HỌC VIỆN NÔNG NGHIỆP VIỆT NAM
VIETNAM NATIONAL UNIVERSITY OF AGRICULTURE

The benefits of the UPOV System of Plant Var. Protection for farmers and growers in Vietnam

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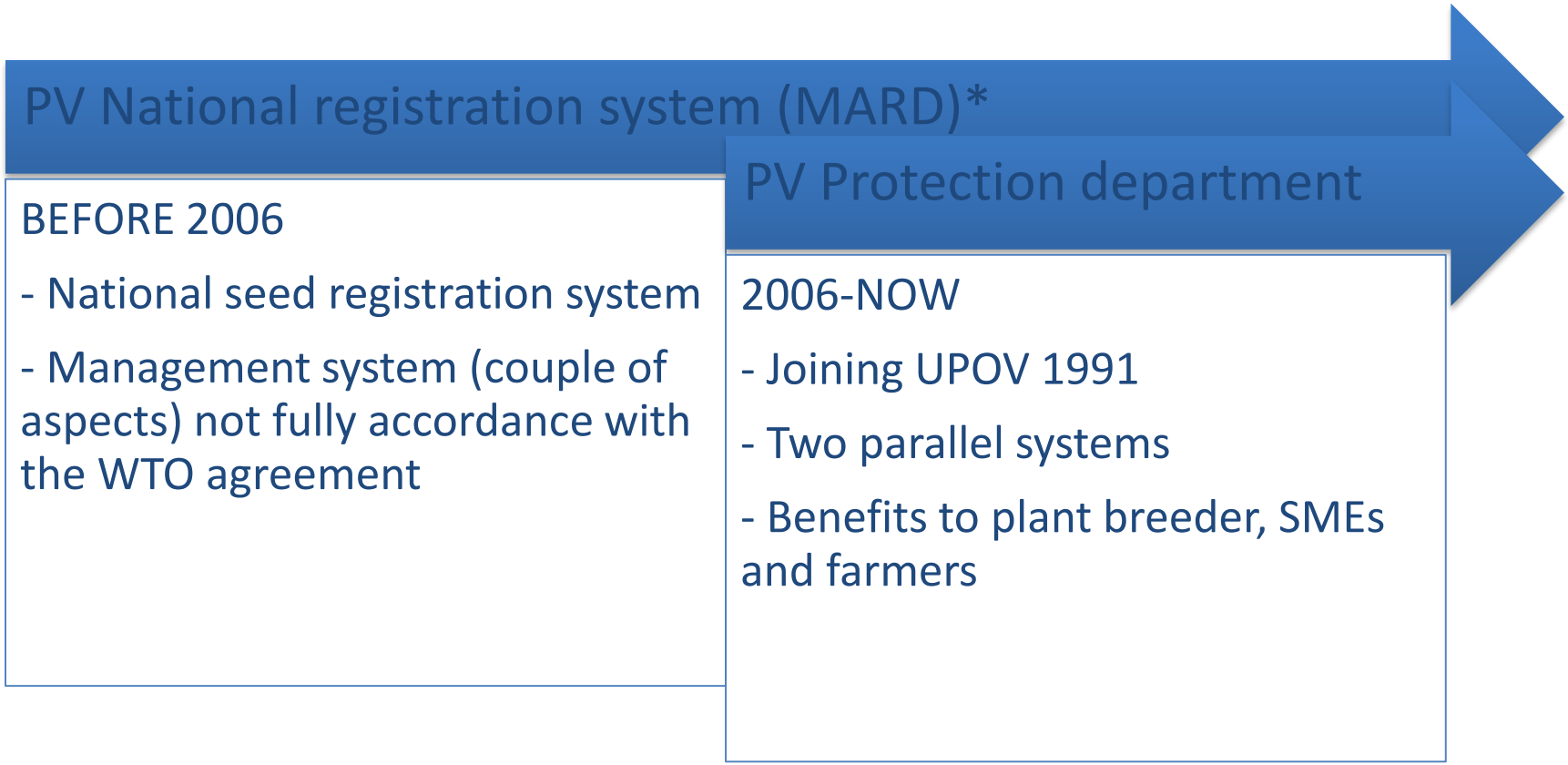
Presentation content

