



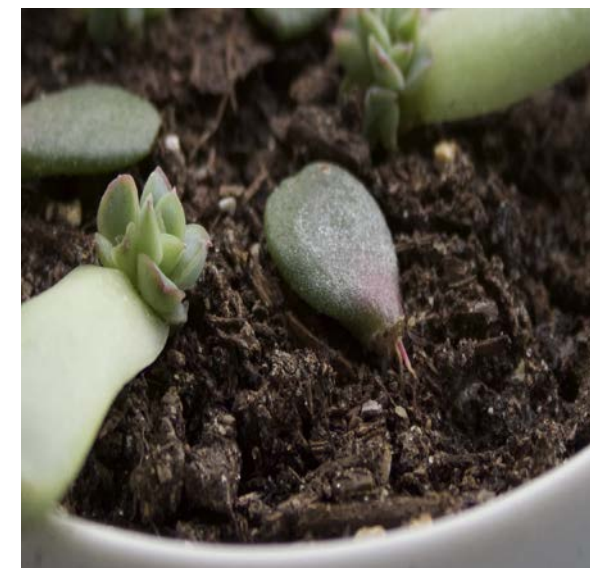
VIETNAM PROPAGATION MATERIALS MARKET (2023 – 2028)

Domain: **Agriculture**


Base Year: **2022**

Forecast Period: **2023 - 2028**

Market Intelligence/Advisory



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FOREWORD

It is with great anticipation and commitment that we present this market report which is commissioned by the agricultural department of the Embassy of the Kingdom of the Netherlands to get an insight on the Vietnam's market of propagation materials (seed, bulbs, tissue culture, young plant) for floriculture and horticulture. The report was developed and completed by Mordor Intelligence.

Viet Nam, with its favorable climatic conditions, diverse ecosystems, and a rich agricultural heritage, has become a hub for the cultivation and propagation of a wide array of plant species. The country's commitment to sustainable agricultural practices and technological advancements has further fueled its position in the global market.

This report navigates through the various segments of the propagation materials market, shedding light on market dynamics, market segmentation, competitive landscape, key players, regulatory frameworks, and technological innovations. From traditional methods to cutting-edge techniques, the entire spectrum of propagation practices employed in Vietnam is explored in this market report.

This report is more than a compilation of findings; It identifies market opportunities and future trends. We hope that it serves as a valuable resource for investors, policymakers, industry players, and all those seeking to capitalize on the opportunities presented by Vietnam's vibrant and rapidly expanding market.

May this report inspire informed decisions and pave the way for sustainable growth and development within the floriculture and horticulture sectors in Vietnam.

Acknowledgments: We extend our sincere gratitude to the dedicated team of Mordor Intelligence for their diligence and expertise to this market report.

Thank you and enjoy reading.

Ingrid Korving

Agricultural counselor

Embassy of the Kingdom of the Netherlands in Viet Nam

DISCLAIMER

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1 INTRODUCTION

1.1 Study Assumptions and Market Definition

1.2 Scope of the Study





1.1 STUDY ASSUMPTIONS AND MARKET DEFINITION

BASE CURRENCY

The base currency considered is the United States Dollar (USD). Conversion of other currencies is based on the average exchange rates of the respective review period years. The exchange rate conversion for the forecast period is determined according to the base year's conversion rates.

BASE YEAR, REVIEW, AND FORECAST PERIOD

The base year is identified based on the availability of gain reports and secondary research information. The base year considered for this study is 2022. The review period considered for this study is from 2018 to 2022. The CAGR is for the forecast period 2023-2028.

FORECAST TERMS

Market-size estimations for the forecast years are in real terms. Nominal values are only considered. Inflation is not to be considered.

PRIMARY RESEARCH

Distribution of the primary interviews conducted is based on the regional share of the market and the presence of key players in each of the demographics pertaining to the market studied.

Note: Company revenues are mentioned as per the fiscal year in the HQ of the company, and currency conversion is as per the account closure date of the company.

MARKET DEFINITION

PRODUCT

Propagation material is any part or product of a plant that can be used to produce another plant with the same essential characteristics. The Vietnamese propagation materials market is segmented into crop type, propagation methods, propagation materials, and propagation trade analysis.



1.2 SCOPE OF STUDY

CROP TYPE

- Vegetables
- Flowers and Ornamentals

PROPAGATION METHODS

- Seed
- Vegetative
 - Layering and Cutting
 - Grafting
 - Breeding
 - Budding
 - Other Vegetative Propagation Methods

PROPAGATION MATERIALS

- Bulbs/Bulbils
- Young Plants (Sapling)
- Suckers
- Rhizomes
- Tubers
- Runners
- Stolons
- Corms
- Nodes/Eye
- Other Propagation Materials

PROPAGATION TRADE ANALYSIS

- Import Analysis
- Export Analysis

2 RESEARCH METHODOLOGY

2.1 Research Framework

2.2 Secondary Research

2.3 Primary Research

2.4 Data Triangulation and Insight Generation





2.1 RESEARCH FRAMEWORK



- An appropriate mix of secondary and primary research is advocated to meet objectives.
- Market insights (market dynamics, competition, varying consumer demands, and regulations) are translated into actionable business insights.
- Following phases are practiced for efficient delivery of various syndicated and consulting assignments.

STEP 1 SCOPING/ PROJECT INITIATION

STEP 2 MARKET ANALYSIS

STEP 3 PROJECT DELIVERY



Decipher Market to be studied



Extensive desk research to identify most relevant secondary information available



Triangulate and analyze data to finalize on actionable business insights



Tailor made research approach for customized reports



Contact empaneled experts and identify industry experts across the market



Finalize report contents and establish a deliverable format



Effective use of knowledge repository to gather relevant insights



Conduct primaries & surveys to gather qualitative and quantitative insights



Report delivery with high quality market insights, competitive landscape etc., as per the proposed contents



Confirm the objectives of the assignment





2.2 SECONDARY RESEARCH

OBJECTIVE

Hypothesis and insights building; get factual data



Shortlisting market intelligence sources

Synthesis of published information



Data collection and aggregation

Further validated from expert interviews



Insight and hypothesis development

To reach out industry experts for interviews



Key contact list

Relevance and credibility of sources

A thorough synthesis of existing publications across the web to gather meaningful insights on the current situation of the market, technology developments, and any other market-related information. The sources include, but are not limited to:

- Scientific Papers, Journals, and Publications
- Trade information to understand imports, exports, and average traded price of the commodity, if available.
- Industry and Government Websites for blogs, magazines, and other publications
- Conference proceedings and association publications
- Investor presentations, technical brochures, annual reports, press releases, transcripts of key personnel interviews, and other strategic publications by several competitors in the market.
- Product information including technical specifications, approvals, patents, etc.
- Public Sources Reports, (*Food and Agriculture Organization (FAO), ITC trade map, World Bank data, Agriculture and Agri-Food Canada, Ministry of Agriculture and Rural Development (MARD), etc.*)



2.2 KEY SOURCES USED IN THIS REPORT

- World Bank
- UNSTATS
- IMF
- Global Economic Monitor
- WIOD
- COMTRADE
- TRADEMAP
- WTO
- WIPO/EPO
- D&B Hoovers
- Factiva
- Statista
- Questel
- Orbit
- LinkedIn Premium
- Rocketreach
- Volza
- Food and Agriculture Organization (FAO)
- ITC trade map
- World Bank data
- Ministry of Agriculture and Rural Development (MARD)
- Agriculture and Agri-Food Canada
- National Center for Plant Testing (NCPT)
- Department of Crop Production (DCP)
- Food Crops Research Institute (FCRI)
- Vietnam Agriculture Science Institute (VASI)



2.3 PRIMARY RESEARCH

OBJECTIVE

Gather first-hand insights on the market studied



Expert profile determination

Based on industry, role, experience, and location



Expert identification

Using empaneled industry experts as well as new experts



Discussion guide

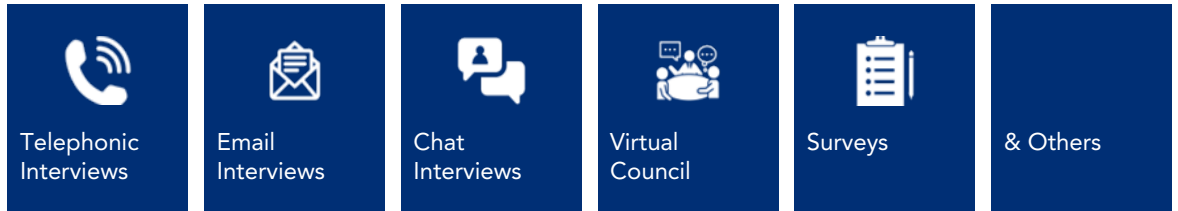
Semi-structured approach to probe and prioritize insights



Reach out and interviews

Targeted industry interviews to fill data gaps and validate insights

MODES OF PRIMARY RESEARCH





2.4 DATA TRIANGULATION AND INSIGHT GENERATION

OBJECTIVE

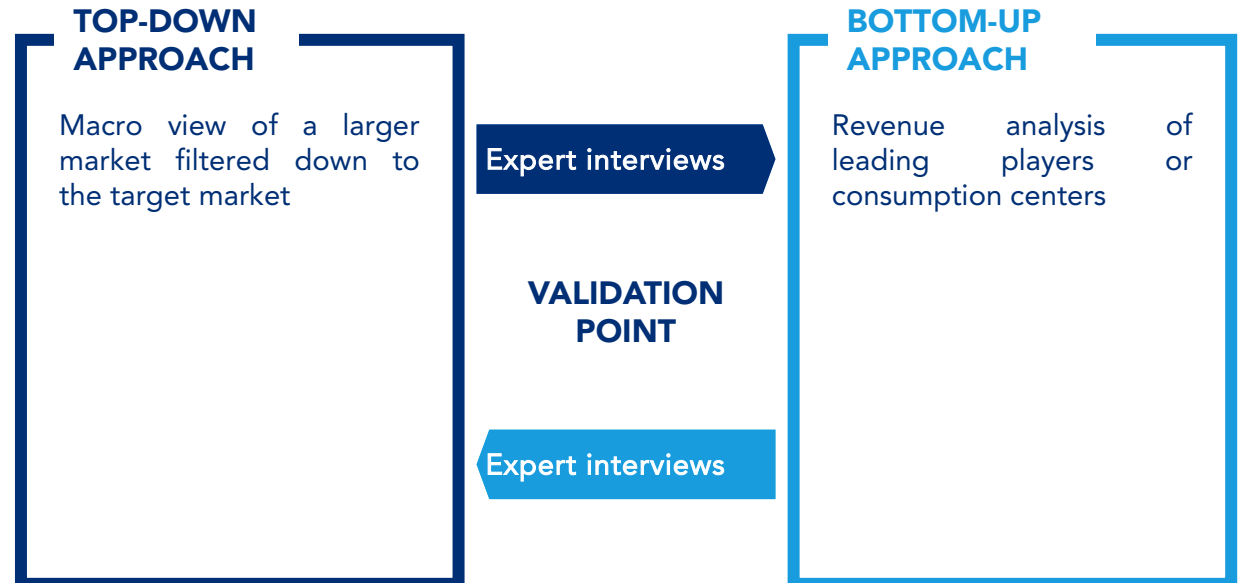
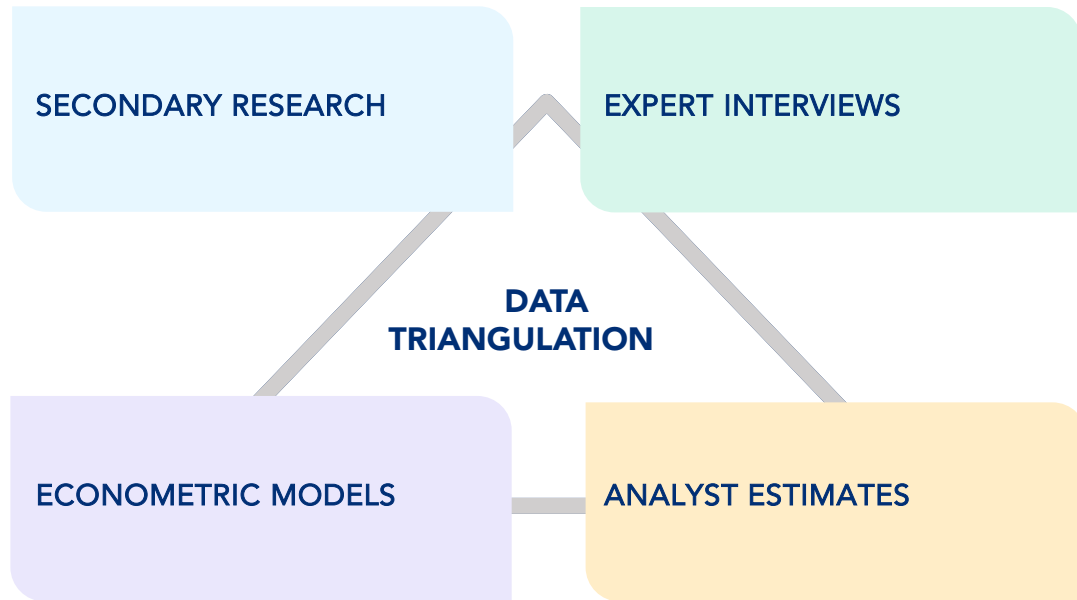
Logical checks and sanity of information

TRIANGULATION AND TRANSFORMATION OF INFORMATION EXTRACTED

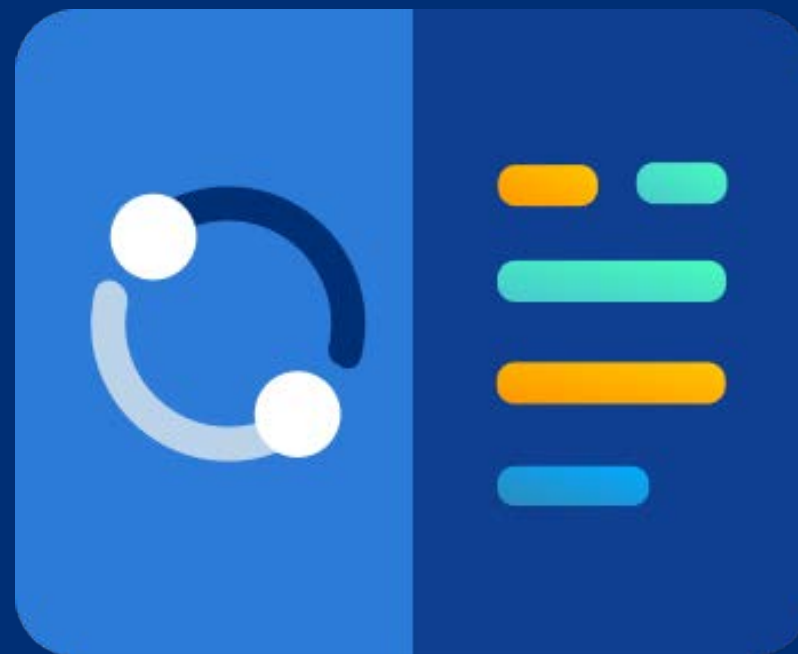
Based on the factors identified which are endogenous and exogenous in nature collected during the secondary and primary phases, our in-house subject matter experts transform quantitative data extraction and use them for the inferential purpose.

VALIDATION FOR MARKET ASSESSMENT ESTIMATES

- The market size estimations are carried out through 'Bottom-up' & 'Top-down' approaches.
- Our top-down and bottom-up approaches are integrated into our 'In-house Model sheets' which are used to generate the market estimates and growth rates (depending upon the historical trends of the respective markets along with the various factors like drivers, restraints and recent developments in the market) of the product segment in Vietnam.



3 EXECUTIVE SUMMARY





3 EXECUTIVE SUMMARY

129.5
Market Size in 2022 (USD million)


178.4
Market Size in 2028 (USD million)

-0.1%
Historical Value CAGR (2018-2022)

5.4%
Value CAGR (2023-2028)

FASTEST GROWING CROP TYPE

6.2%
CAGR, Vegetables, 2023-28



In Vietnam, people are consuming vegetables due to the rising health awareness. As a result, the expenditure is rising, which is increasing the need for growth in production. This supports the usage of various types of propagation materials, aiding the market's growth. For instance, the consumer expenditure on vegetables in Vietnam grew from USD 3.9 billion in 2020 to USD 4.0 billion in 2021, according to Agriculture and Agri-food Canada.

LARGEST PROPAGATION METHOD

91.8
Value in USD million, Vegetative, 2022



In Vietnam, the use of vegetative propagation has been increasing for growing crops over the past few years. According to the ITC trade map, the imports of bulbs, roots, cut flowers, and ornamental foliage into Vietnam grew from USD 100,063 thousand in 2021 to USD 166,668 thousand in 2022. Thus, the growing market demand for vegetative propagation is aiding the market's growth.

LARGEST PROPAGATION MATERIAL


26.0
Value, in USD million, Bulbs/Bulbils, 2022



In Vietnam, farmers cultivate lilies and onions mostly using bulbs compared to seeds, as they tend to be less susceptible to diseases. Thus, the demand for the bulbs and bulbils is estimated to increase with the increased area under cultivation for these crops. For instance, the area under cultivation of onion and shallots increased from 96,839 hectares in 2018 to 97,217 hectares in 2022.

FASTEST VEGETATIVE PROPAGATION METHOD

5.2%
CAGR, Tissue culture, 2022



Tissue culture is one of the promising methods of propagation that has gained traction across Vietnam. Recent collaborations in the country for producing tissue culture varieties are aiding the market's growth. For instance, in 2023, HZPC collaborated with the potato institute CIP (International Potato Centre) in Vietnam to develop novel tropical potato varieties using technologies like tissue culture.

LEADING MARKET PLAYER

11.9%



Market Share, Dalat Hasfarm Company Limited, 2022

Dalat Hasfarm Company Limited is a leading producer and distributor of cut flowers and young plants in Vietnam. The company and its partnered international breeders test and develop innovations in young flower plants. The continuous development of innovative products helps them attain a greater market share in the country.

