OPPORTUNITIES AND CHALLENGES IN COMMERCIALIZATION OF PLANTS VARIETIES IN THE VIETNAM: A Case study in the Northern Mountain Region

TRAN THI THU HA, IFRAD-TUAF, VIETNAM
Ho Chi Minh, August - 2017
OUTLINE OF THE PRESENTATION

- Plant Varieties Protection for commercialization of plant varieties in Vietnam: New developments
- Plant Breeding and plant variety commercialization in 2017: Case study IFRAD - TUAF
- VN’s Strategies in commercialization of plants varieties in the next stage.
• Part 1: INTRODUCTION

- Agricultural country.
- High density of population
- Almost slopping land (75%)
- **Improve living standard of the lowland and upland people** – The current main objective of VN’s Government
- Seed Sector plays an important role to meet the objective – material contribution of new plant varieties.
Plant variety management system in Vietnam

**PV National registration system (MARD)**

**BEFORE 2006**
- National seed registration system
- Management system (couple of aspects) not fully accordance with the WTO agreement

**2006-NOW**
- Joining UPOV
- Two parallel systems
- Benefits to plant breeder, Local Seed Companies and farmers/growers

**PV Protection department**
The Seed distribution system of new Var.

BEFORE PVP

No Professional distribution system

Breeders

Farmer

Is not professional, Difficult on Seed Quality control

AFTER PVP

License

Breeders

Company

Royalty

Good professional distribution system

Farmer, growers

Good service for the farmer; Better seed quality due to professionalism
Opportunities from plant breeding: Higher value for exporting Agricultural products

- Exporter on agriculture products.

- For rice: 5/10 protected varieties are cultivated in biggest area for exporting.

- New varieties of flowers (rose, cymbidium, anthurium…) are being introduced to VN by foreign countries.
Plant breeding 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 %.

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

Can Viet Nam already be considered an out-performer?

Source: UPOV Vietnam (from original source: FAO (2016), GSO (2016) and IRRI (2016)).
Plant breeding benefits:
Supply changes also have financial implications

The income effects referring to major arable crops are just part of the overall impact.

→ Whereas approximately USD 3.5 billion have been added to GDP when looking at rice, corn and sweet potatoes, ...

→ … 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.

→ Indeed, 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
Opportunities for Local seed companies

- Before PVP: almost of them are trade company (not interest in research)

- When PVP system is established:
  - Beginning: they are licensed to exploit PBR from owner (transferred)
  - They develop breeding facility

- Now, many of them have own breeding facility

- Some become big with very good breeding facility.
Increasing farmer income

- A cuttings of new rose varieties may be sold 10 – 15 times more expensive than old Var.
- New variety is introduced in VN.
- Indigenous species are improved and transferring to growers.
- Farmers in both lowland and upland have chance to increase their income.
Farmers produce under license from Owners

Waiting to the aircraft for exportation
Challenges

• More competition between local companies and international companies
• Administration system lagging behind and not up to international standards.
• Limited Awareness of PVP among communities, leading to difficulties in commercialization of PVP business.
Increasing groups of plant varieties

- Main crops: for food products
- Horticulture plants: Horticulture products and food products
- Medicinal plants: for medicinal products
- Forest trees: for wood products.
Number of PVP in Vietnam (2016-2017) by groups

Main crops (Rice, Corn, Soybean, Groundnut)
Vegetable, Flowers, Fruit trees
Medicinal plants
Application is increasing

➢ Number of applications increased very quickly
  – Many good new varieties and native species released for farmer and growers.

➢ Good new var. from oversea and new species
  – farmers/enterprises generate good income.
Value chain of production

Food crops
- 3-4 months
- VSATTP

Trees
- 7-30 years
- FSC

Medicinal plants
- 1-10 years
- GAP/GACP (GMP)
Contents of Guideline of Good Practicing on Growing/Collecting Medicinal Plants (GAP/GACP)

1. Growing right varieties/species
2. Growing with appropriate conditions
3. Applying right technical
4. Using right technical for harvesting & processing
5. Good packing, preservation & transport
6. Documentation for each lot

Ngoc Linh Ginseng is becoming national product which was accepted application form for PVP in 2017.
IV. PLANT BREEDING AND PLANT VARIETY COMMERCIALIZATION IN 2017

Plant variety commercialization in 2017: A case study IFRAD - TUAF
Introduction: Thai Nguyen University of Agriculture & Forestry TUAF (TUAF)