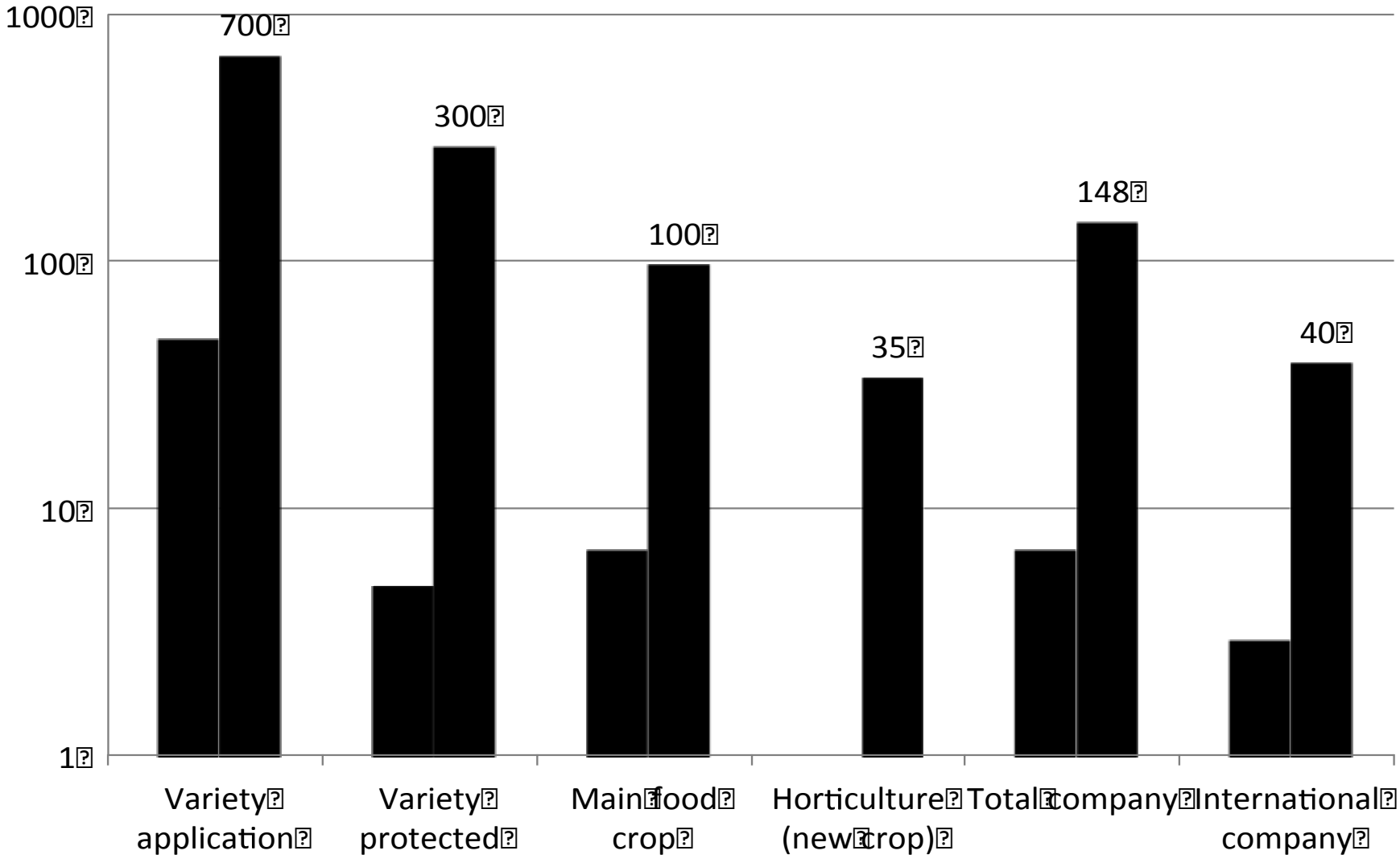
- Brief information on beneficiaries of the PVP management system after joining UPOV 1991
- Plant breeding and Plant variety commercialization at Vietnam and Vietnam National University of Agriculture as an example after joining UPOV 1991
- Beneficiaries for stakeholders:
  - plant breeders,
  - research institutions,
  - SMEs and
  - farmers

