

Crop protection sector study

Agrochemical reduction study Vietnam



Kingdom of the Netherlands

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Abbreviations

ASEAN	Association of Southeast Asian Nations	MRL	Maximum Residue Levels
BN	Billion	MT	Metric Tonnes (1,000 kg)
CAGR	Compound Annual Growth Rate	SWOT	Strengths, Weaknesses, Opportunities, Threats
EKN	Embassy of the Kingdom of the Netherlands	USD	United States Dollar
EU	European Union		
EUR	Euro		
EVFTA	EU-Vietnam Free Trade Agreement		
ha	Hectare		
IPM	Integrated Pest Management		
kg	Kilogram		
Larive	Larive International B.V.		
MARD	Vietnamese Ministry of Agriculture and Rural Development		
MN	Million		

Introduction

Background

The country is putting significant effort in agrochemical usage reduction

- The Vietnamese Ministry of Agriculture and Rural Development (MARD) aims to reduce the number of chemical pesticide brands registered in Vietnam by 30%, replacing them with bioproducts.
- The government plans to cut current pesticide trade names and limit registrations of new chemical products.
- The government looks to encourage and extend IPM models (integrated pest management)
- The Embassy of the Kingdom of the Netherlands in Vietnam has the ambition to positively address the residue and contamination risks in the Vietnamese horticulture sector, through matching knowledge, technology and innovation.
- The present study focuses on understanding the opportunities, requirements and needs of the Vietnamese fruit and vegetable growers, with a focus on export.

Vietnamese horticulture sector

Residue together with severe post-harvest loss are among main obstacles of the sector development

- Vietnam is home to about 120 vegetables and hundreds of fruit varieties and presents great development potential of a young population, a large domestic market and rising export demand.
- Local production maintains a strong growth for years, in line with the expansion of horticulture production area and increasing investment in supplies and technology.
- The export is boosted by recent free trade agreements including the EU-Vietnam Free Trade Agreement.
- The sector is gradually moving from traditional open-field production to protected cultivation, applying greenhouse technology, automatic irrigation and stricter control of agrochemical usage, especially among those with an export focus.
- The Vietnamese horticulture presents enormous opportunities for foreign companies that offer technologically advanced solutions addressing current challenges.

