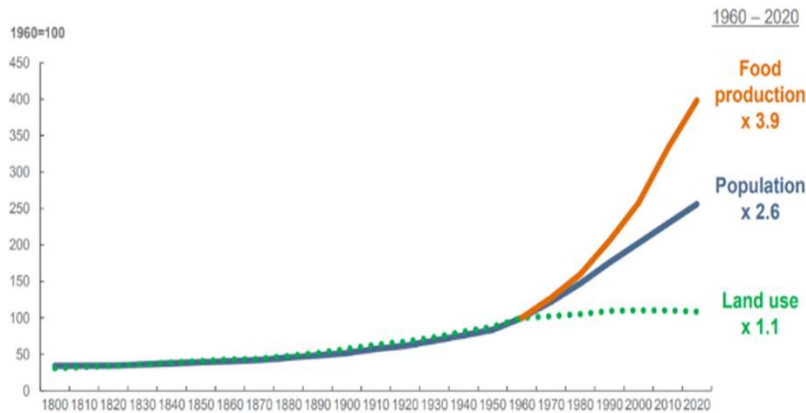
The role of the Agricultural Research Council in delivering high performance varieties to subsistence or smallholder farmers

Vuyisile Phehane



- 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.

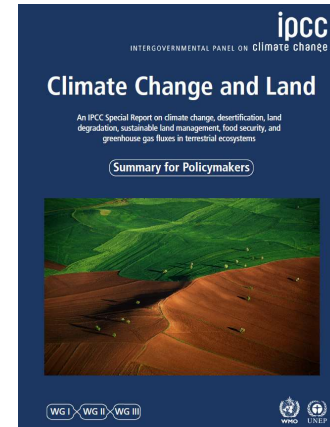
Historically, greater food production meant greater land use; but there has been a “decoupling” since about 1960



Source: Population data from Maddison's historical statistics for 1820-1940, UN Population Division for 1950-2010, 1800 and 1810 extrapolated from Maddison; Agricultural (crops and pasture) land data for 1800-2010 from the History Database of the Global Environment (HYDE 3.2), Klein Goldewijk et al. (2017); Global agricultural production data for 1960-2010 from FAOSTAT (Net Agricultural Production Index); 2020 value from the OECD/FAO Agricultural Outlook.

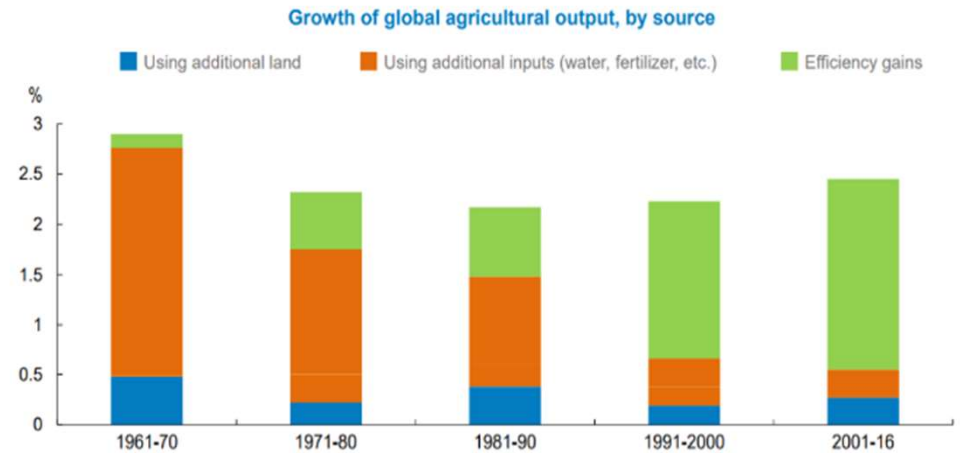
www.oecd.org/food-systems

Source: Koen Deconinck, Food Systems Webinar, OECD Trade and Agriculture Directorate