TUAF was founded in 1970

From 1994, TUAF became a member of Thai Nguyen University

TUAF has been recognized as one of the four Leading National Agriculture Universities in Vietnam

www.tuaf.edu.vn
MISSION

• To offer a higher education on agriculture, forestry, environmental science and fields related to rural development in North Mountainous region of Vietnam;

• To conduct researches and transfer new technologies (agriculture, forestry and environmental science....)
- One of national key universities, largest Uni. in agriculture
- Multidisciplinary University: 8 faculties and 9 research institutes/centers
- Total staff: 652; 13,000 students (Vietnam, Philippine, Indonesia, Myanmar, Laos, Cambodia, Africa...)
- First university in VN having PV protected and commercialized on medicinal plants
- Contributing 40% inbreed medicinal seeds for the country.
Prize of forestry seeding production

Prize “Golden rice”

On system of high quality seeds production by QD no. 4139/QĐ-BNN-TCCB dated 20/10/2015
## Number of PVP at the IFRAD in 2017

<table>
<thead>
<tr>
<th>No.</th>
<th>Plant Variety</th>
<th>Species</th>
<th>Plant variety Owner</th>
<th>Plant breeder</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ĐỊNH LĂNG HM-TN</td>
<td>Đinh Lăng <em>Polycias fruticosa</em> (L.) Harms.</td>
<td>IFRAD</td>
<td>Tran Thi Thu Ha and others</td>
</tr>
<tr>
<td>2</td>
<td>BA KÍCH TÍM HM-QN</td>
<td>Ba kích tím <em>Morinda officinalis</em> How</td>
<td>IFRAD</td>
<td>Tran Thi Thu Ha and others</td>
</tr>
<tr>
<td>3</td>
<td>SA NHÂN TÍM HM-ĐL</td>
<td>Sa nhân tím <em>Amomum Longiligulare</em> T.L.Wu</td>
<td>IFRAD</td>
<td>Tran Thi Thu Ha and others</td>
</tr>
<tr>
<td>4</td>
<td>GỪNG GIÓ HM-BS</td>
<td>Gừng gió <em>Zingber zerumbet</em> (L.) Sm.</td>
<td>IFRAD</td>
<td>Tran Thi Thu Ha and others</td>
</tr>
<tr>
<td>5</td>
<td>LAN KIM TUYỀN HM-LC</td>
<td>Lan kim tuyến <em>Anoectochilus setaceus</em> Blume</td>
<td>IFRAD</td>
<td>Tran Thi Thu Ha and others</td>
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<tr>
<td>6</td>
<td>LAN KIM TUYỀN HM-HG</td>
<td>Lan kim tuyến <em>Anoectochilus setaceus</em> Blume</td>
<td>IFRAD</td>
<td>Tran Thi Thu Ha, Pham Van Dien, Bui Van Dong and others</td>
</tr>
<tr>
<td>7</td>
<td>HOÀNG TINH ĐỎ - HM - HG</td>
<td>Hoàng tinh đỏ <em>Polygonatum kingianum</em> Coll. Et Hems</td>
<td>IFRAD and CAFED</td>
<td>Tran Thi Thu Ha, Pham Van Dien, Bui Van Dong and others</td>
</tr>
</tbody>
</table>
1. Đinh lăng HM-TN
*Polycias fruticosa* (L.) Harms.

Seedling of Đinh lang HM-TN

Cultivation by new variety
2. Ba kích tím HM-QN
(Species: *Morinda officinalis* How)

Cây giống Ba kích tím HM-QN

Mô hình Ba kích tím HM-QN
3. SA NHÂN TÍM HM-ĐL
(Species: Amomum Longiligulare T.L.Wu)

Hoa Sa nhân tím HM-ĐL

Quả Sa nhân tím HM-ĐL

Sa Nhan tim HM-ĐL : planting at the Son Duong - TQ
4. Gừng gió HM-BS
Species: *Zingiber zerumbet* (L.) Sm.
7. Hoàng tinh đỏ HM-HG

Hoàng tinh đỏ HM-HG          Hoàng tinh trắng
Lan kim tùyễn
Species: *Anoectochilus setaceus* Blume

Lan Kim tuyền HM-LC: Moc Chau

5. LAN KIM TUYỄN HM-LC  6. LAN KIM TUYỄN HM-HG
7. Hoàng tinh đỏ HM-HG

Hoàng tinh đỏ HM-HG  Hoàng tinh trắng
IFRAD’s applications for PVP have accepted in 2017