Sector overview

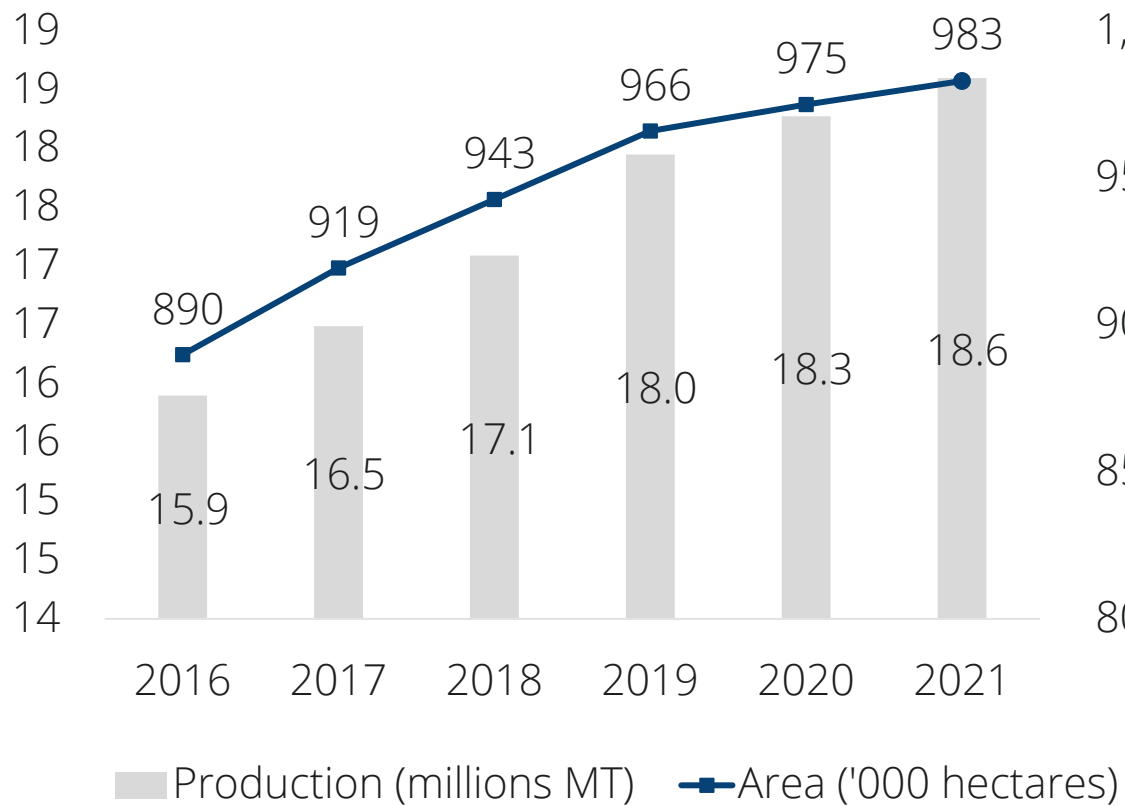
Production overview

The dominance of smallholders creates inconsistent quality of supply and high post-harvest loss

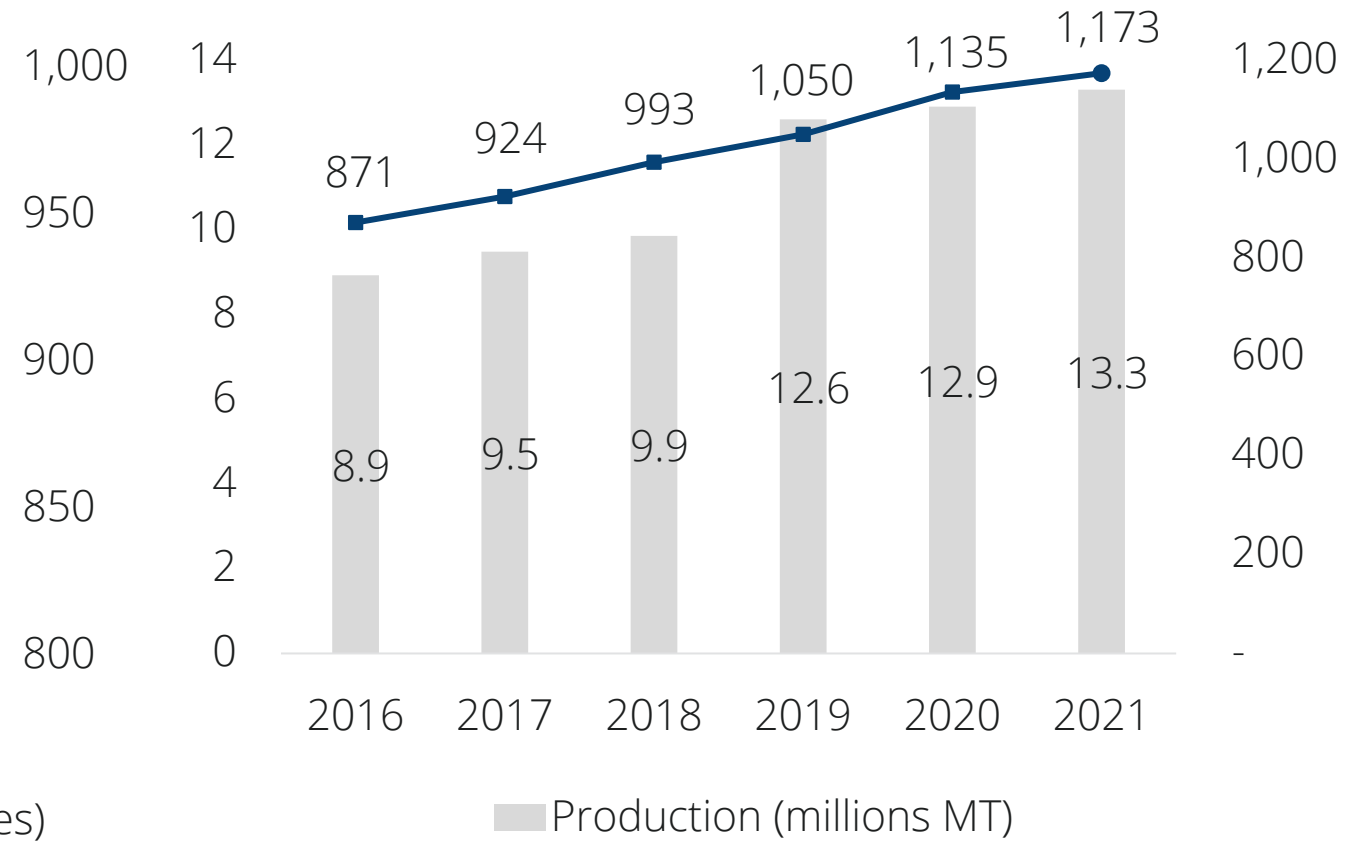
- Production area: 6% CAGR to 2 MN ha in 2021.
- GlobalGAP and VietGAP: 10-15% (120,000 ha VietGAP).
- Mekong Delta River: largest horticulture region. Lam Dong Highlands: high-tech horticulture hub.
- Total vegetable farming area: 980,000 ha (2021). Potato, sweet potato, corn, cassava, peanut, soy, and leaf vegetables.
- Fruit cultivation area: 1.1 MN ha (2021). Dragon fruit, coconut, mango, orange, grapefruit, lychee, rambutan, and longan.
- Total cultivation yield reached 18.6 MN MT and 13.3 MN MT for fresh vegetables and fruit respectively (2021)
- Small-scale household farms, often formed into cooperative farms.
- Fragmented value chain, lack of knowledge and sustainability awareness have led to residue and contamination risks.