4 MARKET DYNAMICS

4.1 Market Overview

4.2 Market Drivers

4.3 Market Restraints

4.4 Porter's Five Forces Analysis

4.4.1 Bargaining Power of Buyers/Consumers

4.4.2 Bargaining Power of Suppliers

4.4.3 Threat of New Entrants

4.4.4 Threat of Substitute Products

4.4.5 Intensity of Competitive Rivalry

4.5 Supply Chain Analysis

4.6 Macroeconomic Analysis

4.6 PESTLE Analysis





4 MARKET DYNAMICS

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4.6 PESTLE Analysis

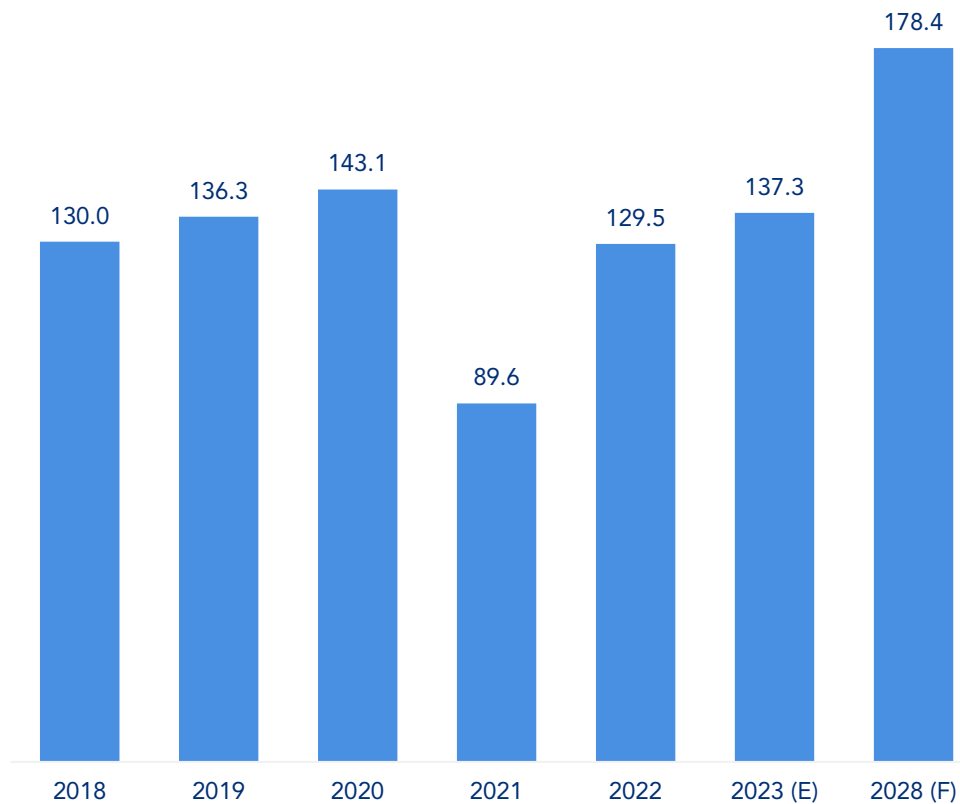




4.1 MARKET OVERVIEW

PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, VIETNAM, 2018-2028

CAGR VALUE (2023-2028): 5.4%



Source: Mordor Intelligence

OVERVIEW

- The Vietnamese propagation materials market was valued at USD 129.5 million in 2022. It is projected to reach USD 178.4 million by 2028, registering a CAGR of 5.4% during the forecast period (2023-2028).

INSIGHTS

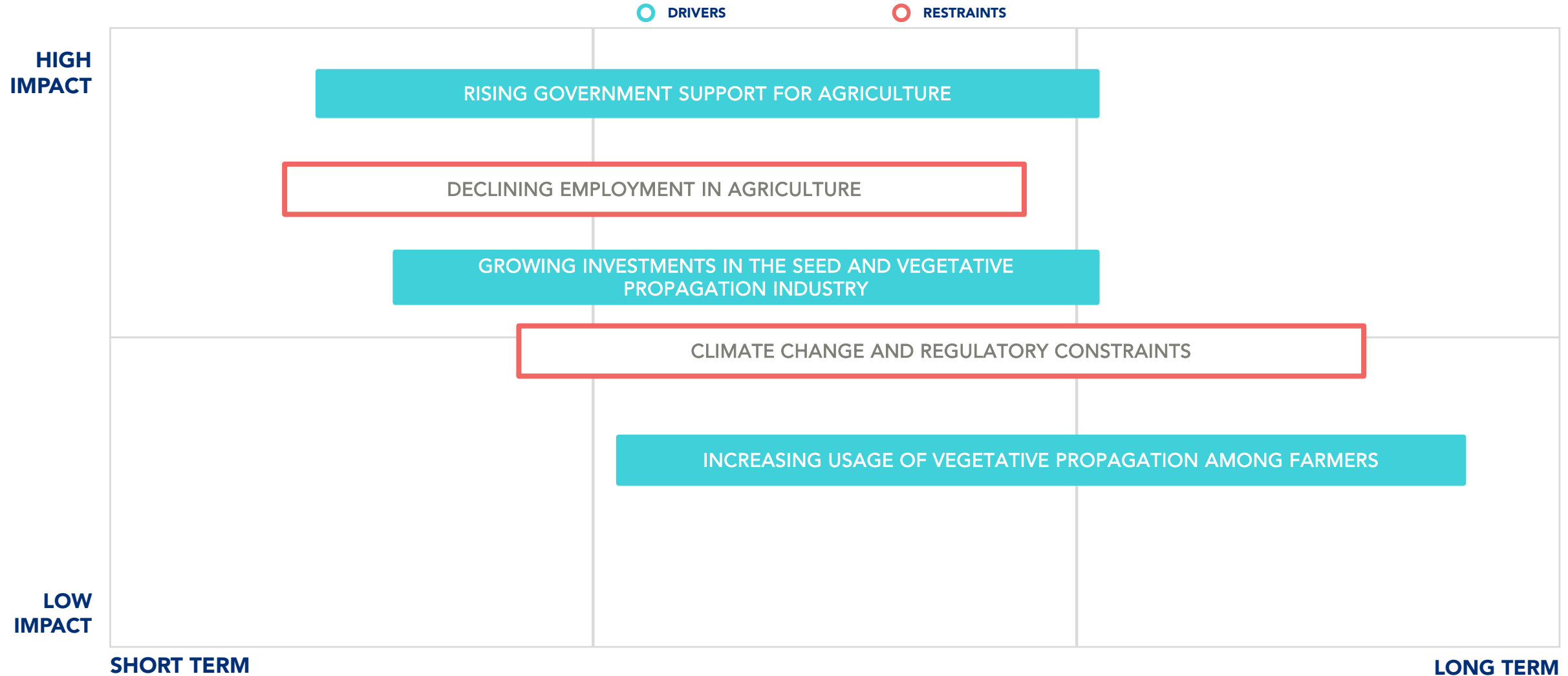
- Agriculture remains an important part of Vietnam's economic development. The country is rapidly developing and becoming one of Asia's fastest-growing emerging economies. Major vegetable crops cultivated in the country include tomato, cabbage, cauliflower, potato, and onion. The crops in this region are majorly cultivated by various propagating methods such as seed propagation, cutting, layering, division, grafting, budding, and tissue culture techniques.
- In the past, no government or private nursery produced planting material for fruits, vegetables, and other crops in Vietnam. Farmers used to produce planting material for fruits such as grapes using cuttings and a few by layering.
- The Cotton Research Centre, Ninh Thuan Domestic Animal and Crop Breeding Centre, and Binh Thuan Socio-Economic Development Centre have been tasked to produce planting materials for grapes. All three organizations are researching rootstocks to identify suitable planting materials for different soils and climatic conditions of the various grape-growing regions in the country. The Cotton Research Centre is conducting studies to propagate grapes by the in-vitro method. These organizations promote the use of plant propagation materials, thereby boosting the growth of the market.
- Furthermore, the advancement in technology has led to the growth in tissue culture techniques in Vietnam, leading to the development of the market. Vietnamese farmers now use tissue culture techniques for commercial potato cultivation. Hence, the growth of tissue culture technology aids the growth of the market.

CONCLUSION

Therefore, the usage of various propagation methods, the usage of technology for propagating, and the different government organizations involved in the propagation of crops are expected to boost the market's growth during the forecast period.



4.2 MARKET DRIVERS



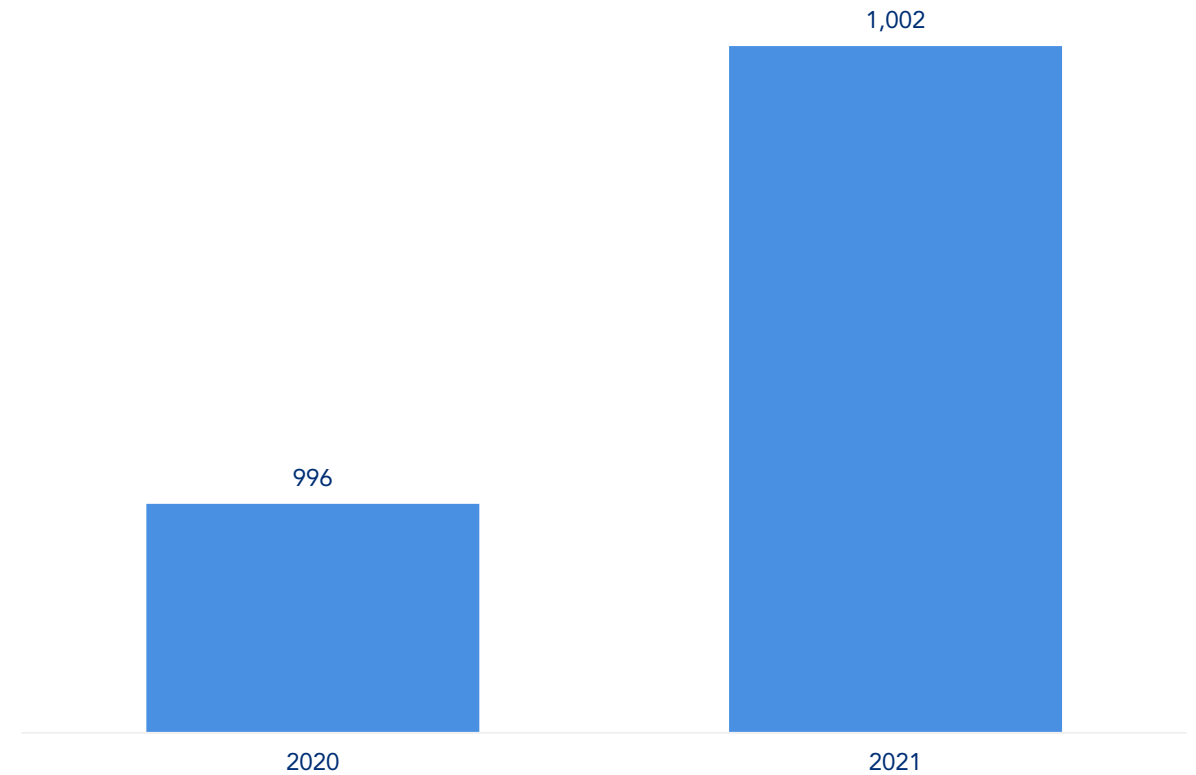
Source: Mordor Intelligence



4.2.1 RISING GOVERNMENT SUPPORT FOR AGRICULTURE

- Agriculture accounts for almost 20% of GDP in Vietnam, and it is projected to grow during the forecast period due to rising government support and investments from overseas. For instance, the World Economic Forum (WEF) selected Vietnam as one of the first three countries to pilot the Food Innovation Hub, a flagship initiative of the Food Action Alliance designed to improve sustainability in food production.
- In 2022, the Ministry of Agriculture and Rural Development (MARD) approved four Overseas direct assistance (ODA) projects and announced investment policies with a total loan value of USD 840 million. The ministry also coordinated with businesses and prepared 14 new project proposals requiring a total capital of USD 3.2 billion. All these factors are directly or inversely related to the development of agriculture, increasing the use of various agriculture inputs in which propagation materials play an important role and thereby supporting the market's growth.
- Arable land under major vegetables and ornamental crops is increasing in the country. For instance, according to FAO, the area harvested for total vegetable production in Vietnam has been increasing for several years. It grew from 996 thousand hectares in 2020 to 1,002 thousand hectares in 2021. This supports the use of various propagation materials for cultivation, thereby supporting the market's growth.
- Furthermore, the Vietnamese government has made an action plan to adapt to and mitigate climate change in the agricultural sector for 2021-30. The agricultural sector carries out the government's action plan to implement the Paris Agreement on Climate Change. This plan involves research on the selection and production of plant varieties, which supports the development and usage of propagating material, thereby aiding the market's growth.
- Recently, the Vietnam green growth strategy encourage the use of sustainable practices in agriculture, which will promote the production and distribution of high-quality and environmentally friendly plant propagation materials, such as seeds, saplings, and cuttings. This strategy introduce the regulations and standards that will encourage the production and use of certified, disease-resistant, and genetically diverse plant materials to enhance agricultural productivity sustainably.
- *Therefore, the growing importance of agriculture in the country and the rising arable land are expected to drive the market's growth during the forecast period.*

PROPAGATION MATERIALS MARKET, AREA HARVESTED UNDER VEGETABLES IN THOUSAND HECTARES, VIETNAM, 2020-2021



Source: FAO



4.2.2 GROWING INVESTMENTS IN THE SEED AND VEGETATIVE PROPAGATION INDUSTRY

- Seed is one of the majorly used propagation materials in the country. The seed segment in Vietnam is a rapidly growing sector of the country's agricultural industry. Around 70-80% of the formal seed used in the country includes vegetables and some other types, supporting the market's growth.
- However, Vietnam is very vulnerable to the increasing consequences of climate change, including droughts, floods, and saltwater intrusion. Therefore, companies are involved in producing seed varieties suitable for the climatic conditions. For instance, Vinaseed, a seed company in Vietnam, is developing seeds suitable for local weather conditions to improve yields and combat climate change impacts such as drought and saline intrusion in the Mekong Delta and south-central coastal regions.
- Vietnam is highly dependent on seed imports from other countries due to the lack of processing facilities. Thus, to minimize this reliance on imports and bolster the domestic supply chains for key inputs, such as seeds, the country has made many supporting policies. In 2022, Vietnam set a target to double its foreign agricultural investment to USD 34 billion by the end of 2030. This raises the seed industry investment, aiding the market's growth.
- Moreover, several companies are investing more in propagating materials in the country. For instance, in August 2021, Hivico Biotech announced a new Project, "Expanding Production And Business of Invitro Plant Seedlings," investing over USD 2 million to increase its production capacity to over 18 million in vitro seedlings per year by 2024.
- In January 2022, the Ministry of Agriculture and Rural Development (MARD) of Vietnam drew up a 10-year investment project to strengthen floriculture in Vietnam. This government project is expected to boost the quantity and quality of propagation materials grown in the country.
- Therefore, different policies and initiatives formulated to develop the country's seed sector are expected to drive the market's growth during the forecast period.

PROPAGATION MATERIALS MARKET, DEVELOPMENTS IN THE SEED AND VEGETATIVE PROPAGATION INDUSTRY, VIETNAM, 2022

Year	Company or Organization	Development
2022	Government of Vietnam	Vietnam set a target to double the foreign investment in agriculture to USD 34 billion by the end of 2030 to minimize reliance on imports and bolster the domestic supply chains for key inputs, such as seeds.
2022	Government of Vietnam	The Ministry of Agriculture and Rural Development (MARD) of Vietnam drew up a 10-year investment project to strengthen floriculture in Vietnam. This government project is expected to boost the quantity and quality of propagation materials grown in the country.
2022	Rijk Zwaan	The company launched a new variety of tropicalized lettuce, which is named Arunas RZ, to increase the market share in the country.

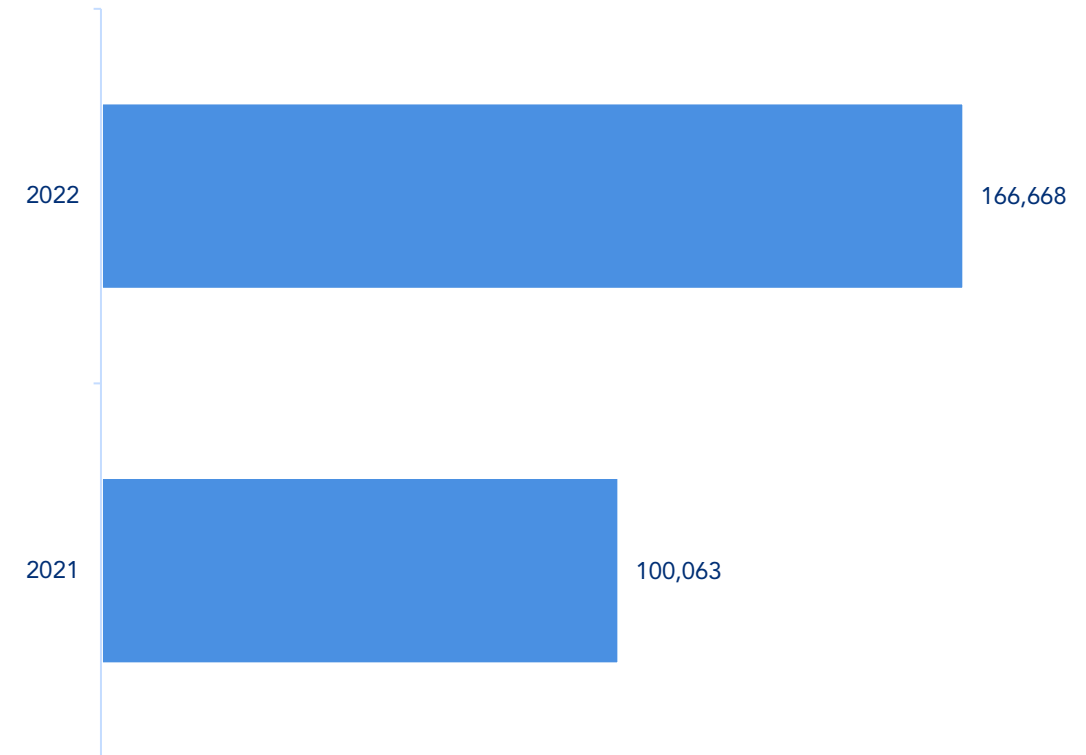
Source: Mordor Intelligence



4.2.3 INCREASING USAGE OF VEGETATIVE PROPAGATION AMONG FARMERS

- In Vietnam, vegetative propagation has been increasingly used for growing crops over the past few years. This propagation method includes the use of tubers, grafts, cuttings, nodes, etc., which is driving the growth of the market.
- A.crasna trees, also known as agarwood, is an ornamental tree and one of the popular wood trees in Vietnam. These trees are rare, and it is difficult to obtain large amounts of seeds. Therefore, various studies of vegetative propagation on this species have demonstrated rooting rates of up to 90% for cuttings from young trees. The average number of roots in each cutting was 10.9, with an average root length of 2.9cm per cutting. Thus, the successful propagation by cuttings provides opportunities for large-scale production of planting material for this species in the country, thereby supporting the market's growth.
- Vegetative propagation techniques are frequently practiced on various vegetable and flower crops, which supports the market's growth. Furthermore, the rising demand for vegetative propagation in the country is supporting the imports of vegetative propagation materials, such as bulbs, tubers, rhizomes, etc.
- For instance, according to the ITC trade map, importing bulbs, roots, cut flowers, and ornamental foliage into Vietnam grew from USD 100,063 thousand in 2021 to USD 166,668 thousand in 2022. This shows the growing demand for vegetative propagation, thereby aiding the market's growth.
- Moreover, the vegetative propagation method is also used to protect some of the most valuable vegetables and ornamental trees. For instance, according to a study conducted in 2019, the vegetative propagation of *Dalbergia tonkinensis*, a high-value ornamental tree species in the country, showed positive results on the rooting ability. This is expected to increase the use of vegetable propagation methods and boost the growth of the market during the forecast period.
- *Therefore, the growing demand for vegetative propagation methods and the rising imports of propagation materials are expected to drive the market's growth during the forecast period.*