Plant variety management system in Vietnam



MARD: Ministry of agriculture and rural development

Plant variety protected and SME involved before and after joining UPOV 1991 in Vietnam



Beneficiaries of joining UPOV

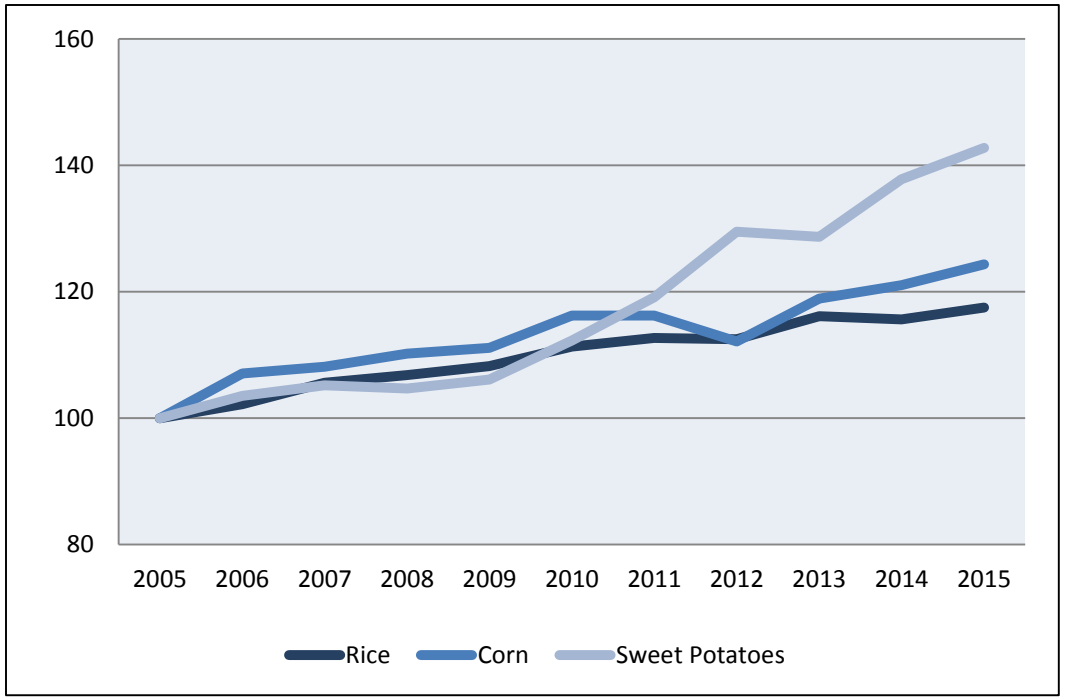
- For Vietnam:
  - Plant variety management system is accordance with international requirements, Vietnam fully joins WTO, other AFTAs, TPP
  - *10-year experience joining UPOV contributing to the PV management system (revision of law in technological transfer, 2016 ordinance of plant variety)*
  - New plant varieties; higher yields → higher contribution of Agri. Sector in GDP

To the Agriculture production

- Export agricultural products
- For rice: 5/10 protected varieties are cultivated in biggest area for export
- New varieties of flowers (rose, cymbidium…) were introduced to VN by foreign countries