Production overview

Area and production of vegetables



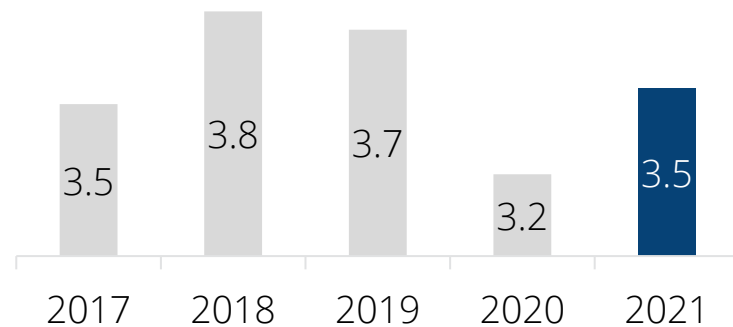
Area and production of fruits



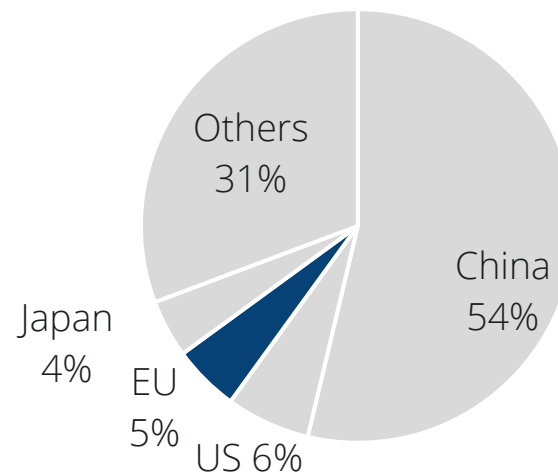
Export market

- Vegetables and fruit: major export agricultural commodities. Ranked second after seafood.
- Annual horticulture exports: USD 3.5-3.8 BN (except for 2020 at USD 3.2 BN).
- China >50% of Vietnam's total fruits and vegetable exports. Other markets: USA, EU, Japan and ASEAN. Free trade agreements.
- Key exports: guava, mango, mangosteen, durian, and coconut for fresh fruit; corn, potatoes, cassava, mushroom, and chili for fresh vegetables. Often branded/trademarked.
- The EU market accounts for more than 19% of Vietnamese fruits export volume.