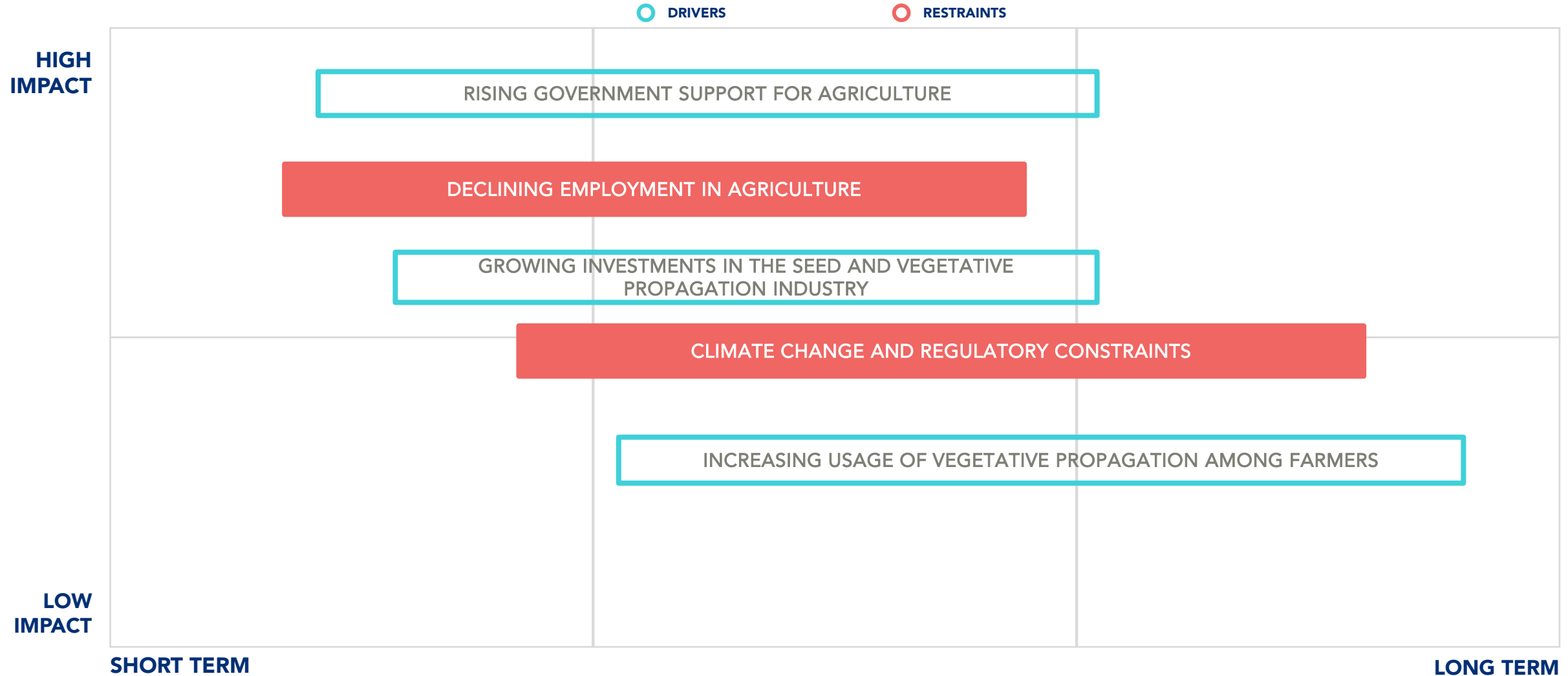
PROPAGATION MATERIALS MARKET, IMPORT VALUE BULBS, ROOTS, CUT FLOWERS, AND ORNAMENTAL FOLIAGE IN USD THOUSAND, VIETNAM, 2021-2022



Source: ITC Trade Map



4.3 MARKET RESTRAINTS



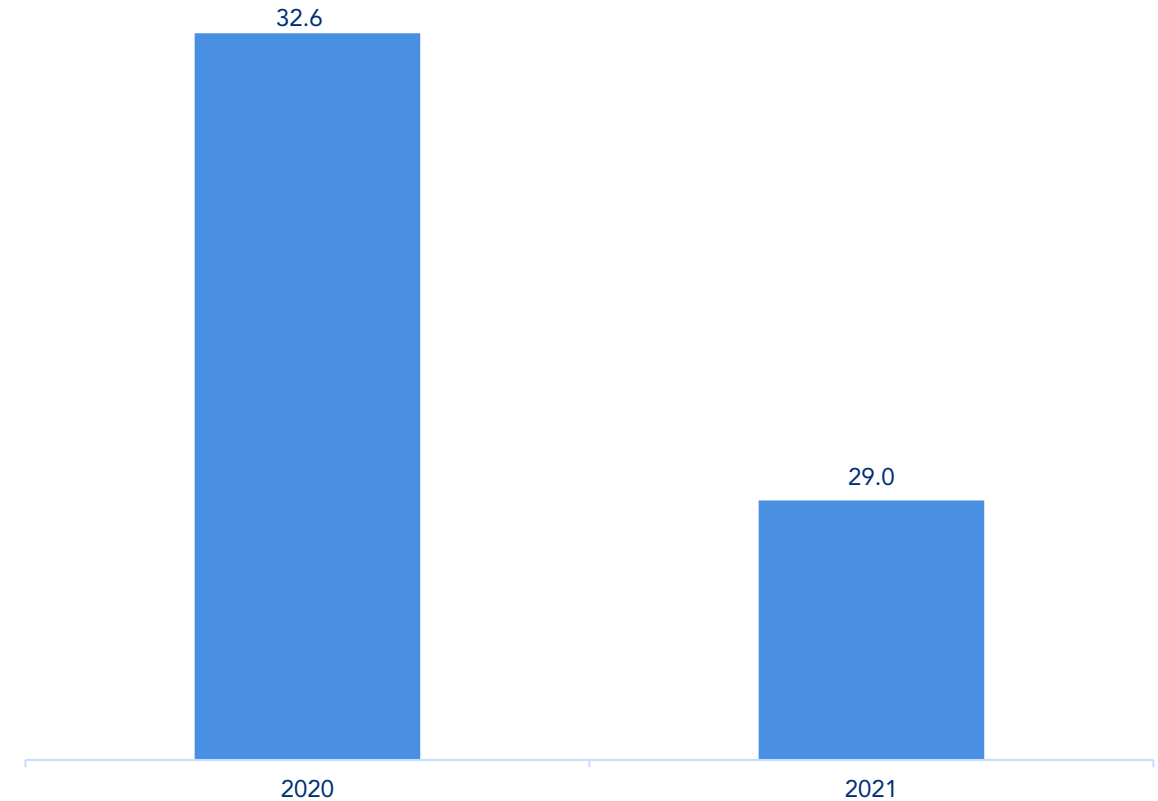
Source: Mordor Intelligence



4.3.1 DECLINING EMPLOYMENT IN AGRICULTURE

- The production of propagation material by the vegetative process has been on the rise in Vietnam as this is a more rapid, less expensive, and simpler form of plant propagation than planting seeds.
- Agriculturists and horticulturists particularly benefit from vegetative propagation, enabling them to cultivate crops that don't produce viable seeds. But the material must be propagated very carefully as they are easily prone to diseases.
- Research studies on vegetative propagation in Vietnam notice that the lack of expertise in grafting/budding impedes virus transmission, and controlling common virus diseases becomes difficult.
- Many farmers and workers in Vietnam have limited access to information and knowledge about modern propagation technologies and the best agriculture practices. This hinders the adoption of the improved seeds and the propagation materials, thereby affecting overall market growth.
- Furthermore, employment in the agriculture industry has been declining in the country during the study period. For instance, according to the World Bank data, employment in the agriculture sector in 2020 was 32.6%, dropping to 29.0% in 2021, including the workers employed in nurseries. Moreover, these agriculture employees play a vital role in producing propagation material as they ensure the production of quality seedlings and maintenance. Thus, declining employment is anticipated to restrain the production of propagation materials during the forecast period.
- *The lack of technical expertise and the declining employment in the agriculture industry are affecting the production of propagation materials, which is expected to restrain the market growth during the forecast period.*

PROPAGATION MATERIALS MARKET, EMPLOYMENT IN AGRICULTURE (%), VIETNAM, 2020-2021



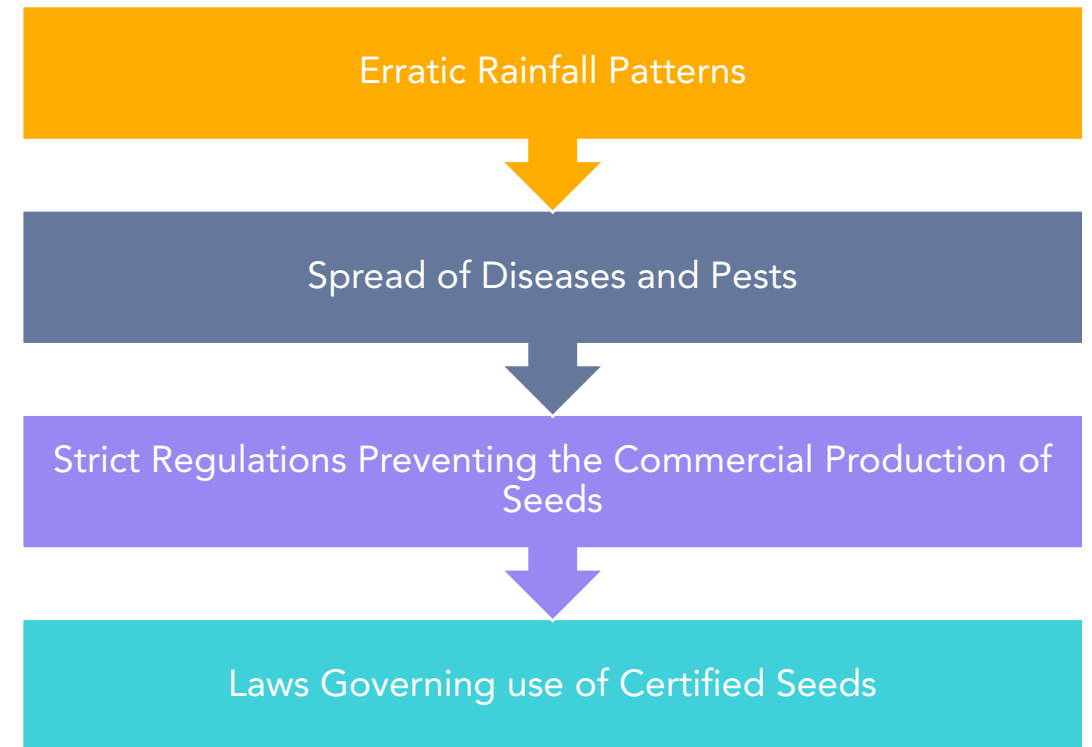
Source: World Bank



4.3.2 CLIMATE CHANGE AND REGULATORY CONSTRAINTS

- Vietnam is vulnerable to the effects of climate change, including erratic rainfall patterns, extreme weather events, and the spread of diseases and pests. Climate change also alters the developmental stages of plant pathogens that can affect crops, thereby reducing the quality of the propagation material. Thus, these factors affect the production of various propagation materials, thereby restraining the growth of the market.
- The seed industry is subjected to various regulations and policies that create barriers for market players and new entrants to restrict the development of new cultivars. Compliance with the regulations can be time-consuming and costly for propagation material manufacturing companies.
- Vietnam's seed system is governed by laws and regulations primarily focusing on varietal improvement, seed quality, and rapid multiplication. These seed laws state that only certified seeds can be legally traded and prohibit the production and trade of fake, poor quality, mixed, pest, or disease-infected seeds or seeds that have not been certified.
- The government is formulating new regulations on plant varieties production and trade. In 2020, the Vietnamese government issued Decree 94, which came into effect to provide detailed guidance on some articles of the Law on Crop Production related to plant varieties and cultivation. This includes a list of plant variety genetic resources banned from export. In addition, it provides detailed regulations on labeling, conditions for trading or manufacturing, and administrative procedures related to plant varieties to facilitate the manufacture, trade, or import of plant varieties.
- *Therefore, climatic changes in the country, strict legislation on the use of certified seeds, and laws on the production of plant propagation materials are expected to restrain the market's growth during the forecast period.*

PROPAGATION MATERIALS MARKET, MAJOR FACTORS AFFECTING THE PRODUCTION OF PROPAGATION MATERIALS, VIETNAM



Source: Mordor Intelligence



4.4 PORTER'S FIVE FORCES ANALYSIS



- There are several small companies in the Vietnamese propagating materials market, but only a few companies can come up with new and improved varieties to increase their presence in the market. Hence, *competitive rivalry is moderate in this market.*
- The propagation materials available are limited or only in the traditional product range due to a lack of innovation and new design. Suppliers in the Vietnamese seed industry include farmers and cooperative societies. As the market is scattered, *the bargaining power of suppliers is moderate.*
- The end consumers are individual farmers and account for limited bargaining power. However, due to the intense competition in the industry, farmers have a choice of brand for acquiring seed, both through the formal and informal sectors. In addition, the low to moderate switching costs of farmers make the *bargaining power of buyers moderate.*
- Propagating material is the primary input for agriculture, and although there is a substitution between different methods of propagation, there is *no substitute for the propagation material* as an input.
- The Vietnamese propagating materials market has formal and informal systems of distribution. The government's regulations, though in place, do not create significant entry barriers for new companies. This results in the *threat of new entrants to be high.*