Plant Var. development in Viet Nam: Yield vs. overall productivity developments

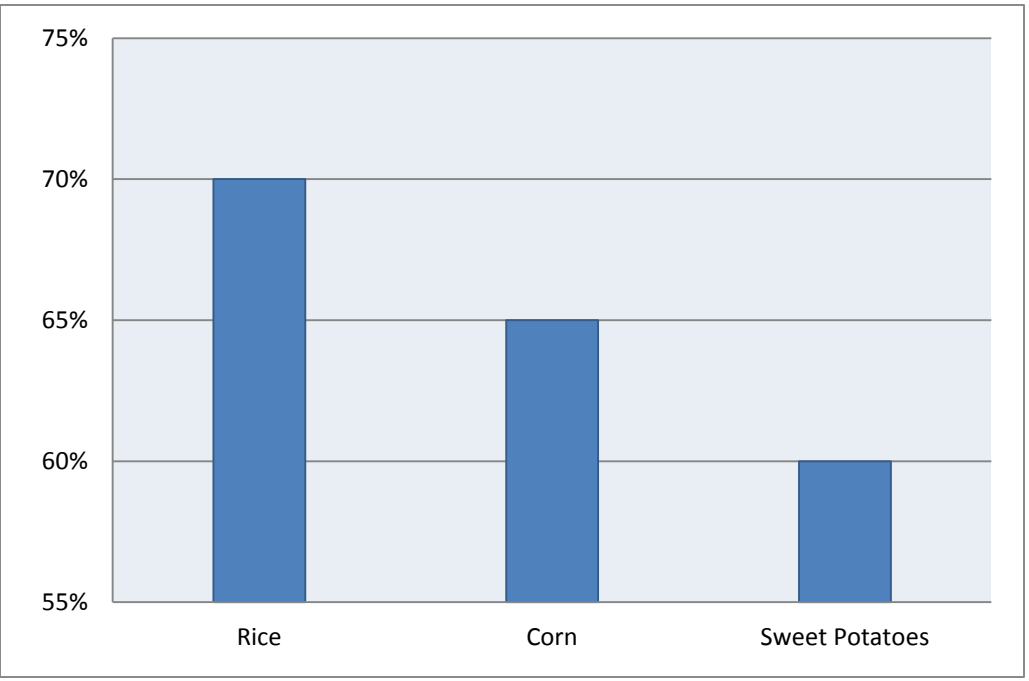
Vietnamese yield developments over time: major arable crops (index, 2005=100 %)



→Per annum since 2005:
- rice: + 1.6 %,
- corn: + 1.8 %,
- sw. potatoes: + 3.6 %.

→Global yield increases are in the range of:
- rice: + 1.3 %,
- corn: + 1.1 %,
- sw. potatoes: – 0.3 %.

Hffa research 2016



The innovation share of plant var. development is rather high compared to that of other inputs in Vietnam

→ The innovation share of plant breeding should be expected above 50 %

→ Plant breeding contributes the majority to growth in Viet Nam

Yield losses in Viet Nam w / o plant var. innovations since the year 2005 (in %)

→ Yield 20 % lower in Vietnam w /o plant breeding activities in past ten years.

- Rice: 5.382 million,
- Corn: 1.039 million,
- Sw. Potatoes: 0.366 million.

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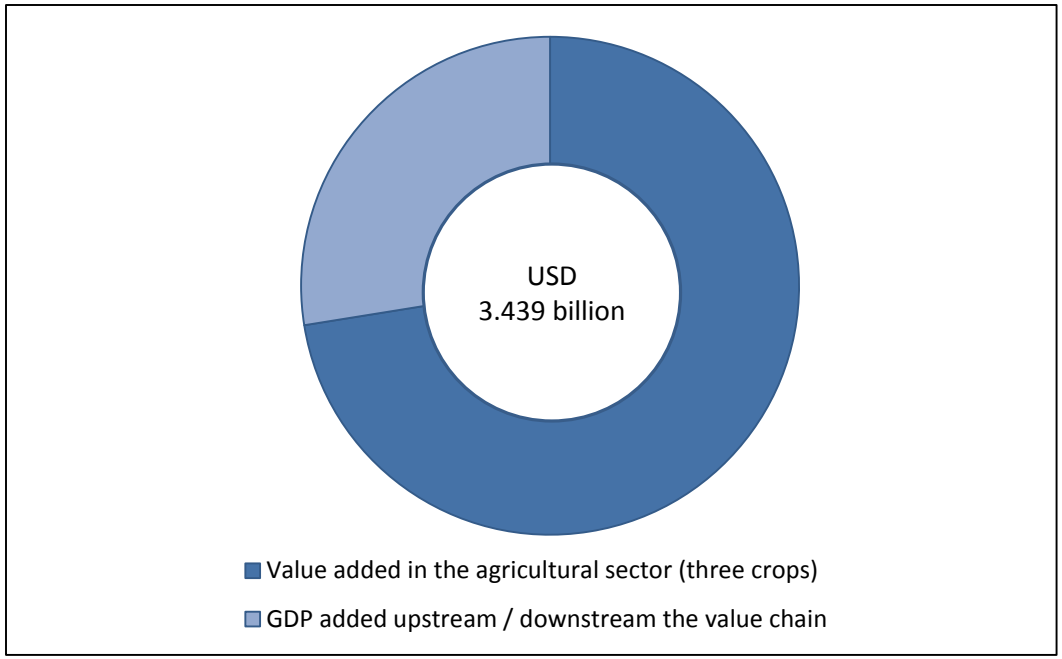
Agricultural income / GDP impact for 2015 of plant breeding in Viet Nam since 2005