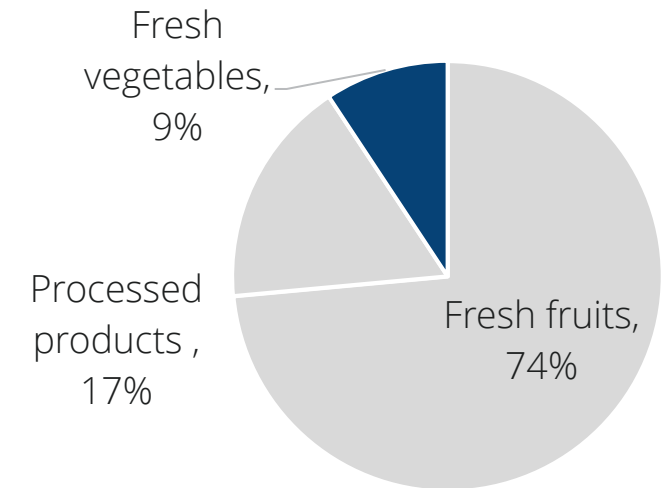
Total vegetables and fruits exports (USD BN)



2021 Vegetables and Fruit export

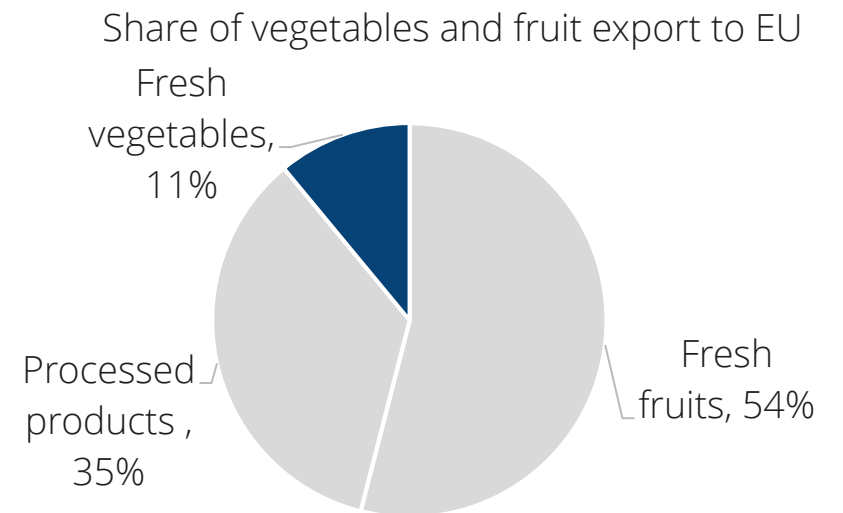
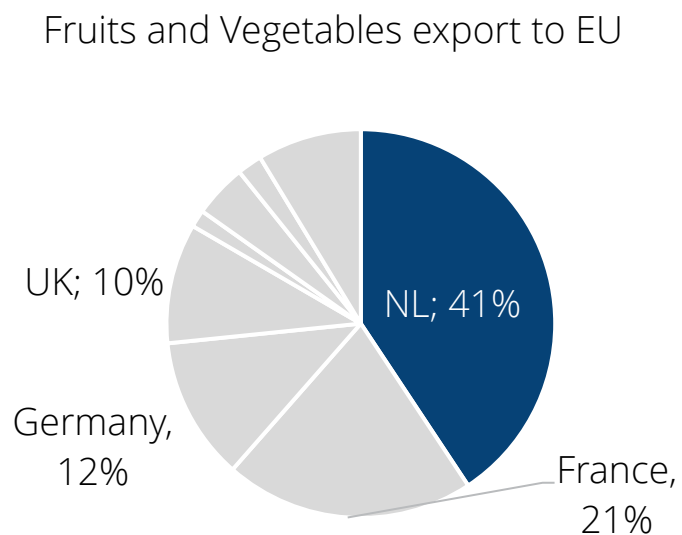
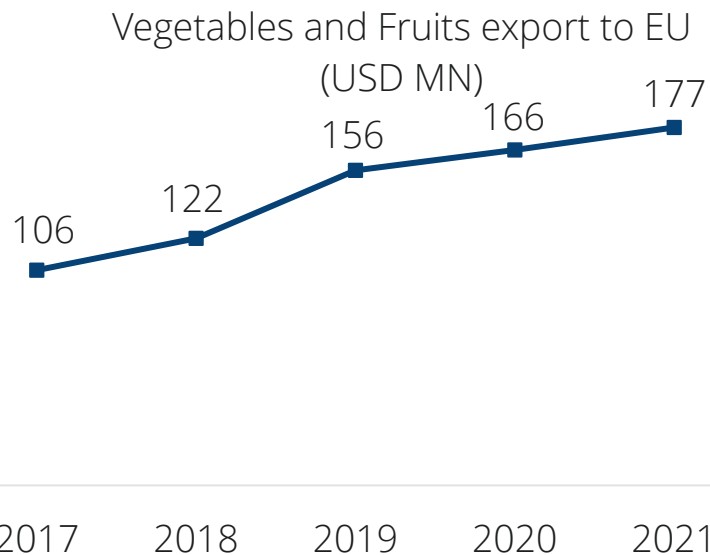