0-3: Low, 4-6: Moderate, 6.5-10: High

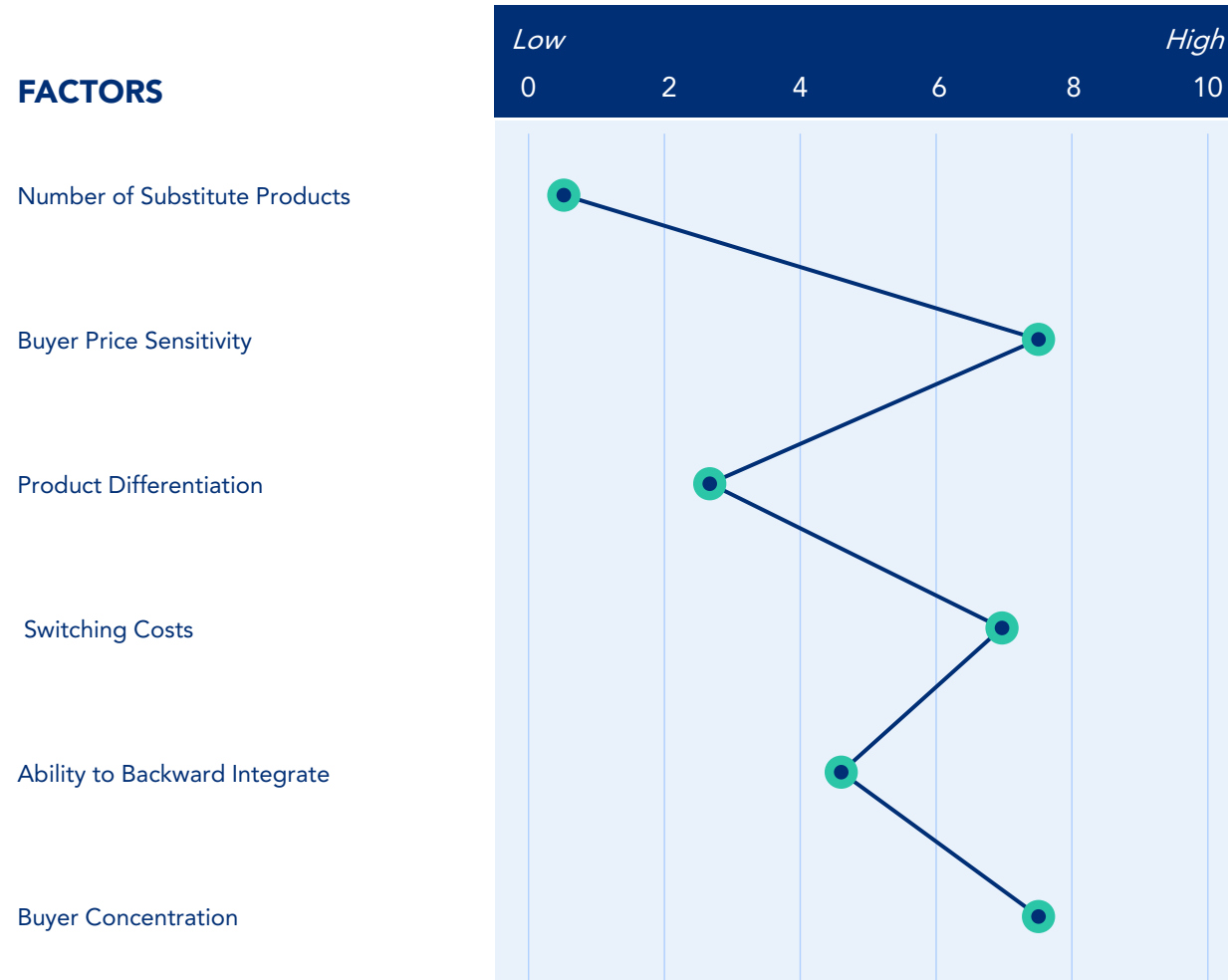
Source: Mordor Intelligence



4.4.1 BARGAINING POWER OF BUYERS

MARKET PARAMETERS

FACTORS



Source: Mordor Intelligence

DETAILED DESCRIPTION

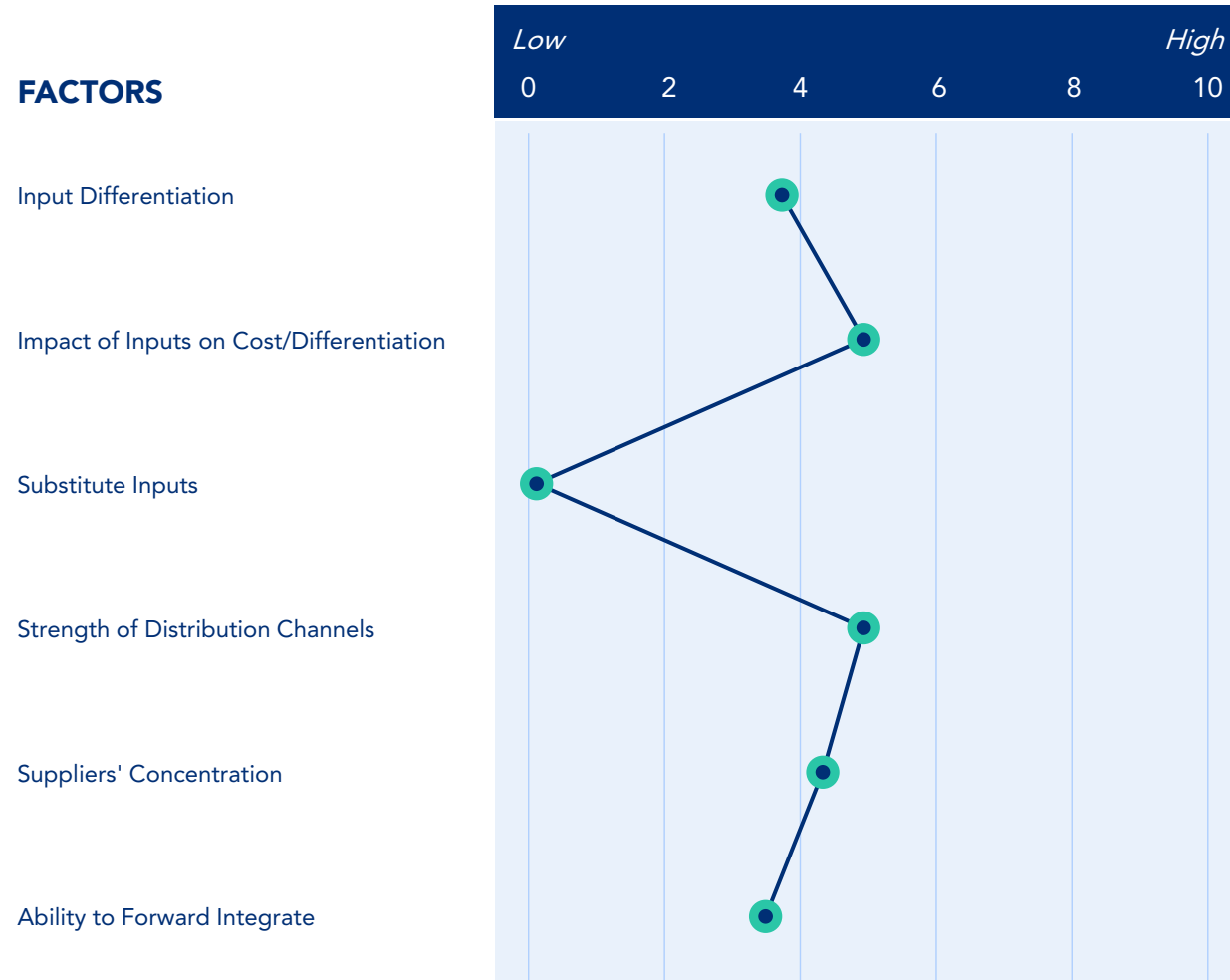
- The buyers of propagating materials in Vietnam are ordinary farmers spread across the country. As the country is rich in agriculture, with a major percentage of the people practicing farming, the buyer's concentration is high in the market.
- Although there are a lot of factors that influence farmers' buying decisions, they make these decisions individually.
- In some cases, farmers are also dependent on the distribution channel for the availability of propagating material for their farming operations. Awareness regarding the use of new varieties has significantly improved over time, and farmers have become more price-sensitive and value-conscious.
- The market is fragmented, which has led to an increase in the bargaining power of consumers. The trend of using transgenic seeds and the need for increasing production has further increased the buyer's need for quality propagating material. However, companies tend to cater to the specific needs of farmers, and local seeds and cultivars are also readily available, making product differentiation moderate to high.
- Propagating material is the primary input to agriculture in the country, and there are no substitutes available. This has led to a high level of dependency on the material. The switching costs in the seeds market are low as farmers can try out different products on limited acreage before finalizing the final product for purchase.
- Farmers face challenges integrating backward into the production of propagating materials due to a lack of transparency between them, retailers, and companies. The seed market is also not transparent, giving seed companies an advantage. Vegetative methods may work for small land holdings but not for large-scale farming.
- *Considering the above parameters, on a scale of 1 to 10, 1 being the lowest and 10 being the highest, the bargaining power of buyers is 5.2, which is moderate.*



4.4.2 BARGAINING POWER OF SUPPLIERS

MARKET PARAMETERS

FACTORS



Source: Mordor Intelligence

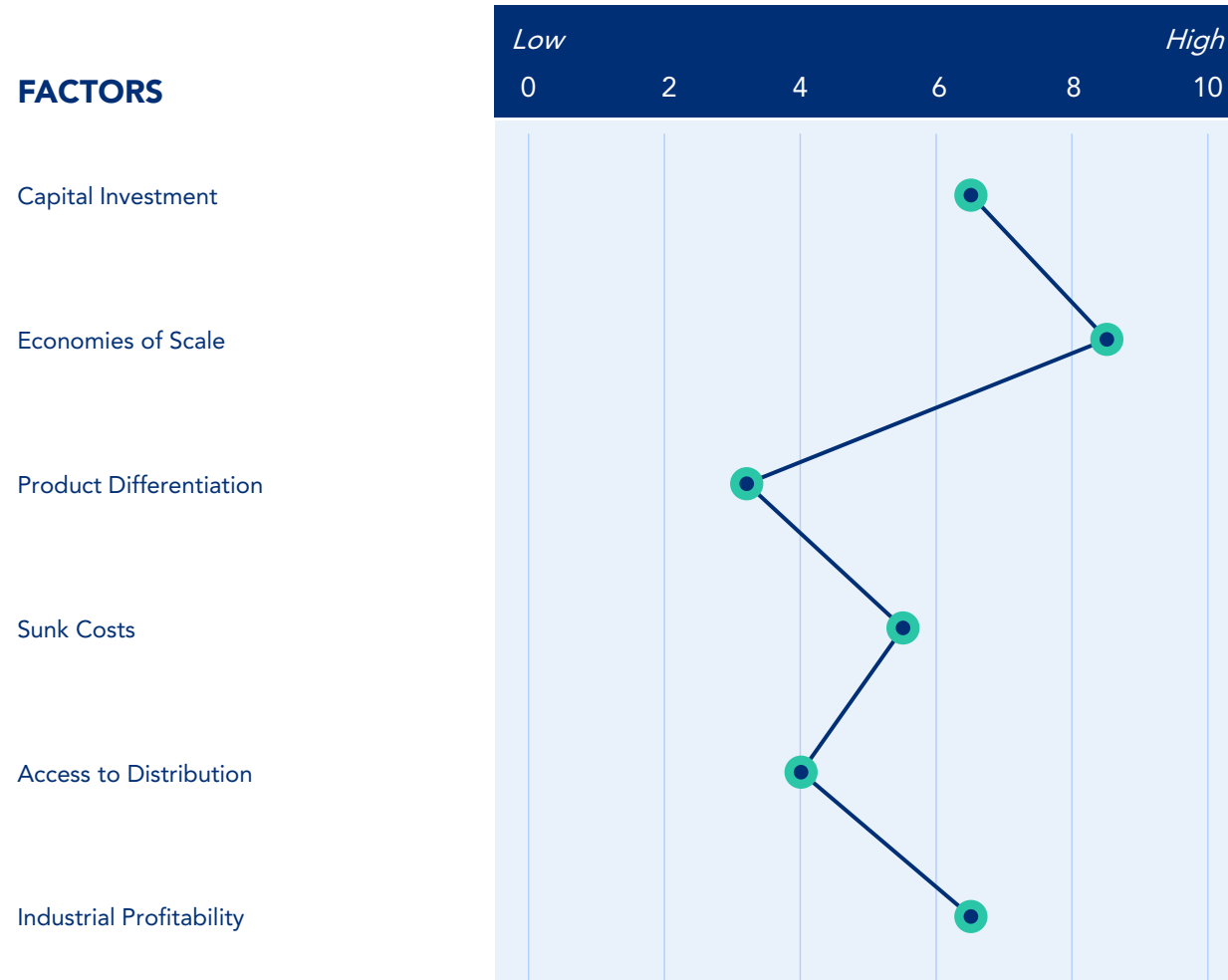
DETAILED DESCRIPTION

- In the Vietnamese propagating materials market, farmers and sourcing companies play a significant role as the primary suppliers of the propagating material. They provide the propagating materials required to produce various crops, including fruits, vegetables, flowers, and ornamental plants.
- In addition to producing their seeds, the production segments of companies also sign contracts with growers to supply the propagating material. These third-party growers do not have any supplier power, and their role is limited to producing seeds as per the company's requirements.
- The suppliers in the market do not have to rely much on the distribution channel, as most companies operating in the industry have a strong network of direct logistics and procurement from suppliers. This helps the suppliers to have better control over the quality and quantity of the raw materials supplied, ensuring timely delivery and reducing the overall cost of production.
- The companies in the industry also depend on suppliers for raw materials. The market for intermediate raw materials is substantially balanced, with multiple suppliers providing these materials to the companies. However, companies often prefer long-term relationships with specific suppliers to ensure consistent quality and timely delivery of these materials.
- Companies provide high-quality and certified varieties that are largely consistent across suppliers. However, there are few suppliers in the market, which limits farmers' ability to switch between them. The presence of a large informal sector ultimately negates this trend and weakens suppliers' bargaining power. Moreover, the market has a large number of suppliers and distribution channels, which leads to low supplier concentration. This, in turn, limits the possibility of forward integration of suppliers, thereby further reducing their bargaining power.
- *Considering the above parameters, on a scale of 1 to 10, with 1 being the lowest and 10 being the highest, the bargaining power of suppliers is 4.0, which is moderate.*



4.4.3 THREAT OF NEW ENTRANTS

MARKET PARAMETERS



DETAILED DESCRIPTION

- In the market for propagating materials, success requires significant capital investments to remain competitive. This industry is characterized by intense competition among players who develop new products and bring them to market as quickly as possible. Achieving this requires significant research and development investments, which can be a barrier to entry for new players.
- Well-established companies have a significant advantage due to their extensive market reach and deep understanding of the demand patterns of the country. Their market dominance has allowed them to invest heavily in research and development, further strengthening their market position.
- Despite the market's growth and attractiveness, it is challenging for other agricultural industry players to compete with these established leaders. The high entry barriers and the need for significant investment in research and development make it difficult for new entrants to gain traction.
- Nonetheless, the market's potential has attracted many players to expand their presence in the seed industry, hoping to take advantage of the growth opportunities.
- Farmers sourcing directly from the distributors make the accessibility of the distribution channel moderate in this market, though there are established market players.
- Furthermore, the industry's profitability is high, attracting new players. However, the strict regulations on developing new varieties in the country make it difficult for new entrants to enter the market.
- *Considering the above parameters, on a scale of 1 to 10, 1 being the lowest and 10 being the highest, the threat of new entrants is 7.0, which is high.*

Source: Mordor Intelligence



4.4.4 THREAT OF SUBSTITUTE PRODUCTS AND SERVICES

MARKET PARAMETERS

FACTORS	Low					High
	0	2	4	6	8	10
Relative Price Performance of Substitutes						
Minimal Switching Costs						
Number of Substitute Products						
Ease of Substitution						
Substitute Quality						
Availability of Close Substitutes						

DETAILED DESCRIPTION

- *Propagating material is the primary input for agriculture. Though there is a substitution between different methods of propagation, there is no substitute for the propagation material as an input.*

Source: Mordor Intelligence



4.4.5 INTENSITY OF COMPETITIVE RIVALRY

MARKET PARAMETERS

FACTORS



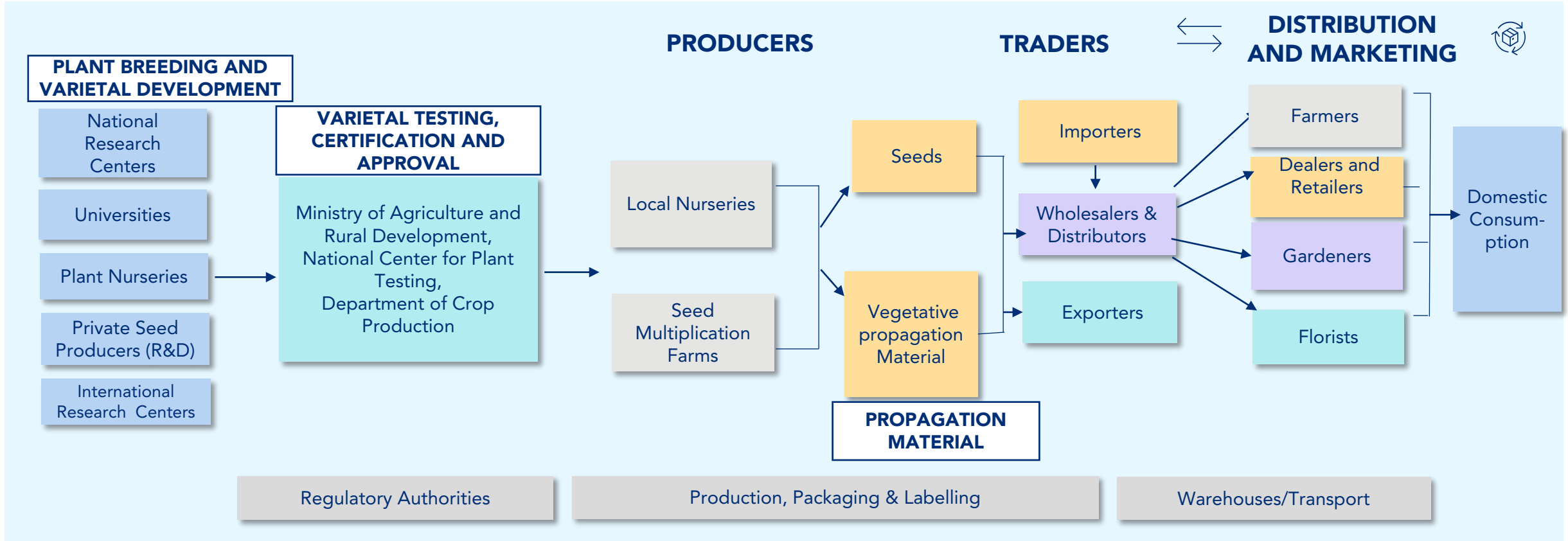
DETAILED DESCRIPTION

- The agriculture industry is witnessing a surge in introducing new products, particularly vegetables. To promote these products, the players operating in the market are undertaking aggressive marketing and licensing strategies. In this highly competitive landscape, innovation plays a vital role in gaining a competitive advantage, especially in new variety launches.
- The established players in the market are consistently seeking partnerships with research organizations that are developing valuable technology for the production of various propagating materials. These partnerships often take the form of licensing contracts or acquisitions, which provide access to advanced technology and a competitive edge in the market.
- Conventional varieties primarily drive the market, and introducing innovative varieties provides a significant opportunity for players to expand their market share.
- The high growth rate of the market and moderate customer brand loyalty create an environment that encourages a higher degree of rivalry among incumbent market players. This dynamic and competitive atmosphere necessitates a constant effort by players to differentiate their products and maintain a strong market presence.
- The firm concentration ratio is moderate, given the fragmented nature of the market. The greater market share of the major players can be attributed to their large geographical presence and highly diversified product portfolios.
- The exit barriers are high in this market as the sector includes highly specialized assets, which may be challenging to sell or relocate.
- *Considering the above parameters, on a scale of 1 to 10, 1 being the lowest and 10 being the highest, the intensity of competitive rivalry is 5.2, which is moderate.*

Source: Mordor Intelligence



4.5 SUPPLY CHAIN ANALYSIS

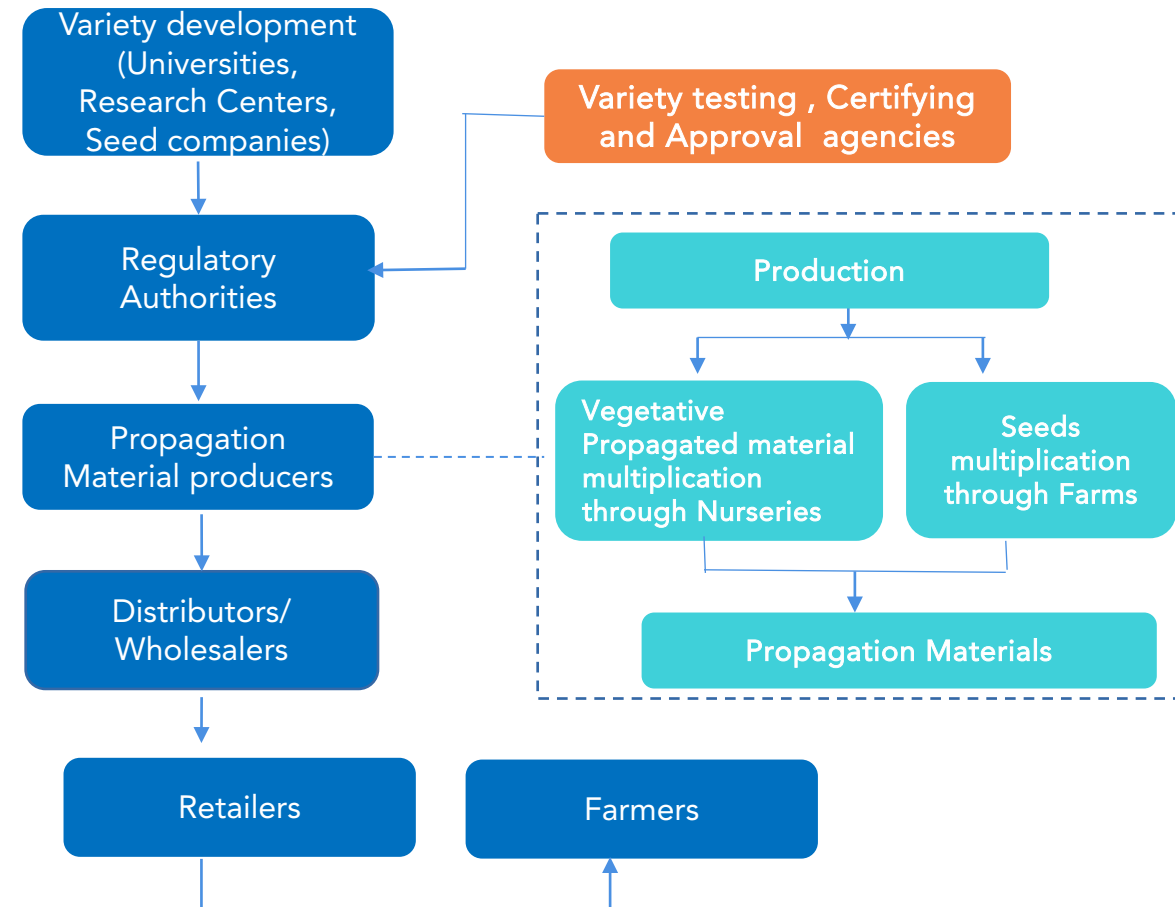




4.5 SUPPLY CHAIN ANALYSIS

- Universities, research centers, seed companies, regulatory authorities, propagation material producers, traders, distributors/wholesalers, retailers, and farmers are the major stakeholders involved in the Vietnam propagation material supply chain.
- Breeders such as universities, research centers, seed companies, and propagation nurseries identify and develop new cultivars of flowers, vegetables, and ornamentals with desirable traits such as color, fragrance, disease resistance, and insect resistance. Once the varieties are developed, they undergo trials to evaluate their performance and adaptability before being released to commercial growers.
- Regulatory authorities in Vietnam, such as the Ministry of Agriculture and Rural Development (MARD), establish stringent guidelines for the registration and approval of new varieties. Developers must submit detailed application packages containing comprehensive data on the variety's characteristics, performance, and adaptability. Through evaluation and review, the regulatory authority will grant registration and approval.
- Approved varieties, both vegetative propagated plant parts and seeds, are multiplied through cultivation in nurseries, multiplication in seed companies, and research stations multiply the seeds on selective farmers' fields.
- Most of the multinational companies sell their seeds through distributors. Multinational companies, at times, sign contracts with other companies for the marketing and distribution of their products. Distributors facilitate the sale of the propagation materials from producers to farmers directly or through retail stores. Distributors are an integral part of the supply chain. Generally, a seed company with a strong national presence, catering to around 500-1000 retailers, stores its products in warehouses or nurseries from where it is supplied to the distributors or retailers, and the potted or bagged vegetative parts are sold to florists, gardeners, or directly to the farmers in the country.