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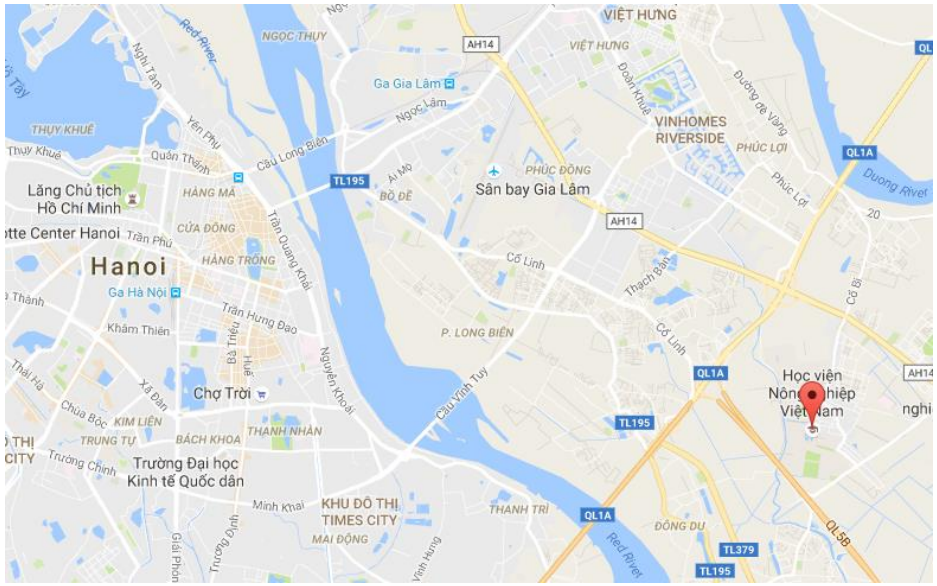
→ Additional agricultural GDP amounts to USD 2.5 billion:
- rice: USD 2.1 billion,
- corn: USD 0.2 billion,
- potatoes: USD 0.2 billion.

→ Upstream and downstream the value chain another USD 1.0 billion is added.

→ Viet Nam's GDP would have been 2 % lower today w / o ten years of plant breeding for just rice, maize and potato crops.

Plant Breeding and plant variety commercialization at Vietnam National Uni. of Agriculture after Vietnam joining UPOV 1991