Share of vegetables and fruit export



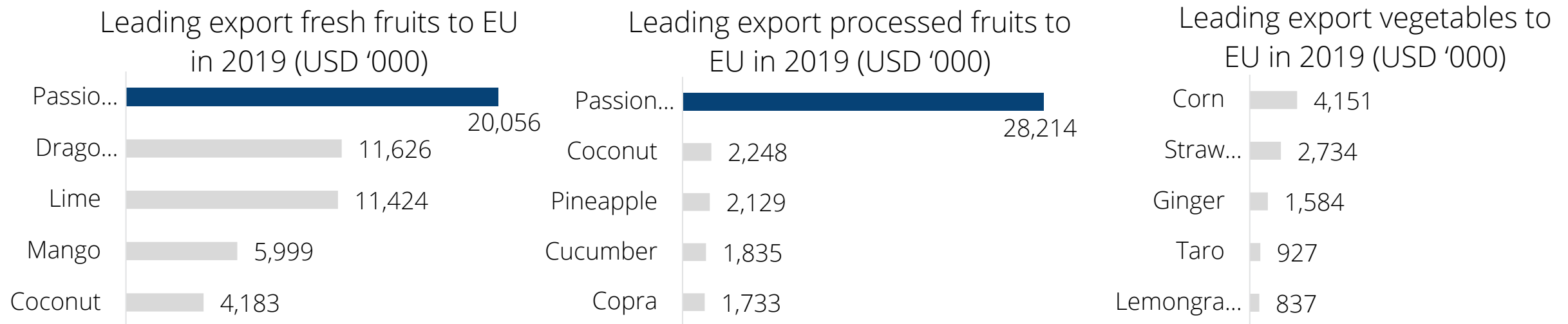
Export market

- Horticulture exports to EU sharply surged >50% during 2017-2021 and are forecasted to rise following the EVFTA.
- Fresh fruits remain dominant with 54% in value terms, followed by Processed products at 35% and Vegetables at 11%. Export growth is driven by fresh tropical fruits for 3x and processed fruit for 2x value growth in the past 5 years.
- The Netherlands represent the largest EU market (45%). Followed by France, Germany, UK.
- Main challenge: consistent quality of supply, compliance to the EU's highest standards on banned substances, residue level, traceability, trademarks/brands, high logistics costs.



Export market

- Before the EVFTA, relatively high tariffs:10-20%. Following EVFTA, 94% of 547 tax lines vegetables and fruits eliminated.
- Exports to EU is expected to increase by 15% in 2022 following the EVFTA
- EVFTA brings enormous competitive advantages for Vietnamese horticulture products versus neighbor Asian or South American counterparts with similar offerings.
- At the same time, EVFTA offers huge challenges and requires drastic improvement for the Vietnamese horticulture sector to comply with the EU's strict import standards, especially on food safety, contaminants and residue level.