<table>
<thead>
<tr>
<th>No.</th>
<th>Plant Variety</th>
<th>Species</th>
<th>Plant Owner</th>
<th>Plant breeder</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Hà Thủ ô đỏ</td>
<td><em>Fallopia multiflora</em></td>
<td>IFRAD</td>
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</tr>
<tr>
<td>9</td>
<td>Đẳng sâm</td>
<td><em>Campanumoea javanica</em></td>
<td>IFRAD</td>
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<tr>
<td>10</td>
<td>Lan thạch hộc tía</td>
<td><em>Dendrobium officinale</em></td>
<td>IFRAD</td>
<td></td>
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<td></td>
<td></td>
<td>Kimura et Migo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Khôi tía</td>
<td><em>Ardisia silvestris</em></td>
<td>IFRAD</td>
<td></td>
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<tr>
<td>12</td>
<td>Trà hoa vàng</td>
<td><em>Camellia hakodae</em></td>
<td>IFRAD</td>
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<tr>
<td></td>
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<td>Ninh, Tr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. HÀ THỦ Ô HM-HG

Cây Hà thủ ô HM - HG

Lá Lan Thạch hộc tía HN-HG

Khôi tía HN-H

Trà Hoa vàng HN-ĐT
IFRAD supported other applications for PVP have accepted in 2017

<table>
<thead>
<tr>
<th>No.</th>
<th>Plant Variety</th>
<th>Species</th>
<th>Plant variety Owner</th>
<th>Plant breeder</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>Sâm Ngọc Linh QN</td>
<td><em>Panax vietnamense</em> Ha &amp; Grushv</td>
<td>Trung tâm Bảo tồn và Phát triển Sâm Ngọc Linh</td>
<td>Nguyen Van Ut and others</td>
</tr>
<tr>
<td>14</td>
<td>Lan tràm tím HG</td>
<td><em>Dendrobium Nestor</em></td>
<td>CAFED</td>
<td>Nguyen Thi Lan and others</td>
</tr>
<tr>
<td>15</td>
<td>Giáo cổ lam BK</td>
<td><em>Gynostemma pubescens</em> (Gagnep.) C. Y. Wu ex C. Y. Wu et S. K. Chen</td>
<td>Dang Kim Vui</td>
<td>Dang Kim Vui and others</td>
</tr>
<tr>
<td>16</td>
<td>Thông đất HM-HG</td>
<td><em>Huperzia squarrosa</em></td>
<td>CAFED and IFRAD</td>
<td>Tran Thi Thu Ha and others</td>
</tr>
<tr>
<td>17</td>
<td>Ba kích TG-QN</td>
<td></td>
<td>Trung tâm Bảo tồn và Phát triển Sâm Ngọc Linh</td>
<td>Nguyen Van Ut and others</td>
</tr>
<tr>
<td>18</td>
<td>Sa Nhạn NG-QN</td>
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<td></td>
</tr>
</tbody>
</table>
13. SÂM NÚI NGỌC LINH QN

(Species: *Panax vietnamense* Ha & Grushv)