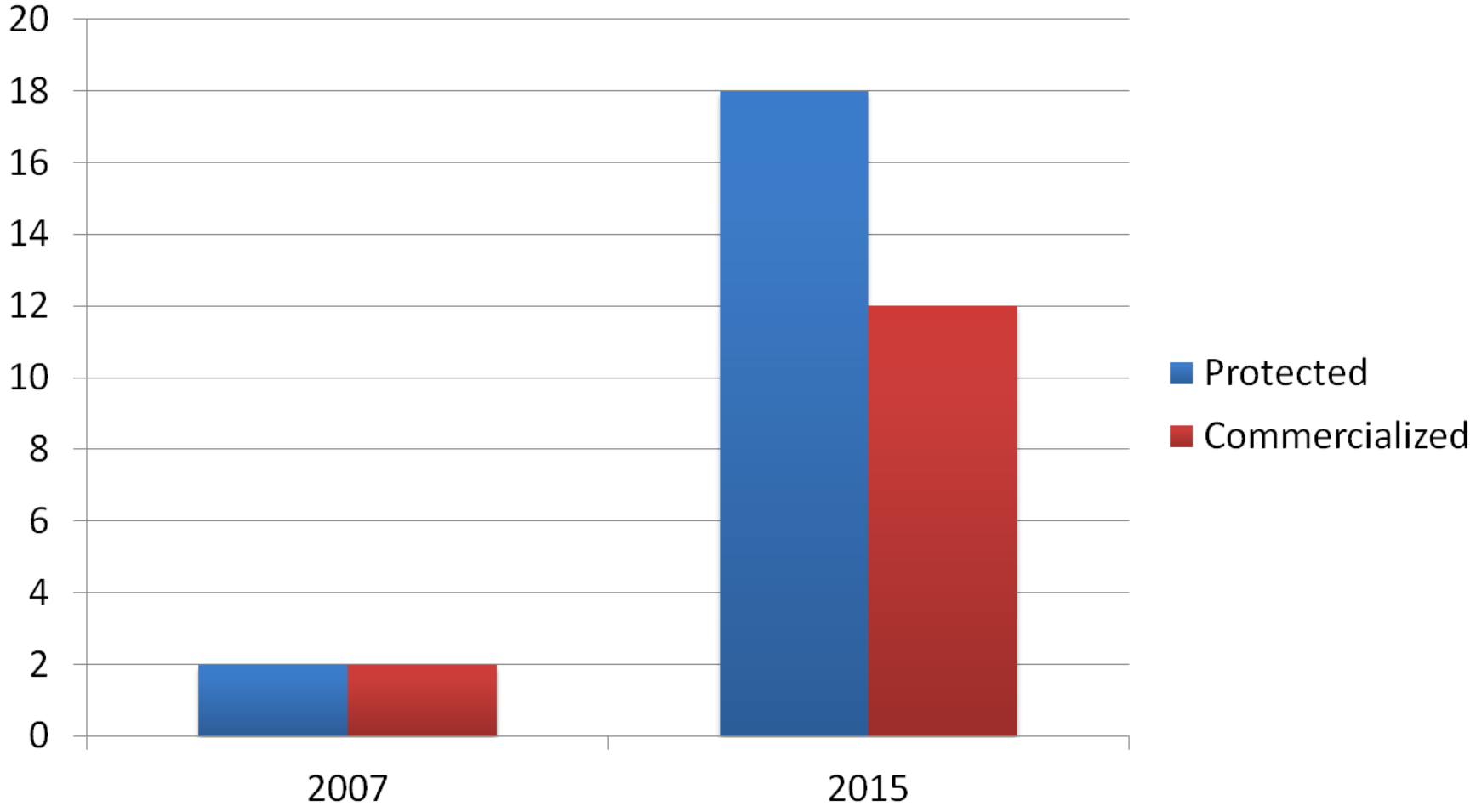
- One of 16 national key universities, largest Uni. In agriculture
- Multidisciplinary University: 14 faculties and 12 research centers
- Total staff: 1,400; 38,000 students (Vietnam, Laos, Cambodia, Africa…)
- First university in VN having PV protected and commercialized
- Contributing 40% hybrid rice seeds and many inbreed rice seeds for the country

VNUA having first plant var. protected after Vietnam Joining UPOV

STT	Plant Variety	Plant variety Owner	Plant breeder
1	Hybrid maize DEKALB 414	Monsanto	Monsanto
2	Hybrid maize NK54	Syngenta	Syngenta
3	Hybrid maize Sugar75	Syngenta	Syngenta
4	Hybrid rice TH3-3	VNUA→ Local SME	Nguyễn Thị Trâm
5	Hybrid rice Việt lai 20	VNUA → Local SME	Nguyễn Văn Hoan

First plant varieties protected under UPOV in Vietnam in 2007

Number of plant variety of VNUA protected and commercialized before and after Joining UPOV



Plant variety protected under UPOV and commercialized by VNUA

No.	Plant Variety	Local SME
1	Rice VL20	CP NN Hai Phong
2	Rice TH3-4	Giống cây trồng Trung ương
3	Rice TH3-3	Giống cây trồng Cường Tân
4	Rice VL50	Giống cây trồng Giang Nam
5	Rice TH5-1	Myhico Việt Nam
6	Rice CT16	Giống cây trồng Cường Tân
7	Rice NV1	Giống cây trồng Việt Nam
8	Rice Bacthom 7	Công ty hạt giống vàng Thái Bình/Công ty Giống cây trồng Hải Dương
9	Maize HUA601	Giống cây trồng ADI

Beneficiaries

- Plant Breeders, research institution
  - Incentive for plant breeders for their breeding work
    - Before: rice breeder created new variety, registered, released and transferred for production, plant breeder received nothing after that
    - UPOV 1991: Plant breeder licensing/sold copyright plant; breeder receives royalty/funding for research
  - Financial contribution to breeding program/research institutions from commercialization of PV

Breakthrough in technology transfer in Vietnam in 2007

- Breakthrough not only in agriculture but also in other research/technological fields
- The hybrid rice copyright sold for almost 1 million USD to a local SME

Giống lúa 10 tỉ đồng

One million USD rice var.