Main crop diseases

- Insects, fungus, weeds and rodents are most common
- Pests including silkworms, flea beetle, stem borer, aphids, and thrips: moderate damage.
- Yellow leaf: primary disease in citrus plants.
- Fusarium: banana crop.
- Broom disease: Mekong Delta region.
- Brown spot disease: dragon fruit in the Mekong Delta.
- Rodent damage: yield loss of up to 15%.

Insects

Fungus

Weeds

Rodents

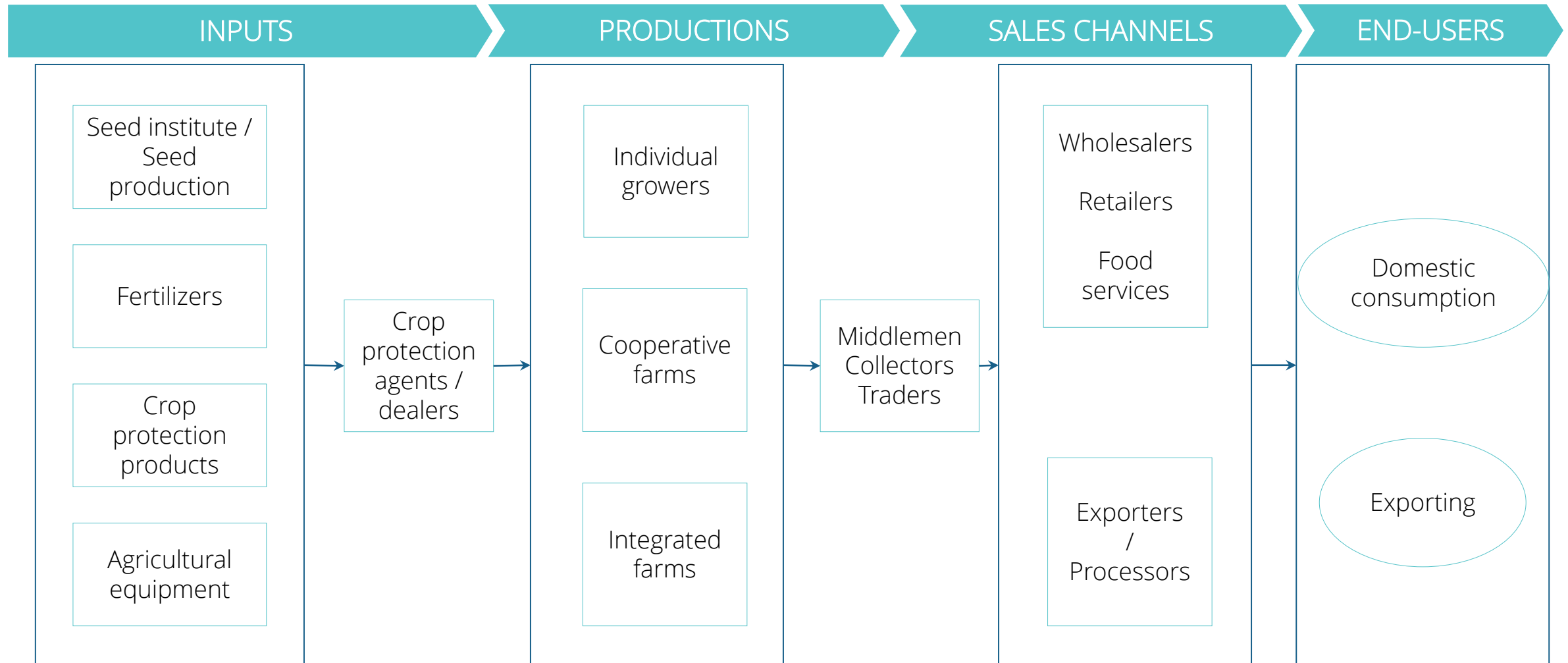
Nematodes

Mollusks

Spider and
Ticks plant



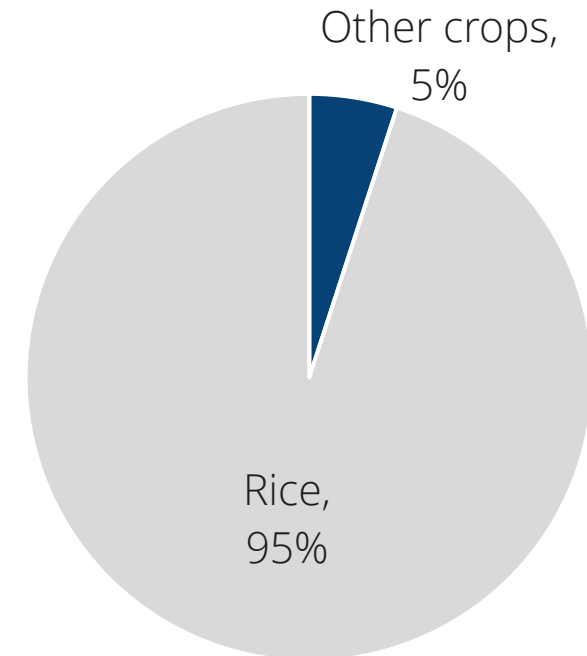
Private sector stakeholders



Crop protection market

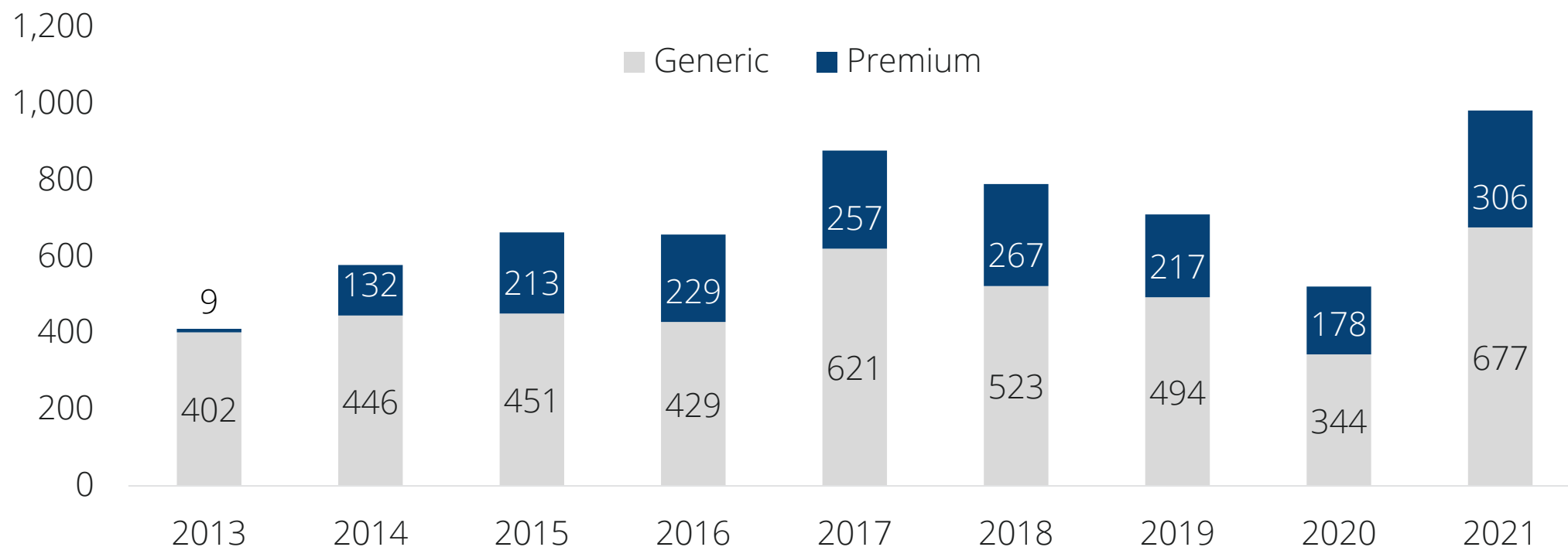
- Average usage of crop protection products: ~3.81 kg/ha of cultivated area (2020).
- USD 1 BN of crop protection products imported (2021). Generic crop protection products accounted for 70% of the value share. Local producers import, diluting and repackaging to serve both domestic market and export to neighbor countries. More than 50% of crop protection products are imported from China.
- Current crop protection products (4,000 trade names), bioproducts account for 734 names, equivalent to 18%.
- Use of biological products remains low. In 2020, total biological pesticides used nationwide: 9,000 tons (mostly rice crops).