VIETNAM PROPAGATION MATERIALS MARKET MAJOR STAKEHOLDERS IN THE SUPPLY CHAIN

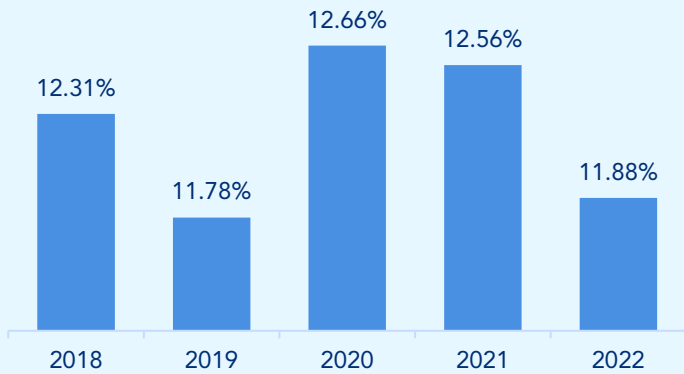


Source : Mordor Intelligence



4.6 MACROECONOMIC ANALYSIS

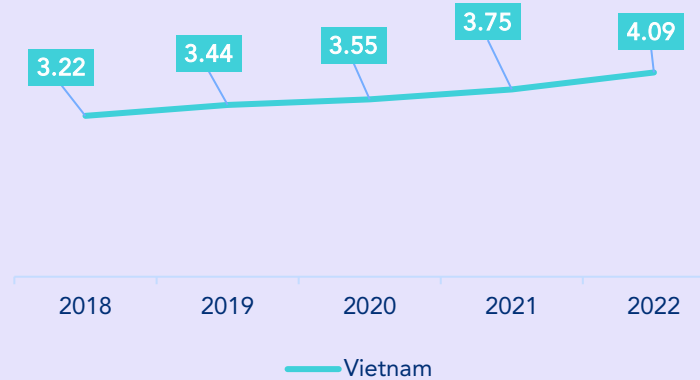
CONTRIBUTION OF AGRICULTURE TO GDP IN %, VIETNAM, 2018-2022



- Vietnam aims to become a producer and exporter of high-standard agricultural food products to improve its export of value-added products. Given that small-scale production and the flow through traditional or informal markets still dominate most of the country's agricultural value chains, increasing food safety management is an important focus point for the government. At the same time, the agroindustry's share is expected to grow to USD 51 billion by 2020 in Vietnam.

- Agriculture is one of the key sectors of the Vietnamese economy, and there have been increased efforts from institutions to improve crop productivity, owing to which the share of agriculture and allied sector revenue has been escalating progressively over the years and was valued at approximately USD 131.63 Billion in the year 2022.
- Vietnam has been stimulating agriculture production with the help of international institutions such as the United States Agency for International Development to meet trade standards, which has resulted in increased exports.
- Vietnam joined into a bilateral trade agreement (BTA) with the United States (US), which marked a milestone in Vietnam's history as it normalized economic relations between the two countries. This bilateral agreement has significantly impacted Vietnam in terms of creating higher income and investment opportunities for agriculture in the country.
- **Rice, Sugarcane, Cassava, Corn, Banana, coconut, coffee, etc., are crucial crops for the seed and vegetative propagation crop industry in Vietnam.**

GDP PER CAPITA IN USD THOUSAND, VIETNAM, 2018-2022



ANNUAL CONSUMER PRICES INFLATION, BY COUNTRY IN %, VIETNAM, 2018-2022

Country	2018	2019	2020	2021	2022
Vietnam	3.53	2.79	3.22	1.83	3.15

Source: International Monetary Fund, World Bank, Food and Agriculture Organization, Mordor Intelligence



4.6 PESTLE ANALYSIS

POLITICAL

- The Vietnamese government provides guidelines that govern both the genetic improvement of crops and the production and exchange of planting/propagation material – which are adapted to the unique requirements of vegetatively propagated crops.
- These elements by the government pose significant policy and programmatic challenges to increasing smallholder farmers' access to and availability of quality planting material as a means of increasing vegetatively propagated crop yield, output, and value in the country.

ECONOMIC

- Vietnam's efforts in protecting its propagated plant varieties are aimed at developing the national economy and are hostile to other agricultural exporting countries in the Southeast Asia region, such as Thailand, Malaysia, and Indonesia.
- **In Vietnam, the essential vegetatively propagated crops are cassava and potato, which are important to the country's agricultural development and economic growth agenda.** The government's various sources of economic and agricultural statistics from development partners, international organizations, and non-governmental organizations provide further descriptive insights into Vietnam's cassava and potato seed systems.

SOCIAL

- The consumption pattern of the Vietnamese public has been changing over the years due to disposable income and the increased rate of international agreements on intellectual property rights protection of plant varieties. The demand for organic vegetables is rising rapidly due to concerns over health problems and the carbon footprint associated with conventional agriculture using propagation materials.
- **However, the demand for the vegetative propagation materials produced is also increasing, driving the demand for planting materials, ensuring production to meet the consumer demand for vegetables and fruits in the country.**

TECHNOLOGICAL

- The Ministry of Agricultural and Rural Development (MARD), Vietnam, developed several emerging information technologies such as **Product traceability systems, for example, could allow farmers to validate the authenticity and quality of a seed and other planting materials package via a simple text message or a smartphone**. In addition, the technological options range from barcoded scratch cards on seed packages to blockchain technologies to store digitally set information used in market exchange in the country.
- Truthful labeling in planting materials is designed to provide buyers with information on variety name and origin, purity and germination rates, and other information that can help buyers choose the appropriate product for their specific needs.

LEGAL

- In Vietnam, the International Union for the Protection of New Varieties of Plants Convention (UPOV Convention) distinguishes the need to protect plant breeders' appropriate interests, under which new high-productivity plant varieties can only be created by planting materials by breeder's innovations.
- **This legal framework supports the small breeders and biotech developers to increase market access as it reduces the costs and time involved in accessing worldwide markets. However, the local transaction of seed and other propagation materials trading and exchange is hindered by the plant variety protection norm under the UPOV Convention in Vietnam.**

ENVIRONMENTAL

- Vietnam's fruit and vegetable production is significantly dependent on the country's favorable climatic conditions. Most vegetables are grown in the Northern Mountain, Red, and Mekong River delta and central highland provinces.
- **The country is facing an excessive use of groundwater for irrigation, which continues to rise. Irrigation plays a critical role in Vietnam's rural economy and the national food security priority. The Vietnamese government has developed an extensive irrigation system and waived irrigation costs for farmers to reduce rural poverty.**
- To counter the environmental excessiveness, other stakeholders are developing several strategic and technological developments in developing farming practices.

5 MARKET SEGMENTATION

5.1 Crop Type

5.2 Propagation Methods





5.1 CROP TYPE

5.1.1 Vegetables

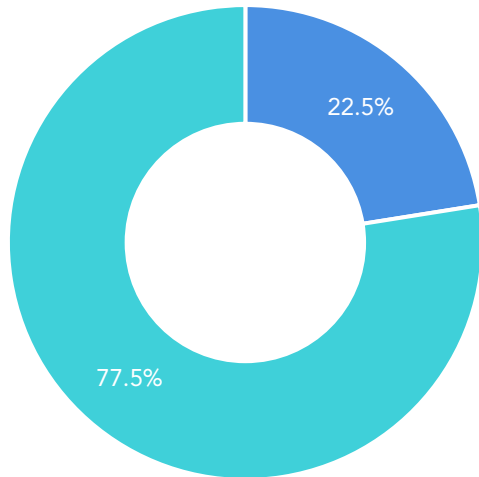
5.1.2 Flower and Ornamentals





5.1 CROP TYPE

VIETNAM PROPAGATION MATERIALS MARKET, VALUE SHARE (%), CROP TYPE, 2022



■ Vegetables ■ Flower and Ornamentals

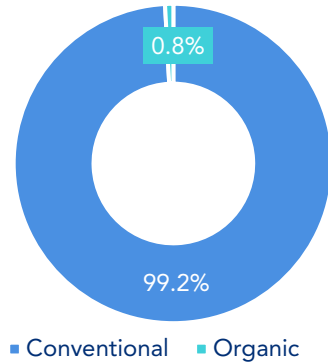
VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, CROP TYPE, 2018-2028 (F)

Crop Type	2018	2019	2020	2021	2022	2023 (est.)	2028 (f)	CAGR (%) (2023-2028)
Vegetables	26.1	28.4	31.0	20.1	30.2	33.2	44.8	6.2%
Flower and Ornamentals	103.9	107.9	112.2	69.5	99.3	104.1	133.7	5.1%
Total	130.0	136.3	143.1	89.6	129.5	137.3	178.4	5.4%

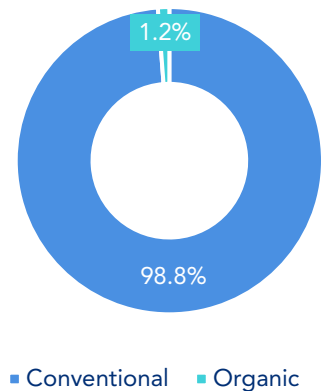


5.1 CROP TYPE BY FARMING METHOD

VIETNAM PROPAGATION MATERIALS MARKET, VALUE SHARE (%), VEGETABLES, BY FARMING METHOD, 2022



VIETNAM PROPAGATION MATERIALS MARKET, VALUE SHARE (%), FLOWERS AND ORNAMENTALS, BY FARMING METHOD, 2022



VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, VEGETABLES, BY FARMING METHOD, 2018-2028 (F)

Farming Method	2018	2019	2020	2021	2022	2023 (est.)	2028 (f)	CAGR (%) (2023-2028)
Conventional	26.0	28.2	30.7	20.0	29.9	32.9	44.3	6.2%
Organic	0.1	0.2	0.2	0.2	0.3	0.3	0.4	8.0%
Total	26.1	28.4	31.0	20.1	30.2	33.2	44.8	6.2%

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, FLOWERS AND ORNAMENTALS, BY FARMING METHOD, 2018-2028 (F)

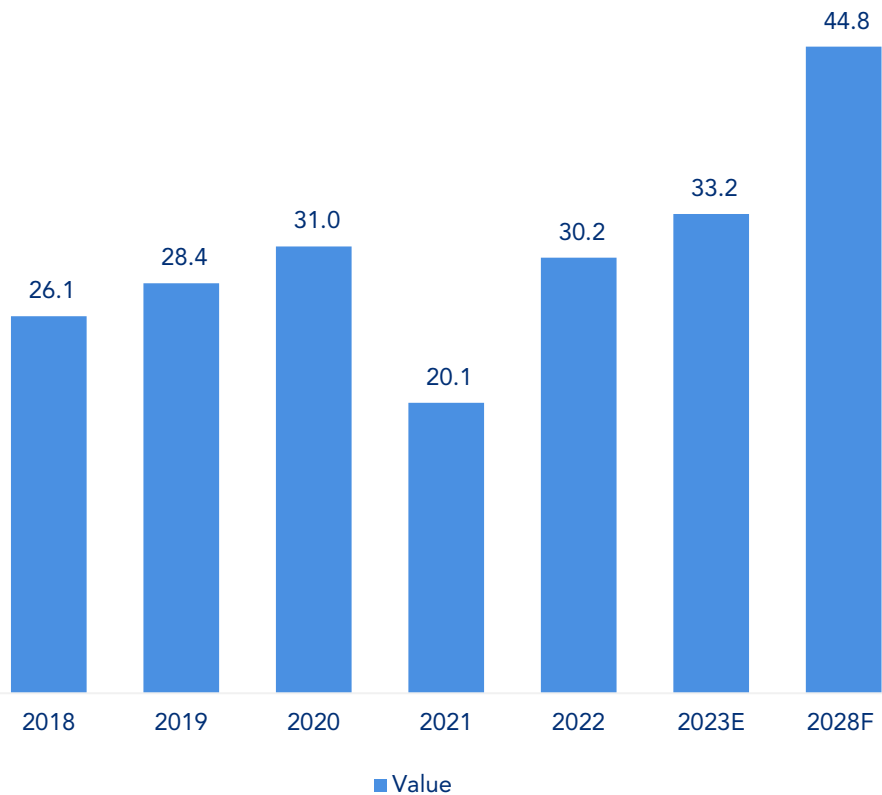
Farming Method	2018	2019	2020	2021	2022	2023 (est.)	2028 (f)	CAGR (%) (2023-2028)
Conventional	102.9	106.8	110.9	68.7	98.1	102.8	131.9	5.1%
Organic	1.0	1.1	1.2	0.8	1.2	1.3	1.7	6.0%
Total	103.9	107.9	112.2	69.5	99.3	104.1	133.7	5.1%



5.1.1 VEGETABLES

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, VEGETABLES, 2018-2028

CAGR VALUE (2023 - 2028): 6.2%



Source: Mordor Intelligence

Overview

- The vegetables segment of the Vietnamese propagation materials market was valued at USD 30.2 million in 2022, and it is projected to reach USD 44.8 million in 2028, registering a CAGR of 6.2% during the forecast period.

Insights

- Tomato, cabbage, bean, chayote, pepper, cabbage, cauliflower, carrot, Kohlrabi, pakchoi, mustard, cucumber, pumpkin, watermelon, bitter gourd, and some other leafy vegetables are primarily grown in Vietnam.
- The demand for vegetables has surged across the country in recent years. This is evident from the increasing consumer expenditure on vegetables. For instance, the consumer expenditure on vegetables in Vietnam grew from USD 3.9 billion in 2020 to USD 4.0 billion in 2021, according to Agriculture and Agri-Food Canada. This increasing expenditure is raising the need for the rising area under cultivation of vegetable crops, thereby supporting the usage of various types of propagation material, aiding the market growth.
- Both sexual and asexual methods are used for the production of vegetables, but the usage of the asexual method is increasing in the country to increase the disease resistance, yield, and quality of the produce. For instance, the grafting technique in tomatoes has become very famous, and its adoption has increased tremendously in the country. This is because, the grafted tomatoes were significantly greater, by 31% and 39%, in terms of average yield and the farm gate prices compared with nongrafted tomatoes, according to AVRDC (World Vegetable Center), which is supporting the market growth.
- Furthermore, improved and certified organic seed varieties with different traits such as disease resistance, high-yielding potential, and enhanced nutrient value have been gaining importance for growing vegetables. This is supported by the Participatory Guarantee Systems (PGS) certification, which is used for quality assurance of low cost for various organic agricultural produce, including organic vegetable seeds. Thus, the low cost and the improved traits are the factors supporting the market growth for vegetable crops.

Conclusion

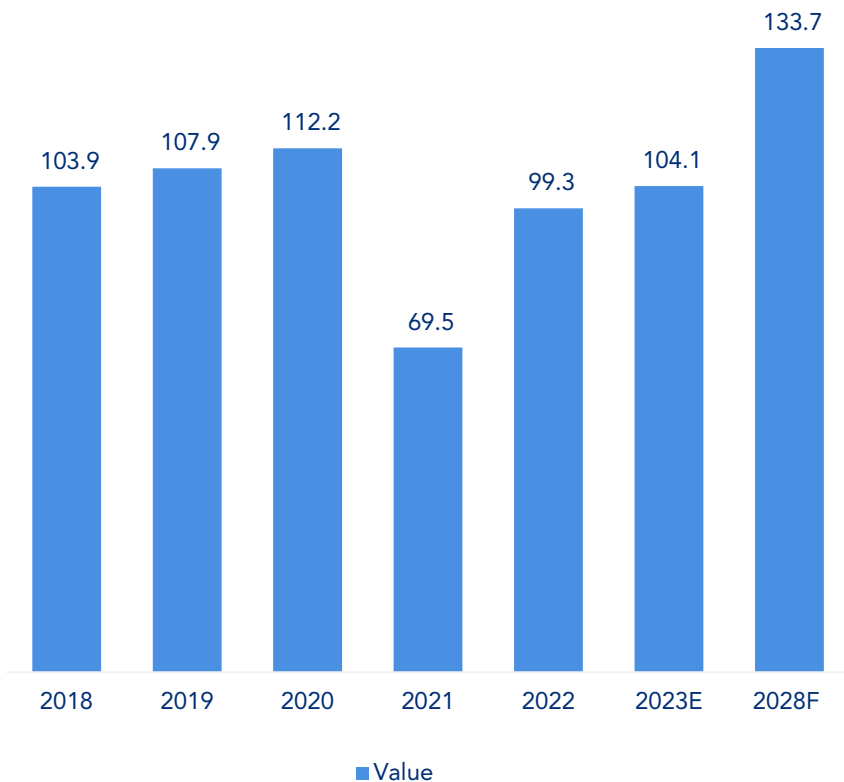
Therefore, the increase in the usage of the various propagation methods and the low-cost availability of the produce drive the market growth during the forecast period.



5.1.2 FLOWER AND ORNAMENTALS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, FLOWER AND ORNAMENTS, 2018-2028

CAGR VALUE (2023 - 2028): 5.1%



Source: Mordor Intelligence

Overview

- The flower and ornamentals segment of the Vietnamese propagation materials market was valued at USD 99.3 million in 2022, and it is projected to reach USD 133.7 million in 2028, registering a CAGR of 5.1% during the forecast period.