21/06/2008 06:20 GMT+7

TT - Một nữ khoa học gia đã nghỉ hưu vừa gây chấn động giới khoa học VN bởi cái tên TH3-3, một giống lúa lai hai dòng 100% "made in VN" được chuyển nhượng cho một công ty tư nhân với giá kỷ lục 10 tỉ đồng. Đó là PGS-TS Nguyễn Thị Trâm, nguyên giảng viên Trường ĐH Nông nghiệp 1 và từng là phó viện trưởng Viện Sinh học nông nghiệp...

Plant variety commercialized by VNUA

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Beneficiaries

- Plant Breeders, research institution
  - Expansion of international collaboration (especially with seed companies)
  - Collaboration between SME/farmers for better breeding work
  - Increase number of contract funding for the university→ importance for University development

To the Research and Development

- For the Varieties from Research Institutes:
  - ✓ Transferred the right to seed companies
  - ✓ Establishing IP Division to exploit of the right (VNUA has department of Science and Technology office and Incubation center)
- The specialization in development new variety make more effective in exploiting new varieties
- Fair Competition in trade: investment to the R/D will have chance to have more benefits for re-investment

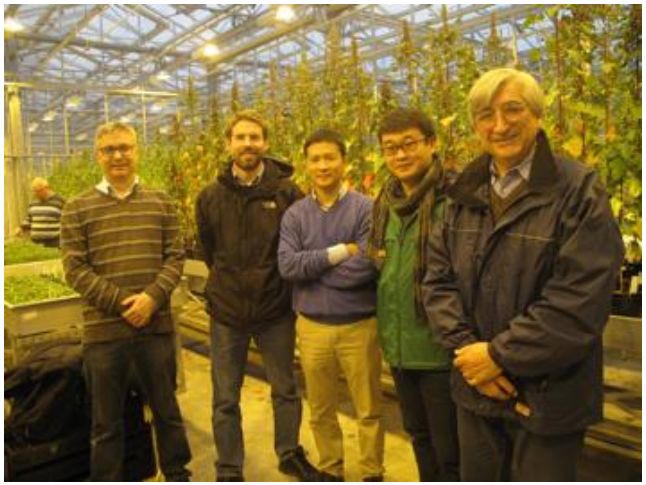
Quinoa research for food-nutrition security, climate resilience and international markets

Quinua
2013 International Year
A future Sown thousands of years ago

International exchange breeding materials

Rainfed production research under dry conditions in winter-spring in the North

Improve value added in the traditional system: rice-rice- winter crop



Consortium and linkage with international markets development

Sea water irrigation to select saline tolerance varieties (trails now in saline soil in Hai Phong, Nam Dinh)

End-user products development: high nutritious values; World quinoa grain price is now >10 times than rice; ingredient for >4000 processed foods; high demand from int. markets

PLANT RESEARCH INTERNATIONAL
WAGENINGEN UR

P.O. Box 384 | 6700 AJ Wageningen | The Netherlands

Plant Breeding

To Whom It May Concern

Nguyen Viet Long is allowed to conduct the necessary activities to have the DLO Materials registered as varieties under the seed system in Vietnam so that the DLO Materials can be released for commercialization purposes in the future.
In case exploitation (of the Materials or derivatives of the Materials) is foreseen VNAU and DLO have the intent to set up an exploitation agreement.