Importance of increased food productivity

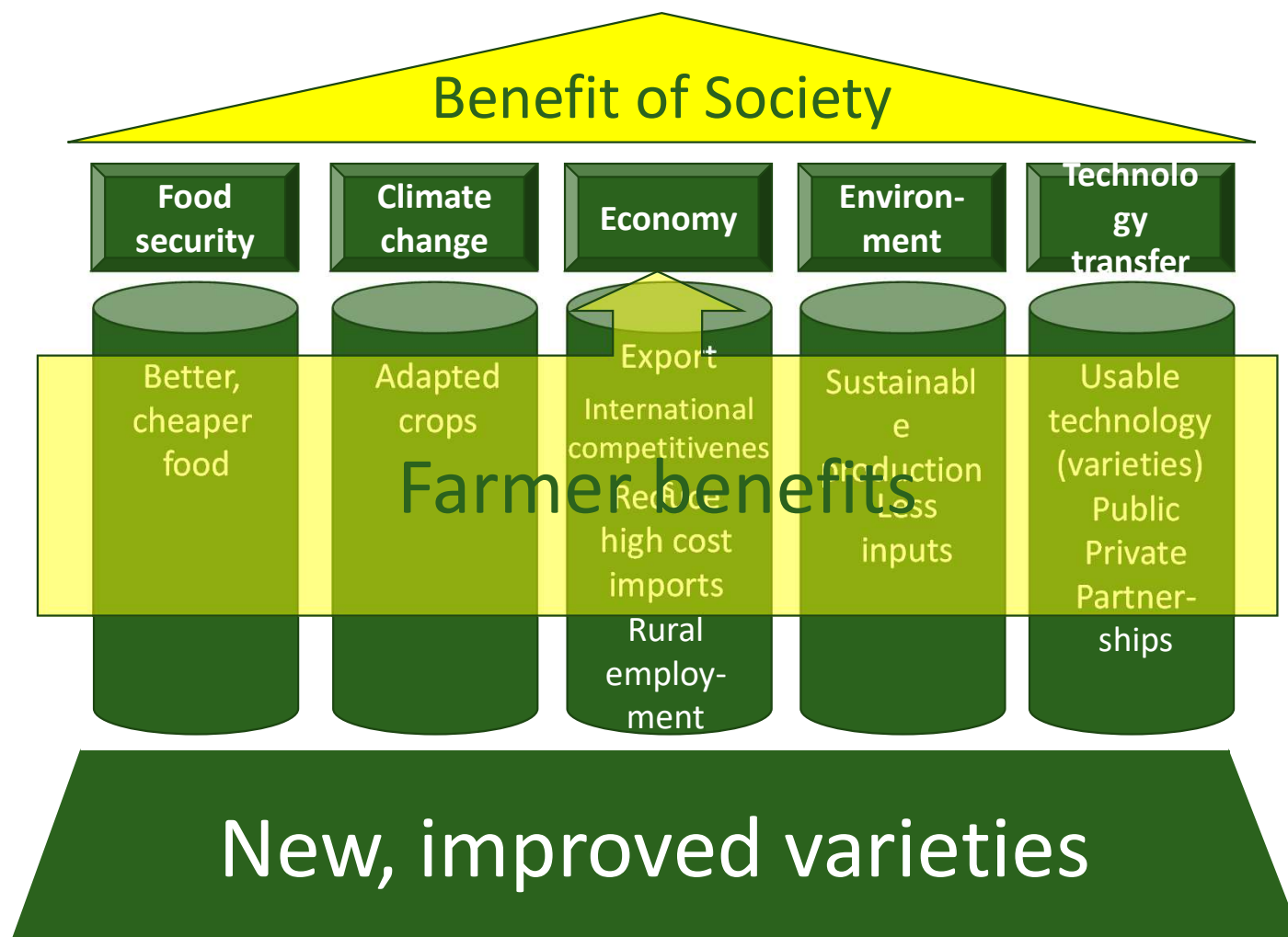
This “decoupling” was initially driven by greater use of inputs, but production growth increasingly comes from efficiency gains



Source: USDA Economic Research Service, International Agricultural Productivity estimates (November 2019 revision) www.oecd.org/food-systems

Source: Koen Deconinck, Food Systems Webinar, OECD Trade and Agriculture Directorate

Benefits of the UPOV Plant Variety Protection System





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



How would you
**explain plant variety
protection to
farmers?**



Welcome

The International Union for the Protection of New



Menu



Mission Statement

Overview

Organigram

Office of UPOV

Officers

UPOV Convention

Benefits of the UPOV System

FAQ

Key Issues

Publications

Videos Reports & Studies Events Features



Farmer-Breeders in Viet Nam

Rice and longan farmer-breeders using PVP to support their breeding work, bringing benefits for local farmers and the Vietnamese economy

Alternative link EN



Development of the flower industry in Viet Nam

Flower growers benefitting from increased variety choice and technical support as a result of PVP in Viet Nam

Alternative link EN



Transformation of the seed sector in Viet Nam

Development of the seed sector after UPOV membership results in farmers having greater access to high quality seed

Alternative link EN



Video 1 Farmer-Breeders



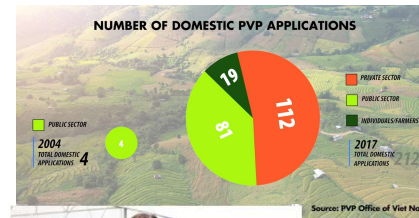
How farmers can benefit from using PVP to protect their own new varieties

Video 2 Flower Industry



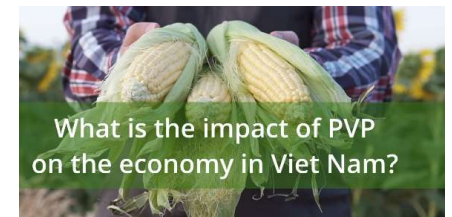
How Da Lat has become the center of the horticultural sector

Video 3 Transformation of Seed Industry



Evolution of seed industry after UPOV membership

Video 4 National Agricultural Policy



Role of PVP in agricultural policy

Benefits of the UPOV System: publications