Insights

- The flowers and ornament plant propagation materials are majorly driven by the increasing demand for flowers and ornamental plants in the country. The rising demand is being supported by the favorable climatic conditions for rose, chrysanthemum, and other ornamental plants, which is driving growers to invest in vegetative propagation materials as they yield quality produce in these crops.
- Additionally, the growing export demand in the country and attractive prices being paid for respective flowers and ornament plants are increasing the number of producers, which is eventually projected to support the demand for quality flowers and ornament vegetative propagation materials. For instance, according to the ITC Trade map, in 2022, exports of fresh-cut roses and buds of a kind suitable for bouquets or ornamental purposes accounted for about USD 806 thousand, an increase from USD 670 thousand when compared to the previous year. Major exporting countries from Vietnam for fresh-cut roses and buds include China, Singapore, and Japan.
- Furthermore, promotional activities in the horticultural and floricultural segments of Vietnam are anticipated to boost the market's growth during the forecast period. Vietnam conducts HortEx, a specialized International Exhibition and Conference for Horticultural and Floricultural Production and Processing Technology in Vietnam. For instance, in 2023, the Netherlands, as a partner country, showcased 33 Dutch horticultural and floricultural companies in HortEx 2023, including Anthura, BVB Substrates, Fresh Studio, Green Coco Companies, Halex Flower, Kenlog, KP Holland, Legro, Lily Company. Most of these companies aimed to get a foothold in the Vietnamese floriculture sector, which has huge potential to grow. Such initiatives, coupled with the development of different innovative and unique techniques for the production of better-quality flowers and ornamental plants, are supporting the market to grow further.

Conclusion

Therefore, the growing export demand and various initiatives are increasing the need for the production of flowers and ornamental plants, thereby supporting the usage of propagation materials in these crops, further driving the market growth during the forecast period.



5.2 PROPAGATION METHODS

5.2.1 Seed

5.2.2 Vegetative

5.2.2.1 Layering and Cutting

5.2.2.2 Grafting

5.2.2.3 Tissue Culture

5.2.2.4 Budding

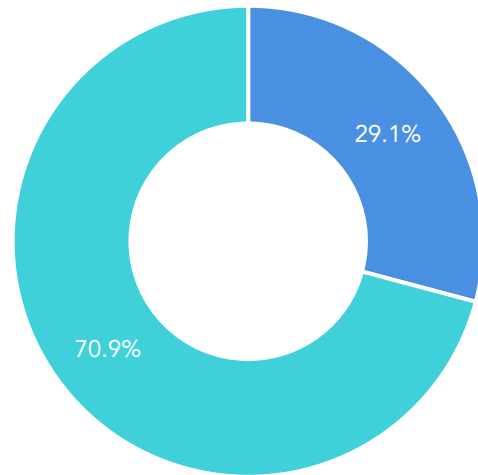
5.2.2.5 Other Vegetative Propagation Methods





5.2 PROPAGATION METHODS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE SHARE (%), PROPAGATION METHODS, 2022



■ Seed ■ Vegetative

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, PROPAGATION METHODS, 2018-2028 (F)

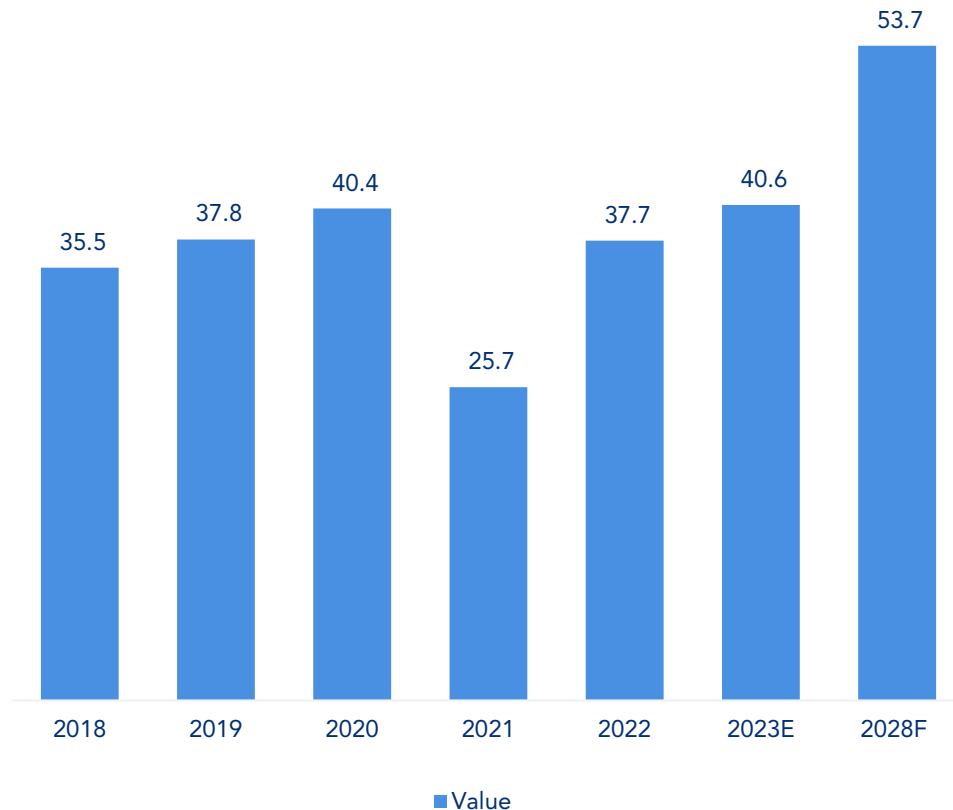
Propagation Methods	2018	2019	2020	2021	2022	2023 (est.)	2028 (f)	CAGR (%) (2023-2028)
Seed	35.5	37.8	40.4	25.7	37.7	40.6	53.7	5.7%
Vegetative	94.5	98.5	102.7	63.9	91.8	96.6	124.7	5.2%
Total	130.0	136.3	143.1	89.6	129.5	137.3	178.4	5.4%



5.2.1 SEED

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, SEED, 2018-2028

CAGR VALUE (2023 - 2028): 5.7%



Source: Mordor Intelligence

Overview

- The seed segment of the Vietnamese propagation materials market was valued at USD 37.7 million in 2022, and it is projected to reach USD 53.7 million in 2028, registering a CAGR of 5.7% during the forecast period.

Insights

- In Vietnam, the seed is one of the important propagation materials used for many important crops grown in the country, accounting for the major part of agriculture cultivated through the seeds. Despite the importance of seeds in the country's agriculture, the seed sector is underdeveloped and can only meet a small share of seed demand.
- Additionally, high-quality certified seeds only account for approximately one-quarter of all seeds used. Also, around 70-80% of the formal seed is used in the country, including vegetable seed, along with other types that are majorly imported. Vegetable seeds are mostly imported from Thailand, China, Japan, South Korea and France. Improved seed varieties, therefore, have an important role in transforming agriculture in Vietnam. This supports the usage of the seeds in the country, thereby driving market growth in the coming years.
- Along with this, government agencies and universities carry out seed research activities in Vietnam. Most research institutes fall under the Ministry of Agriculture and Rural Development. However, the lengthy seed registration process for the introduction of new seed varieties into the market is one of the major factors affecting market growth.
- Furthermore, out of the 13 index countries in the World Benchmarking Alliance which started in 2018, Vietnam is the only UPOV (International Union for the Protection of New Varieties of Plants) member. Because of this membership, Vietnam is experiencing several benefits, including an increase in breeding activities, increased availability of improved varieties, and the introduction of new foreign varieties, all of which have contributed to greater agricultural productivity.

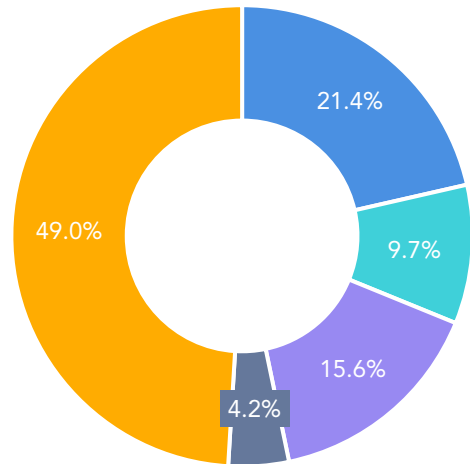
Conclusion

Therefore, the large areas covered under the crops grown using seeds coupled with the growing demand for those crops drives the usage of seeds as the propagation materials in the country, thereby driving the market growth during the forecast period.



5.2.2 VEGETATIVE

VIETNAM PROPAGATION MATERIALS MARKET, VALUE SHARE (%), VEGETATIVE, 2022



- Layering and Cutting
- Grafting
- Tissue Culture
- Budding
- Other Vegetative Propagation Methods

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, VEGETATIVE, 2018-2028 (F)

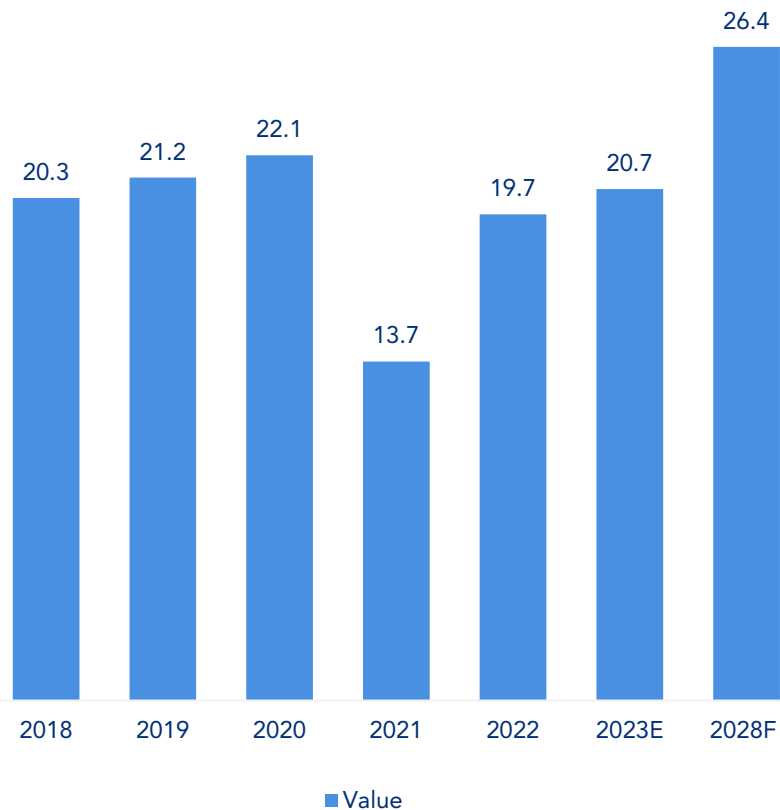
Vegetative	2018	2019	2020	2021	2022	2023 (est.)	2028 (f)	CAGR (%) (2023-2028)
Layering and Cutting	20.3	21.2	22.1	13.7	19.7	20.7	26.4	5.0%
Grafting	9.3	9.6	10.0	6.2	8.9	9.4	11.8	4.8%
Tissue Culture	14.7	15.3	16.0	9.9	14.3	15.1	19.4	5.2%
Budding	4.1	4.2	4.4	2.7	3.9	4.1	5.1	4.7%
Other Vegetative Propagation Methods	46.2	48.2	50.3	31.3	45.0	47.4	61.9	5.5%
Total	94.5	98.5	102.7	63.9	91.8	96.6	124.7	5.2%



5.2.2.1 LAYERING AND CUTTING

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, LAYERING & CUTTING, 2018-2028

CAGR VALUE (2023 - 2028): 5.0%



Source: Mordor Intelligence

Overview

- The layering and cutting segment of the Vietnamese propagation materials market was valued at USD 19.7 million in 2022, and it is projected to reach USD 26.4 million in 2028, registering a CAGR of 5.0% during the forecast period.

Insights

- Layering and cutting are the asexual means of propagating, which are used in Vietnam in vegetable and flowering crops such as Jasmine, tomatoes, peppers, chrysanthemums, etc. These techniques have been widely used by small farmers for many years.
- The stringent laws and time-consuming seed registration process coupled with the strict regulations on the usage of the certified seed are making the farmers inclined towards the informal methods of propagation in the country. This drives the cuttings and layering in the crops by the farmers in the field.
- Along with this, Acacia mangium is one of the major ornamental plants grown in Vietnam for wood. These plants are propagated vegetatively through single-node stem cuttings. The cuttings are made 4–5 cm long and 0.5–1.5 cm in diameter, leaving 0.5–1.0 cm phyllodes, and it is a commonly used method in Vietnam for growing this crop. Additionally, air layering gives promising results in this crop apart from cuttings.
- Likewise, Vietnam is one of the most widespread of the fast-growing tree species used in plantation forestry programs. As the growth of this tree species increased, the usage of the layering and cutting types of propagation also grew, thereby driving the segment's growth.
- Furthermore, cutting is one of the popular methods used in the many flowering plants in the country. The growing investments support the floriculture sector in the country. In 2022, the Ministry of Agriculture and Rural Development (MARD) of Vietnam drew up a 10-year investment project to strengthen floriculture in Vietnam. This government project is anticipated to boost the quantity and quality of flowers grown in the country. This is driving the usage of various propagation methods, including cuttings, which is one of the most used methods of propagating flowers in the country.

Conclusion

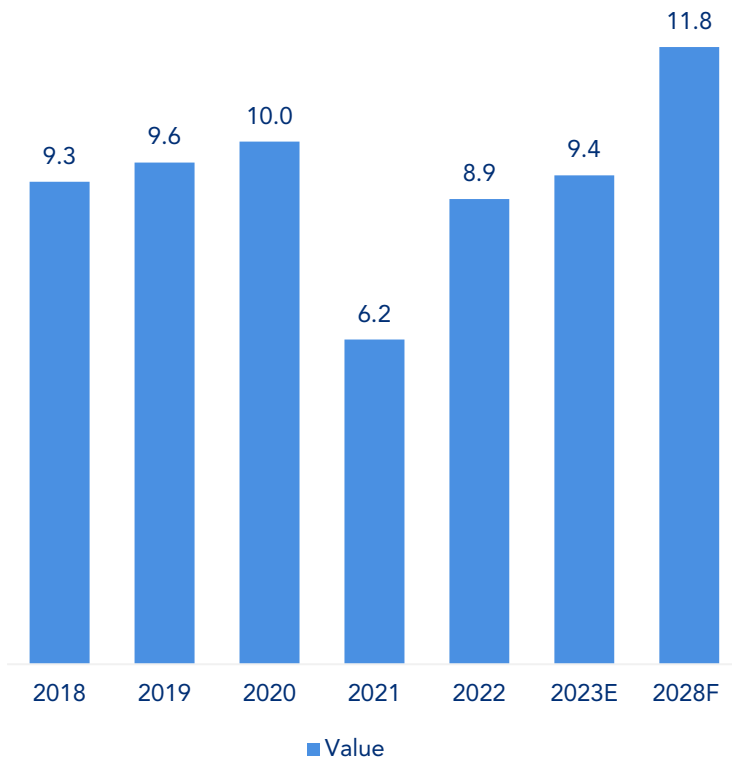
Therefore, the promising results of using layering and cutting in various flower and ornamental crops are the factors driving the growth of the segment during the forecast period.



5.2.2.2 GRAFTING

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, GRAFTING, 2018-2028

CAGR VALUE (2023 - 2028): 4.8%



Source: Mordor Intelligence

Overview

- The grafting segment of the Vietnamese propagation materials market was valued at USD 8.9 million in 2022, and it is projected to reach USD 11.8 million in 2028, registering a CAGR of 4.8 % during the forecast period.

Insights

- Grafting is one of the popular methods of propagation used mainly in ornamental and flowering plants in Vietnam. Additionally, it is one of the major techniques used to cultivate tomatoes in the country.
- The usage of grafting has become very viable. It is widely used by farmers in the country because the method helps farmers overcome production constraints like the occurrence of diseases, thereby increasing yield and generating more income. As per World Vegetable Center (AVRDC) data, 100% of the tomato farmers in Lam Dong and 48% of the tomato farmers in the Red River Delta adopted the use of grafted seedlings. In addition to this, tomato grafting research funded by DFID has led to estimated benefits of USD 41.7m in profits for Vietnamese farmers in the Lam Dong province. Thus, these factors are boosting the usage of grafting in the country.
- Along with this, Black pepper is one of the main crops grown in Vietnam, and it contributes a large share to the economy. Vietnam is the biggest black pepper producer globally, but in recent years, pepper plantation has been dying off thousands of hectares due to phytophthora capsica, a soil-borne pathogen. Therefore, research studies have been conducted for an alternative production of the species.
- Similarly, a research study was conducted in 2020 to show the usage of resistant piper species as rootstock to control phytophthora capsici. The results showed that the Piper nigrum grafted on piper colubrinum by Cleft technique showed the highest growth parameter with the resistance of the disease caused by the pathogen and dry weight. Hence, disease resistance and high-yield factors are driving the usage of grafting in the country.
- Furthermore, the availability of grafted plants for purchase in various online channels in Vietnam supports easy availability, thereby driving market growth in the coming years.

Conclusion

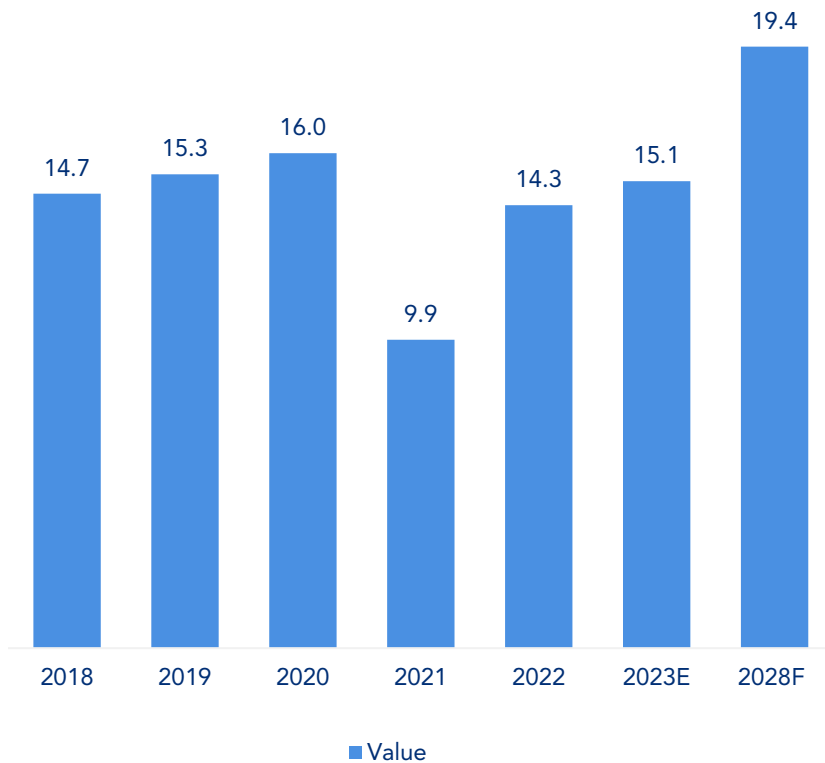
Therefore, the benefits of disease resistance and the increase in production drive the market growth during the forecast period.



5.2.2.3 TISSUE CULTURE

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, TISSUE CULTURE, 2018-2028

CAGR VALUE (2023 - 2028): 5.2%



Source: Mordor Intelligence

Overview

- The tissue culture segment of the Vietnamese propagation materials market was valued at USD 14.3 million in 2022, and it is projected to reach USD 19.4 million in 2028, registering a CAGR of 5.2% during the forecast period.