This is to certify that the Department of Plant Breeding, Wageningen University and Research Centre (WUR), Wageningen, the Netherlands and Vietnam National University of Agriculture (VNUA) have successfully conducted the Quinoa salt tolerance project in Chile, China and Vietnam funded by USAID from October 2014 until April 2016. The research part in Vietnam was led by Dr. Nguyen Viet Long department of Food Crop Science, composed of research in greenhouse to characterise salt tolerance in quinoa; two saline field trials in Nam Dinh and Hai Phong provinces and demonstration experimentation in drought condition in Hoa Binh and saline field in Hai Phong. The research in Vietnam showed that it is potential for quinoa production under saline field conditions. Our study found that there is a chance for development of quinoa production with private companies in Vietnam. The

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VNUA Vietnam National University of Agriculture

Collaboration for vegetable breeding

RIJK ZWAAN

Memorandum of Understanding

The Undersigned,

1. Vietnam National University of Agriculture, established under the laws of the Socialist Republic of Vietnam, located at Trau Quy, Gia Lam, Ha Noi, Vietnam (hereinafter referred to as "University"), hereby duly represented by Assoc.Prof.Dr. Nguyen Thi Lan, Vice President in charge;

and

2. Rijk Zwaan Breeding B.V., established under the laws of the Netherlands, located at Burgemeester Crezéelaan 40 (2678 KX), in De Lier, the Netherlands (hereinafter referred to as "Rijk Zwaan", hereby duly represented by B.M. Tax, Managing Director;

hereinafter individually or jointly also referred to as "Party" respectively "Parties".

Beneficiaries

- For SME (all of local seeds companies in VN are SMEs): Better environment for SMEs to play in the seed industry
- Core value of business is protected (variety protection certification, seed copyright granted)
  - In 2007 only 3 big international companies and research institutions having plant varieties protected
  - After 10 years, >100 local companies applying PV protection
- Many companies growing from “middle man” to technological/research/breeding companies

Promote international trading for SME

MEMORANDUM OF UNDERSTANDING
FOR BUSINESS COOPERATION
BETWEEN
NAGOYA SHOKURYO CO., LTD.
VIETNAM HIGH TECHNOLOGY SEED AND MATERIAL AGRICULTURAL JOINSTOCK CO.

NAGOYA SHOKURYO CO., LTD AT NAGOYA JAPAN and

VIETNAM HIGH TECHNOLOGY SEED AND MATERIAL AGRICULTURAL JOIN STOCK COMPANY AT VAN PHU WARD, VIET TRI TOWN, PHU THO PROVINCE VIETNAM

hereby enter into a Memorandum of Understanding for Business Cooperation to extend friendship and to promote collaboration in Business areas.

1. Based upon the principles of respect for sovereignty, equality and mutual benefit, the two companies will actively seek to encourage and implement exchanges in the following categories:

a) To encourage to develop new seeds and dispatch expert

b) To encourage to build cultivation way for Japanese Rice

c) To encourage to build processing factory suitable for Japanese Rice

d) To encourage to sell product for domestic and international market

e) Both sites will work together to seek for policy and financial supports from Vietnamese and Japanese Governments to promote development and commercialization of high

Beneficiaries

- For Farmers

- Farmers in general having more choices of seed; more type of agricultural products
  - Before farmers mostly produced rice/maize
  - Now (in many places) with seeds available they can shift to horticulture production with 10 times higher income (inline with national strategy)
- Better seeds, lower seed prices can be seen
- Small scale vs medium scale farmers: small scale farmers might have negative effects because they can't multiply rice seed themselves

To the Income of farmer

- Number of application increased – Many good new varieties and new species released for farmer
- Good new var. from international agencies and new species - farmer have good income

More choice of crops, higher income for the farmers and better GDP

→… an additional GDP of at least USD 0.2-0.3 billion has been added by having invested ten years into
plant breeding for flowers.
→Viet Nam has become one of the fastest growing flower markets.
→In 2016 for the first time in history the exportation value of fruit (banana, guava…) reached 1 billion USD and exceeded oil exportation in Vietnam

Own research and hffa research 2016

Conclusion and Recommendation

- Clear advantages can be seen for related stakeholders after Vietnam joining UPOV 1991
- PVP system works well, contributes significantly to the Agri. Sector
- More opportunities for international cooperation and trading
- Considering supporting the small scale farmer

Thanks for your attention!

Acknowledgement:
- Organizers: EAPVPF office, JATAFF
- Vietnam PVP Office, Dr. Nguyen Thanh Minh
- Faculty of Agronomy, Department of S&T of VNUA