Sâm Ngọc Linh

Quả Sâm núi Ngọc Linh

Củ Sâm núi Ngọc Linh
## Total of contracts for medicinal seedlings in 2017

<table>
<thead>
<tr>
<th>Varieties</th>
<th>No of seedlings</th>
<th>Buyers</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Đinh lăng HM-TN</td>
<td>1,000,000</td>
<td>Công ty CPPT NLN &amp; MT Việt Nam</td>
<td>19/ HĐTKT/2017</td>
</tr>
<tr>
<td>Ba kích tím HM-QN</td>
<td>100,000</td>
<td>Công ty TNHH Giống cây trồng LN Ba Vị</td>
<td>90/HĐTKT/2017</td>
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<tr>
<td></td>
<td>50,000</td>
<td>Công ty CPPT rừng Bên vườn Quảng Ninh</td>
<td>171/HĐTKT/2017</td>
</tr>
<tr>
<td></td>
<td>45,000</td>
<td>TT giống cây trồng tỉnh Quảng Nam</td>
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</tr>
<tr>
<td>Lan kim tuyến</td>
<td>100,000</td>
<td>Công ty CPPT NLN &amp; MT Việt Nam</td>
<td>05/ HĐTKT/2017</td>
</tr>
<tr>
<td></td>
<td>56,000</td>
<td>Trang trại Ông Sơn, Nghệ An</td>
<td>10/ HĐTKT/2017</td>
</tr>
<tr>
<td>Gừng gió</td>
<td>100,000</td>
<td>Công ty CPPT NLN &amp; MT Việt Nam</td>
<td></td>
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<tr>
<td>Sa nhân tím</td>
<td>85,000</td>
<td>TT giống cây trồng tỉnh Quảng Nam</td>
<td>92/HĐTKT/2017</td>
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<tr>
<td>Hoàng tinh đỏ</td>
<td>34,000</td>
<td>Công ty CPPT NLN &amp; MT Việt Nam</td>
<td>190/ HĐTKT/2017</td>
</tr>
<tr>
<td>Varieties</td>
<td>Projects</td>
<td>Buyers</td>
<td>Periods</td>
</tr>
<tr>
<td>----------------------------</td>
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</tr>
<tr>
<td>Đinh lăng HM-TN</td>
<td>Package for transferred seedling breeding</td>
<td>Trung tâm KHKT Thanh Hóa</td>
<td>2017-2019</td>
</tr>
<tr>
<td>Ba kích tím HM-QN</td>
<td>Package for transferred seedling breeding and rights to produce seedlings</td>
<td>Công ty TNHH Giống cây trồng LN Ba Vì</td>
<td>2017-2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Công ty CPPT rừng Bến vững QN</td>
<td>2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TT giống cây trồng QN Quảng Nam</td>
<td>2017-2020</td>
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<tr>
<td>Lan kim tuyền, Đinh lăng</td>
<td>Research project</td>
<td>Ministry of Science and Technologies/Northern mountainous region</td>
<td>2017-2020</td>
</tr>
<tr>
<td>Gừng gió</td>
<td>Package for transferred seedling breeding by <em>in vitro</em></td>
<td>Công ty CPPT NLN &amp; MT Việt Nam</td>
<td>2017</td>
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<tr>
<td>Sa nhân tím</td>
<td>Joint project for Rural Development</td>
<td>Trung tâm giống cây trồng tỉnh Quảng Nam/ Ministry of Science and Technologies</td>
<td>2017-2020</td>
</tr>
<tr>
<td>Hoàng tinh đỏ</td>
<td>Package for transferred seedling breeding by <em>in vitro</em></td>
<td>Công ty CPPT NLN &amp; MT Việt Nam</td>
<td>2017-2019</td>
</tr>
</tbody>
</table>
Commercialization: Own beneficiaries

- Plant breeders, research institution
  - Qualified to produce seedlings and selling in the markets at large scale.
  - Transferring techniques of seedling breeding for companies/enterprise/collectives/others through economic contracts/research projects/funding projects.
  - Expansion of international collaboration.
  - Increase number of contract funding for the institute/university → adapted a new strategy “autonomy” at the University.
  - Fair Competition in trade: investment to research and development will have chance to have more benefits for re-investment.
Other beneficiaries

• For Local seeds companies (LSC): Better environment for LSCs to play in the seed industry through sharing authority rights of PVP for producing seed/seedlings and trading.
  - Core value of business is protected (variety protection certification, seed copyright granted)
  - Many companies growing from “middle man” to technological/research/breeding companies.
Promote trading for companies in 2017

<table>
<thead>
<tr>
<th>Tên công ty</th>
<th>CHI NHÁNH CÔNG TY CỔ PHẦN PHÁT TRIỂN NÔNG LÂM NGHIỆP VÀ MÔI TRƯỜNG VIỆT NAM QUANG NAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mã số thuế</td>
<td>4601292139-002</td>
</tr>
<tr>
<td>Ngày cấp</td>
<td>10/05/2017</td>
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<tr>
<td>Địa chỉ trụ sở</td>
<td>Quốc lộ 1A, Thôn An Thọ, Xã Tam An, Huyện Phú Ninh, Tỉnh Quảng Nam, Việt Nam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tên công ty</th>
<th>CHI NHÁNH CÔNG TY CỔ PHẦN PHÁT TRIỂN NÔNG LÂM NGHIỆP VÀ MÔI TRƯỜNG VIỆT NAM – HÁT GIANG</th>
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<tr>
<td>Ngày cấp</td>
<td>13/02/2017</td>
</tr>
<tr>
<td>Địa chỉ trụ sở</td>
<td>Tổ 4, Thị trấn Vị Xuyên, Huyện Vị Xuyên, Tỉnh Hà Giang, Việt Nam</td>
</tr>
</tbody>
</table>
Challenges for commercialization of PVP in VN

- Legislation document
  - Still complicated, some articles are not clear
  - Punishment level is not strong enough

- Technical system
  - Can not meet the demand due to rich of species
  - Human resource
  - Investment
  - Technical Guidelines – especially for new species
Acknowledgement:
- Organizers:
- Vietnam PVP Office, Dr. Nguyen Thanh Minh
- Institute of Forestry Research and Development (IFRAD), Thai Nguyen University of Agriculture and Forestry (TUAF).

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