Estimated share of agro-biological products imports to Vietnam, by crops



Crop protection market

Generic and premium crop protection products import value during 2013-2021 (USD MN)



Regulatory landscape

Regulatory

- MARD plans to reduce the # of chemical pesticide brands by 30% by 2025, replacing them with bioproducts and improve the rate of use of biological pesticides to reach 20%.
- Government has approved the development plan of biopesticide production in industrial scale.
- MARD implemented development program: 12 enterprises in a demonstration program for safety and effectiveness of biopesticides with the budget of US\$ 13.5 MN.
- Biopesticides are encouraged to be registered on all crops. Regulators have reduced number of testing and isolation efficacy, along with the required technical documents, registration costs and time significantly reduced compared to conventional pesticides. In additions, biological products have been exempted from transport permits.

Regulations and standards for export to the EU

- The EU has strict and high standards on agricultural products.
- Obligatory regulations include Food safety, Residue level, Contaminants, Phytosanitary, Genetically Modified Organisms (GMO), Plant Health, Traceability, and Labelling, in which, pesticide residues, phytosanitary and traceability are major relevant regulations applied for Vietnamese horticultural products
 1. Maximum Residue Levels (MRLs)
 2. Phytosanitary certificate
 3. Traceability



Conclusions & recommendations

SWOT analysis

STRENGTH

- Horticulture is key pillar. Favorable climates, soils and biodiversity conditions.
- Export growth: FTAs
- Government facilitating credit line to promote high-tech projects
- Large-scale investments from private companies
- Cooperation models between exporters with local cooperative farms
- Increasing public knowledge on adverse impacts of agrochemicals to human and environment
- Stricter export regulations and standards from developed markets
- Numerous policies in place to reduce agrochemicals
- Biological products have achieved greater awareness among farmers.

Internal origin

WEAKNESSES

- Local horticulture sector remains in early stage of sustainable farming
- Lack of knowledge on advantages of biological products and sustainable impacts from local farmers.
- Fragmented value chain, dominance of small-scale household farms
- Dominant role of crop protection product agents in promoting and distributing biological products
- Lack of communication with farmers on impacts of agrochemicals overuse on crops and human
- Habits of traditional farmers on agrochemical usage
- Lack of demonstration on usage and advantages of biological products

OPPORTUNITIES

- Dependent on imported inputs including seed, fertilizers, crop protection products.
- High reputation and strong public favor for EU biological products
- Limited availability of quality biological products in the market
- Increasing demand and acceptance for higher price of high-quality and safe vegetable and fruit products

External origin

THREATS

- Unfavorable impression on effectiveness of current available biological products
- Unfavorable prejudices on complex application process and storing conditions compared to conventional agrochemicals

Market opportunities

- Biopesticides (bio-insecticides and bio-fungicides) are the fastest-growing segment and have the highest potential in the current context of Vietnamese horticulture.
- Demonstrations test, application training and technical support are extremely crucial.
- Lam Dong and Mekong River Delta potential markets for biological products.
- Pricing is not a critical issue for farmers to current available biological products.
- A branded and reputational biopesticides products would attract local horticulture farmers' preferences.



Annex

Annex I: Relevant horticultural stakeholders in the Netherlands and Vietnam

Results of contact and interview throughout the study:

KPIs	Deliverables
Dutch people direct (10)	Executed >30 (mainly on the GreenTech Amsterdam)
Dutch people indirect (20)	Executed >100 (through platforms: LinkedIn, YouTube, webinar, report recipients)
Vietnamese people direct (40)	Executed 53: 14 interviews with 23 people participated (Producers/Farmers 5; Processors/Exporters 7; Institutions 2) and large groups of 30 on farm level
Vietnamese people indirect (100)	Executed >100 using outreach to local social media, LinkedIn, YouTube, Facebook, the Vietnamese mailings about webinar, report recipients, the newsletter in Vietnam through Priva



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