Insights

- Tissue culture is one of the promising methods of propagation that has gained traction across Vietnam. As of 2020, plant tissue and cell culture in Vietnam has undergone 45 years of research and development. It has been developed to its full potential, especially with the development of genetics, biochemistry, and molecular biology.
- Plant tissue and cell culture in Vietnam has made noteworthy contributions to both basic and applied research in the country. Not only has it advanced domestic science and technology, but it has also garnered recognition in the global development of plant tissue and cell culture.
- Along with this, the increasing population, food demand, and rising concerns about food security are driving the production of various crops in the country. The need for production is supporting the usage of the planting material on a large scale. However, the seedling supply in the country is currently inactive and unable to meet the rapidly increasing market demand. As a result, there is a need to explore new propagation methods that can produce a large number of seedlings in a short time. Tissue culture or invitro propagation is one of the effective methods that increase the rapid production of seedlings. This supports the growth of the tissue culture market in the country.
- Likewise, the rising demand for the usage of tissue-cultured plants resulted in the imports of the varieties from various countries. Vietnam imports most of its tissue culture plants from the Netherlands, Indonesia, and the United States.
- The recent collaborations in the country for producing various varieties by this method also support market growth. For instance, in 2023, HZPC collaborated with the potato institute CIP (International Potato Centre) in Vietnam to develop novel tropical potato varieties using novel technologies like tissue culture.

Conclusion

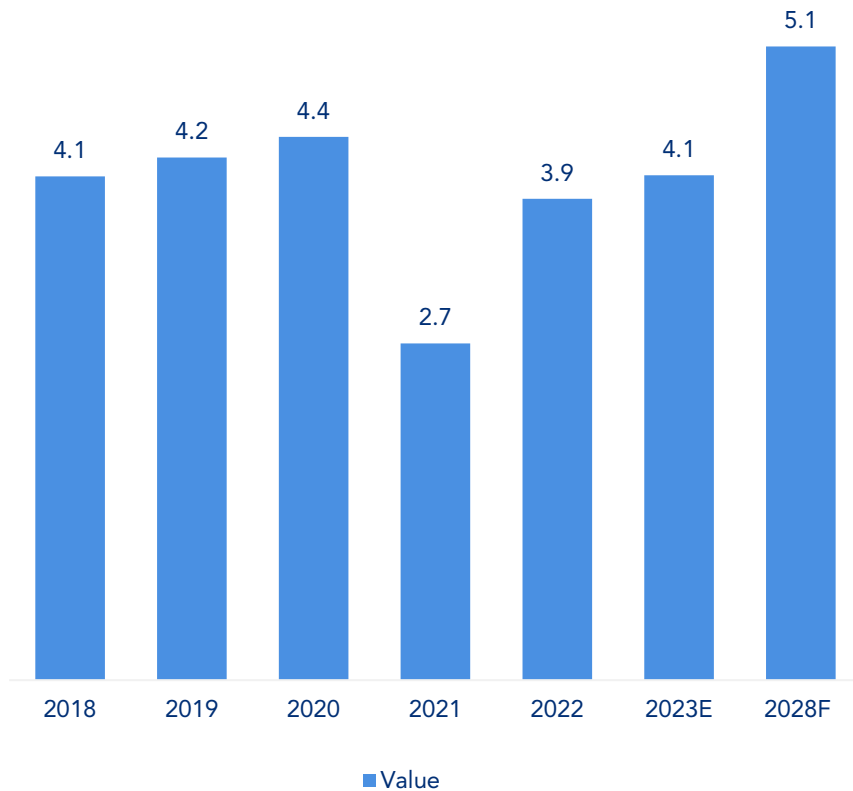
Therefore, the well-developed tissue culture in the country, coupled with the increasing demand for tissue-cultured varieties and collaborations to develop those varieties, are driving the market growth during the forecast period.



5.2.2.4 BUDDING

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, BUDDING, 2018-2028

CAGR VALUE (2023 - 2028): 4.7%



Source: Mordor Intelligence

Overview

- The budding segment of the Vietnamese propagation materials market was valued at USD 3.9 million in 2022, and it is projected to reach USD 5.1 million in 2028, registering a CAGR of 4.7% during the forecast period.

Insights

- Budding is used to propagate the roses, potatoes, and many varieties of ornamental trees and shrubs in Vietnam. The importance and demand of the crops in the country support the usage of the propagating material.
- Along with this, potatoes are among the important crops in Vietnam's agricultural sector. Potatoes account for a large farming area and have been observed to be increasing in recent years. The country is also aiming to become one of the largest exporters in the world. To make this possible, production needs to be increased, which supports the usage of various kinds of propagating materials, including the buds or eyes of the produce. Similarly, the method is highly used to prevent the spread of diseases and to maintain the genetic traits of high-yield and disease-resistant characters.
- In Vietnam the rose is the most popular flower in Vietnam. It can be planted and harvested around the year in different provinces of the country as the weather and climatic conditions favor it. The major production areas are concentrated in big cities such as Hanoi, Ho Chi Minh City, Hai Phong, and Dalat. The area under roses has expanded significantly during recent years and is likely to increase further in the coming years.
- Moreover, as roses are the prominent cut flower and popular choice in the domestic market, the country has been exporting a considerable value of roses. These favorable conditions of Vietnam for growing flowers have helped attract more foreign investors to the Lam Dong province. These investments have developed growing areas, provided cultivation techniques, and helped establish distribution centers. Furthermore, the rose is mainly cultivated through budding techniques. Thus, the increasing area under the roses in the country supports the budding method of propagation in the coming years.

Conclusion

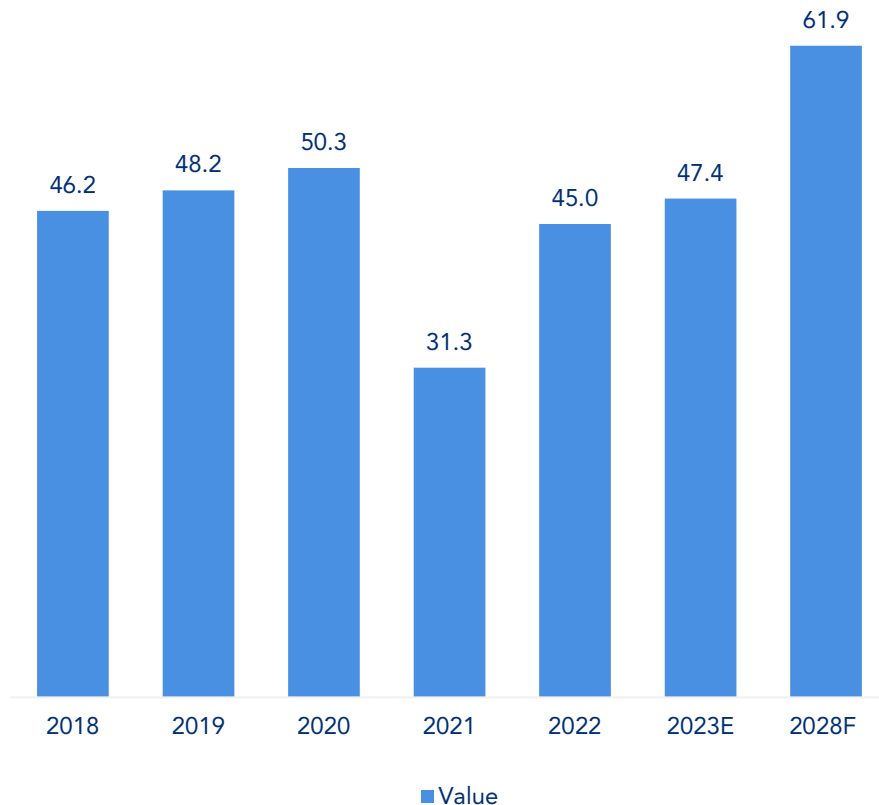
Therefore, the expansions in the areas under the major grafted crops in the country support the market growth during the forecast period.



5.2.2.5 OTHER VEGETATIVE PROPAGATION METHODS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, OTHER VEGETATIVE PROPAGATION METHODS, 2018-2028

CAGR VALUE (2023 - 2028): 5.5%



Source: Mordor Intelligence

Overview

- The other vegetative propagation methods segment of the Vietnam Propagation Materials market was valued at USD 45 million in 2022, and it is projected to reach USD 61.9 million in 2028, registering a CAGR of 5.5 % during the forecast period.

Insights

- Other vegetative propagation methods majorly gaining traction in Vietnam include suckering owing to the increased demand for vegetables, flowers, and ornamental plants that can be effectively propagated through suckering. For instance, tomato is one of the highly produced and consumed vegetables in the country that is majorly propagated using suckers.
- Additionally, suckering allows horticulturists and agriculturists to reproduce a desired plant repeatedly without significant variation. Suckering shrubs such as Aronia, bay, Sarcococca, and species of roses can send up new shoots or suckers from their roots.
- Likewise, removing and growing on these shoots with roots at their base is an easy and low-cost way to produce new plants that have been attracting local growers to consider suckering as an efficient propagation method.
- Furthermore, the increasing demand for vegetable exports and various government initiatives to promote vegetable production in the country are anticipated to offer multiple opportunities for the players in the market to offer innovative and effective sucker propagation materials and make larger market shares.
- For instance, according to ITC Trademap, in 2022, vegetable exports from Vietnam accounted for about USD 1,031,175 thousand, which increased from almost USD 1,856,488 thousand when compared to the previous year. In line with this, About 40% of Hanoi's 12,000 hectares of vegetable area is designated for safe vegetable production. Such measures are anticipated to boost and support the usage of quality propagating material for the usage in the plants, thereby aiding the growth of the market.

Conclusion

Therefore, the increasing production of the crops that grow by suckering is driving the growth of the market during the forecast period.



5.3 PROPAGATION MATERIAL

5.3.1 Bulbs/Bulbils

5.3.2 Young Plant (Sapling)

5.3.3 Suckers

5.3.4 Rhizomes

5.3.5 Tubers

5.3.6 Runners

5.3.7 Stolons

5.3.8 Corms

5.3.9 Nodes/Eye

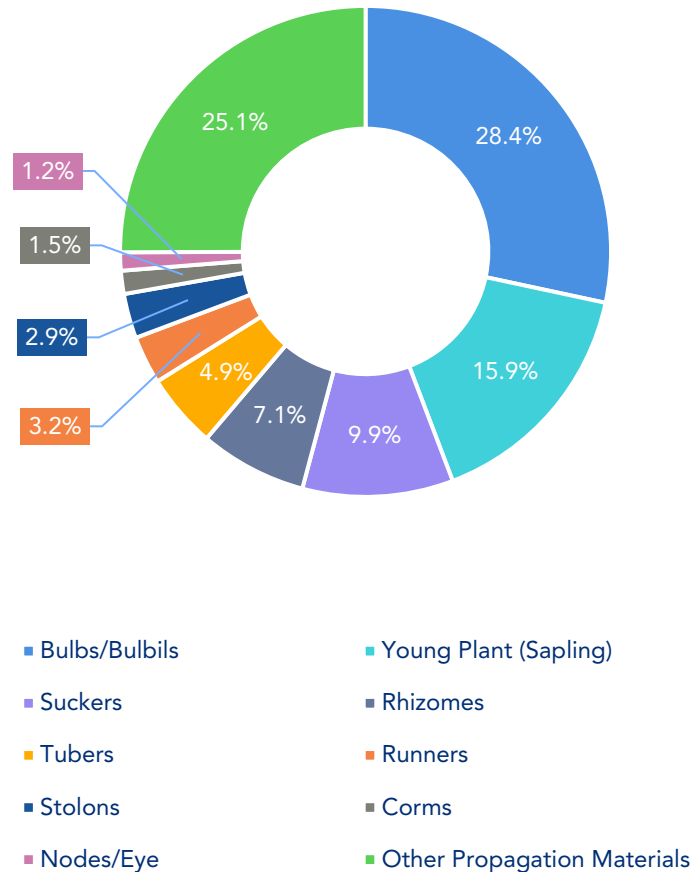
5.3.10 Other Propagation Materials





5.3 PROPAGATION MATERIAL

VIETNAM PROPAGATION MATERIALS MARKET, VALUE SHARE (%), PROPAGATION MATERIAL, 2022



VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, PROPAGATION MATERIAL, 2018-2028 (F)

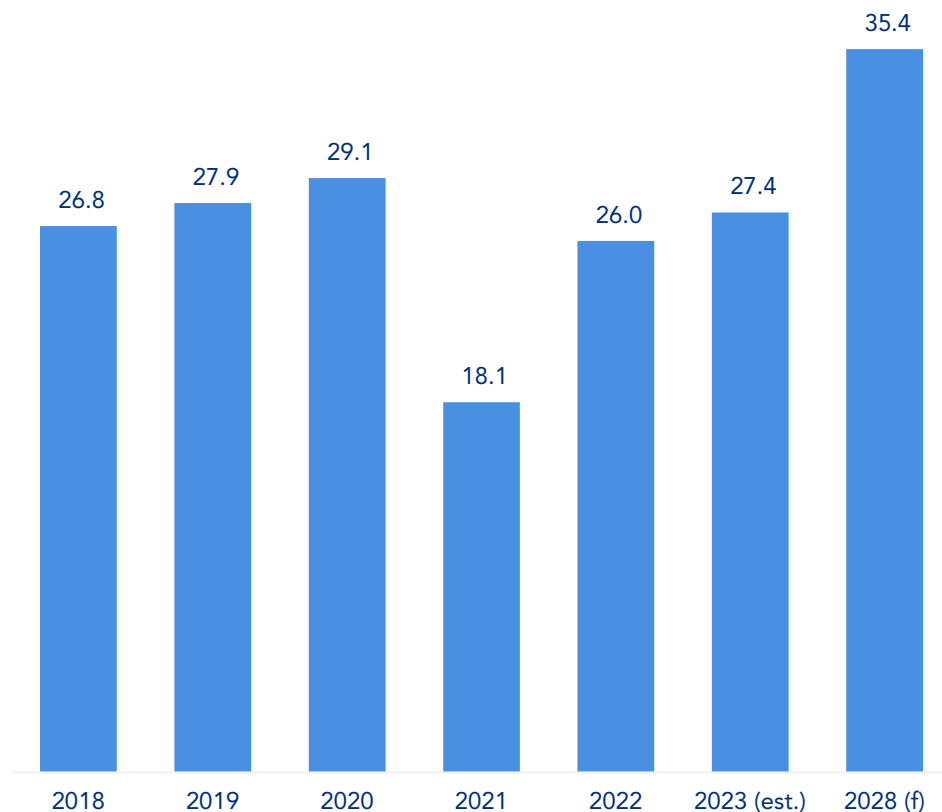
PROPAGATION MATERIAL	2018	2019	2020	2021	2022	2023 (est.)	2028 (f)	CAGR (%) (2023-2028)
Bulbs/Bulbils	26.8	27.9	29.1	18.1	26.0	27.4	35.4	5.3%
Young Plant (Sapling)	14.9	15.6	16.3	10.1	14.6	15.3	19.9	5.4%
Suckers	9.3	9.7	10.1	6.3	9.1	9.6	12.3	5.1%
Rhizomes	6.8	7.1	7.3	4.5	6.5	6.8	8.6	4.8%
Tubers	4.7	4.9	5.1	3.1	4.5	4.7	5.8	4.6%
Runners	3.3	3.4	3.4	2.1	2.9	3.0	3.7	4.5%
Stolons	2.6	2.8	2.9	1.9	2.7	2.9	3.5	4.3%
Corms	1.4	1.5	1.6	1.0	1.4	1.5	1.9	4.0%
Nodes/Eye	1.0	1.1	1.2	0.8	1.1	1.2	1.5	3.8%
Other Propagation Materials	23.6	24.6	25.7	16.0	23.0	24.2	32.0	5.8%
Total	94.5	98.5	102.7	63.9	91.8	96.6	124.7	5.2%



5.3.1 BULBS/BULBILS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, BULBS/ BULBILS, 2018-2028

CAGR (2023-2028): 5.3%



Source: Mordor Intelligence

Overview

- The bulbs and bulbils segment of the market studied was valued at USD 26.0 million in 2022. It is estimated to reach USD 35.4 million by 2028, registering a CAGR of 5.3% during the forecast period (2023-2028).

Insights

- A bulb is a round, swollen part of a stem, basically a short stem with leaves, that serves as food storage during dormancy. Bulbs consist of a bud that is surrounded by layers of fleshy, scale-like leaves. These leaves are the source of food storage and provide nourishment for the new plant. Onions, garlic, shallots, lilies, tulips, and hyacinths are commonly propagated from bulbs in Vietnam. Many coastal farmers in the Ninh Hai district of Vietnam are involved in producing onion seeds (bulbs).
- For tulip cultivation in the country, bulbs of uniform size (circumference 10/12cm or 12/14cm) without scratches, bruises, and sprouts are selected. The northern mountainous region, Red River delta region, and north central region have a higher demand for tulip bulbs.
- In Vietnam, farmers cultivated lilies mostly using bulbs compared to seeds. This is mainly because bulbs tend to be less susceptible to diseases. Fruit and Vegetable Research Institute in the country has recommended a few varieties for cultivation, such as Sorbonne, Acapulco, Tiber, and others.
- The demand for bulbs and bulbils is estimated to increase with the growing demand for food and the use of flowers for aesthetic purposes, with the increased area under cultivation and high export demand for these crops. For instance, the area under cultivation of the onion and shallots increased from 96,839 hectares in 2018 to 97,217 hectares in 2022.

Conclusion

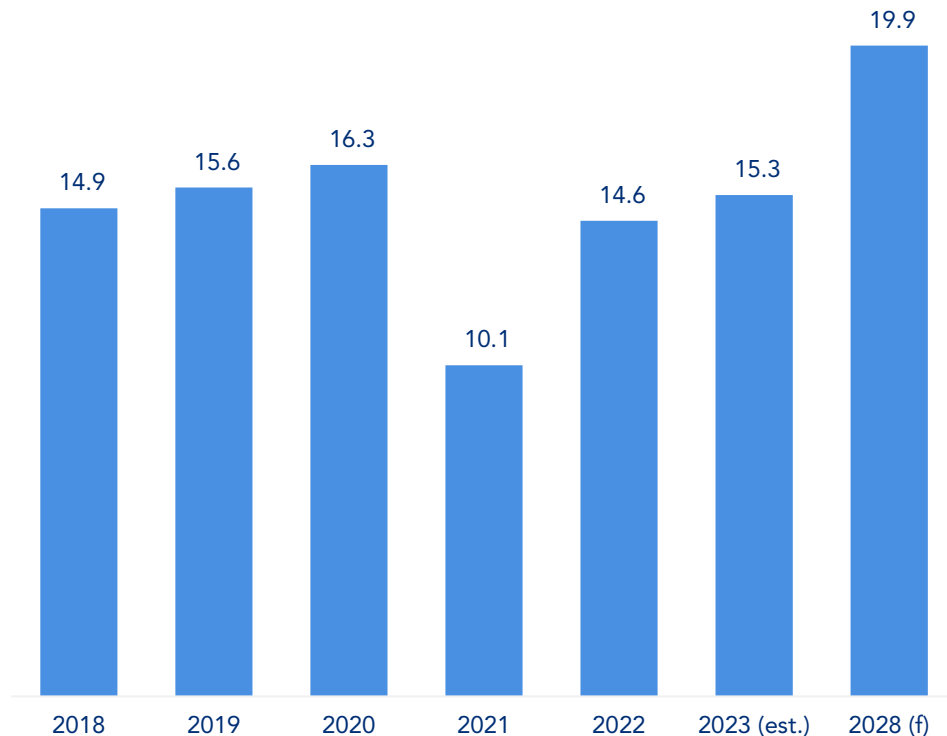
- Thus, increased demand for food and ornamental crops and increased area under cultivation of these crops in the country are the major factors driving the bulbs/ bulbils market during the forecast period.*



5.3.2 YOUNG PLANT (SAPLING)

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, YOUNG PLANT (SAPLINGS), 2018-2028

CAGR (2023-2028): 5.4%



Source: Mordor Intelligence

Overview

- The young plant segment of the market studied was valued at USD 14.6 million in 2022. It is estimated to reach USD 19.9 million by 2028, registering a CAGR of 5.4% during the forecast period (2023-2028).

Insights

- Saplings are used as propagation materials in flower cultivation, such as orchids and hibiscus, and vegetables, such as tomato and chili. Young plants maintain genetic purity, ensuring that the offspring closely resemble the parent plant, which is crucial for preserving desirable traits. In Vietnam, most seedlings are obtained from private nursery gardens or by self-production.
- The farmers are still using the lower quality saplings in the country, which is restraining vegetable and flower production. For instance, even in the Mekong Delta, the country's largest horticulture region, farmers are just buying young plants from uncertified breeders and nurseries without asking for property rights or knowing if the seeds and the plants are disease-free. Thus, it can negatively impact the quality of the produce.
- Dalat Hasfarm was one of the major companies in the country supplying young plants such as aster, hibiscus, carnation, lavendulan, and hydrangea. These young plants serve as propagation materials for nurseries, landscapers, and home gardens across the country.
- Propagation using the young saplings can increase the yield per hectare and decrease the losses because only healthy saplings are selected for planting. For instance, tomatoes are used for grafting to control damage from bacterial wilt. The grafted young seedlings are used by major farms in the country, which increases the yield per hectare and decreases field losses through diseases. Thus, these young plants are in high demand in the cultivation of vegetable crops in the country.

Conclusion

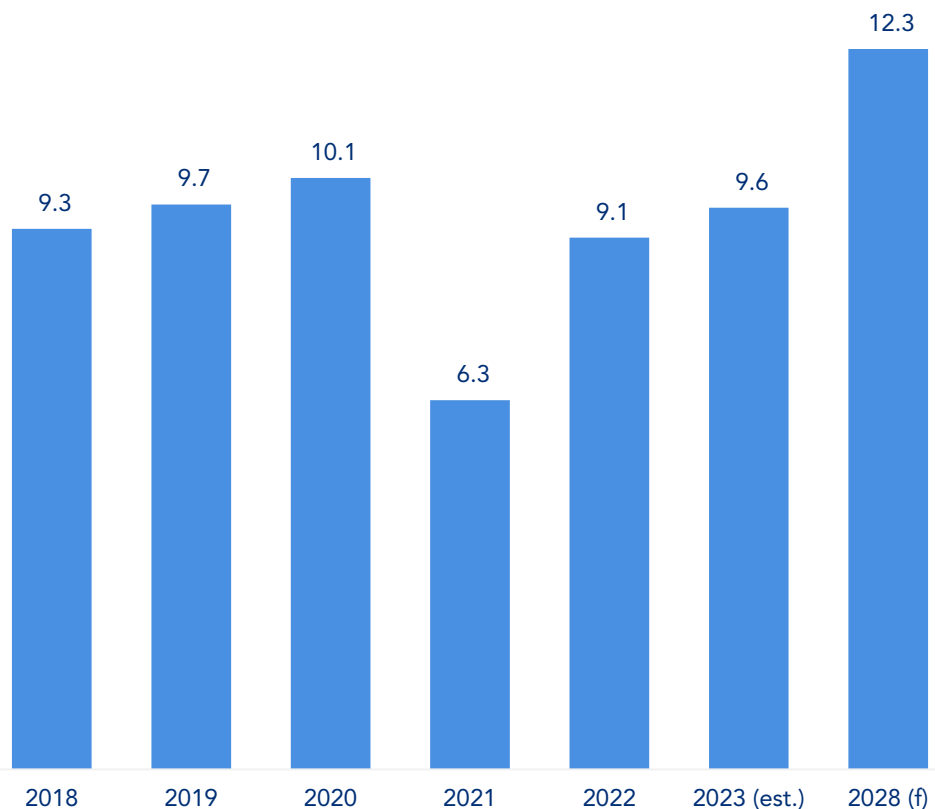
- Thus, the importance of young plants in increasing yield and increased supply of the propagation material from private companies are the factors anticipated to drive the market during the forecast period*



5.3.3 SUCKERS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, SUCKERS, 2018-2028

CAGR (2023-2028): 5.1%



Source: Mordor Intelligence

Overview

- The suckers segment of the market studied was valued at USD 9.1 million in 2022. It is estimated to reach USD 12.3 million by 2028, registering a CAGR of 5.1% during the forecast period (2023-2028).

Insights

- Suckers are widely used as propagating material for flowers such as chrysanthemum and carnations. It involves removing the young shoots that grow from the base of the plant and rooting them in separate pots or ground as a new plant. Propagation through suckers is well-suitable to Vietnam's tropical climate, allowing plants to quickly regenerate after adverse weather conditions.
- In Vietnam, chrysanthemums and carnations are primarily grown for their commercial value, and the use of suckers for propagation allows large-scale production for growers at lower cost, and the propagated plants will have the desired qualities for the cut flower market.
- Chrysanthemum is a popular flower in Vietnam and is widely cultivated for its blooms. It is propagated vegetatively through root suckers. Suckers are a reliable and easy way to propagate chrysanthemums through root suckers, and they will produce plants that are identical to the parent plant. They are grown in various regions of the country, such as the Red River Delta, Dalat, Ho Chi Minh City, and other provinces of the country. Thus, these areas in the country are estimated to have a higher demand for suckers for cultivation of chrysanthemum.
- For the propagation of the flowers, major companies, such as Hasfarm, and growers purchase propagation material from local producers or imported from Taiwan, Thailand, the Netherlands, or Singapore. Most of the growers prefer local propagation materials because they are cost-effective and well-adapted to Vietnamese growing conditions.

Conclusion

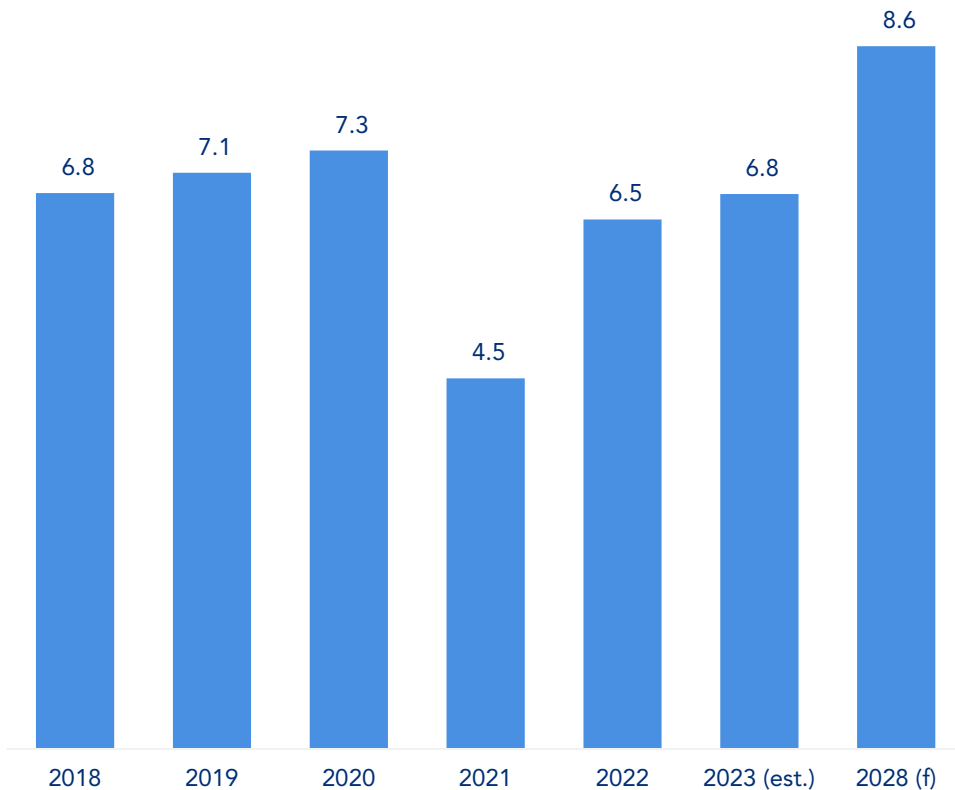
- Thus, the growing demand for cut flowers such as chrysanthemums and carnations in the market and the lower cost incurred for propagation materials are the factors estimated to drive the usage of the suckers during the forecast period.*



5.3.4 RHIZOME

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, RHIZOME, 2018-2028

CAGR (2023-2028): 4.8%



Source: Mordor Intelligence

Overview

- The rhizome segment of the market studied was valued at USD 6.5 million in 2022. It is estimated to reach USD 8.6 million by 2028, registering a CAGR of 4.8% during the forecast period (2023-2028).

Insights

- A rhizome is essentially a thick, horizontal, continuously-growing extension of a plant that grows under or along the ground and that can develop new roots and shoots.
- Rhizomes are used as the vegetatively propagated material for vegetable cultivation, such as ginger and turmeric. Rhizomes are used in the cultivation of these crops in the country because of their adaptability to diverse environments, easy availability to purchase or store from the last season plantation, and easy propagation to traditional knowledge.
- Dace farm in Vietnam has been producing and exporting several turmeric products, including fresh turmeric, dried turmeric, and turmeric powder from the organic turmeric rhizome. Currently, it is grown in the highland of Ha Quang district in the Cao Bang province, over 50 hectares, giving a high yield with a high curcumin content. The turmeric rhizomes are in high demand in the Central Highlands, the northern mountains, and the Southeastern regions of the country.
- Ginger rhizomes are in high demand in areas such as Phu Tho, Vinh Phuc, Soc Trang, and An Giang, especially Cao Bang, where the organic ginger is planted in over 200 hectares. Thus, growing organic cultivation of ginger in the country is increasing the demand for propagation materials.

Conclusion

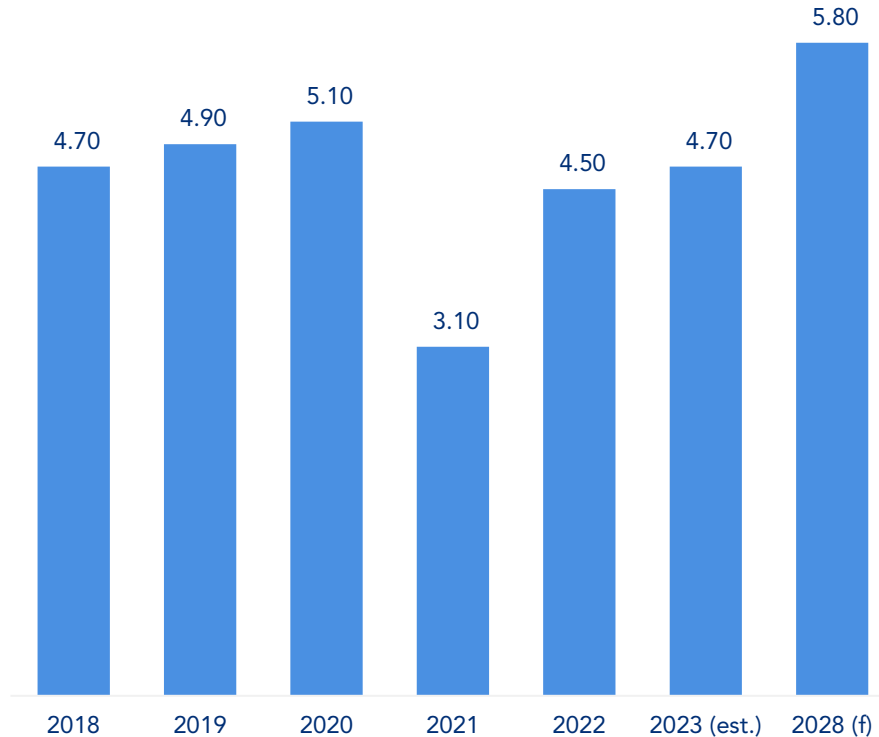
- Thus, the growing organic cultivation of the crops by major companies in the market, adaptability of this propagation material to diverse environments, and easy availability and propagation of the rhizomes are the major factors driving the rhizomes market during the forecast period in the country.*



5.3.5 TUBERS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, TUBERS, 2018-2028

CAGR (2023-2028): 4.6%



Source: Mordor Intelligence

Overview

- The tubers segment of the market studied was valued at USD 4.5 million in 2022. It is estimated to reach USD 5.8 million by 2028, registering a CAGR of 4.6% during the forecast period (2023-2028).

Insights

- A tuber is a special kind of swollen modified stem structure that functions as an underground storage organ. Propagation by tubers can be done either by planting the whole tuber or by cutting them into pieces. Vietnam National Plant Protection Department certifies potato propagation material in Vietnam.
- Tubers are effective and efficient means of propagation because they allow the selection of desirable traits, and they are easily stored and transported. This propagation material is used for the cultivation of a wide range of vegetables, particularly potatoes and yams.
- Recognizing the significance of tuber propagation, research institutes such as the Food Crops Research Institute (FCRI) and Vietnam Agriculture Science Institute (VASI) are involved in multiplying and supplying good quality propagation material to farmers across the country.
- During the historic period, T. Nam Dinh's Science and Technology Department set up a seedling laboratory to provide disease-free potato tubers to growers. This initiative ensures the sustainable supply of high-quality potato tubers.
- The Red River Delta and the highlands of Dalat are the major potato-growing areas in the country, with a high demand for tubers for potato production. The primary advantage of propagation through tubers is that the offspring are identical to their parent plants, and they are economical to purchase.

Conclusion

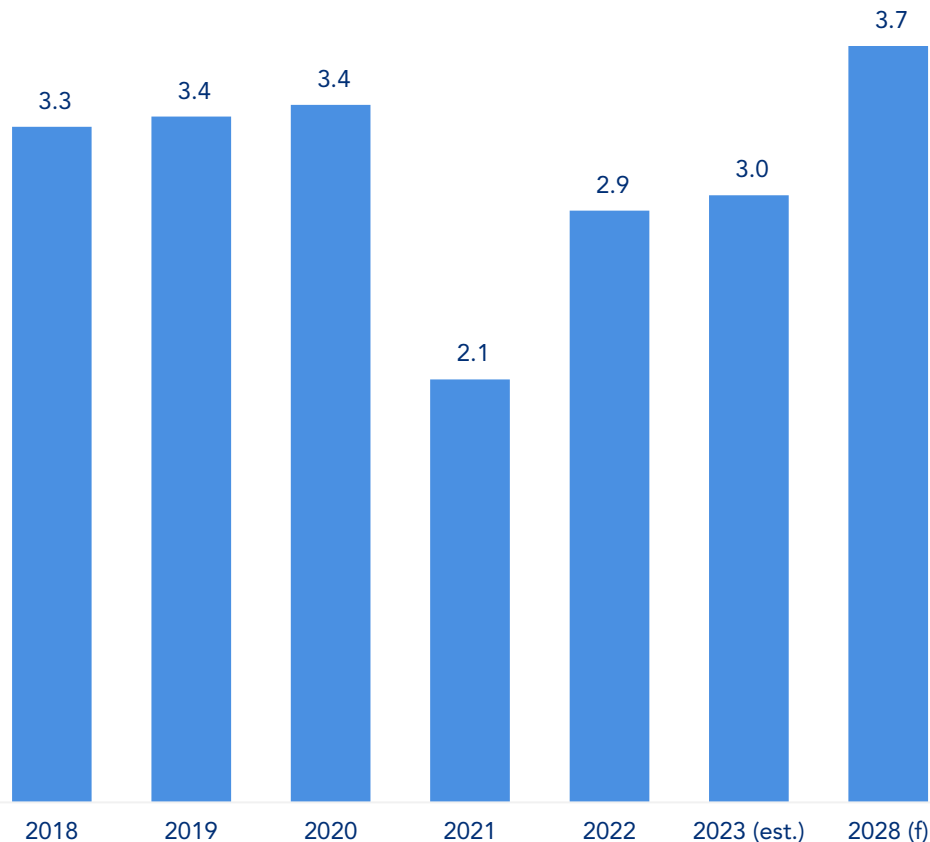
- Therefore, the growing demand for potato tubers to meet the growing consumption demand, the cost-effectiveness of the usage of tubers, and increased research activities for the development of new varieties in the country are driving the market growth of tubers during the forecast period in the country.*



5.3.6 RUNNERS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, RUNNERS, 2018-2028

CAGR (2023-2028): 4.5%



Source: Mordor Intelligence

Overview

- The runner's segment of the market studied was valued at USD 2.9 million in 2022. It is estimated to reach USD 3.7 million by 2028, registering a CAGR of 4.5% during the forecast period (2023-2028).

Insights

- Runner is a modified stalk, which is creeping in nature, produced in the leaf axil, and grows out from the parent plant. It grows horizontally along the ground, where roots are produced at the nodes, which can be used to produce new plants. Runner is used as the propagating material in peppermint, trout lily, and spider plants.
- Propagation of crops such as ornamental plants through runners is important because it has the ability to influence plant survival and growth during commercial production. Most runners are obtained from local nursery gardens, other growers, or the self-production. Growers mostly use runners for propagation in some flower cultivation because they are reliable sources of genetic material as they are clones of the mother plant.
- In Vietnam, vegetables such as mint grow from shallow spreading roots that grow under the soil line. These roots mature and expand and give rise to new offshoots, which, in turn, develop into independent plants. The households are cultivating mint using runners in their backyards as they are easily available.
- Demand for trout lilies as ornamental plants is higher in the country. The growers of trout lily in the northern province of Vietnam collect the runners of wild plants from the surrounding mountains and cultivate them at home for medicinal and ornamental purposes.

Conclusion

- Thus, the reliability of the source of genetic material with the usage of runners as propagation material and the growing demand for a few crops from pharmaceutical industries for medicinal purposes, as well as the availability of wild varieties, are the major factors projected to drive the propagation material such as runners during the forecast period in the country.*

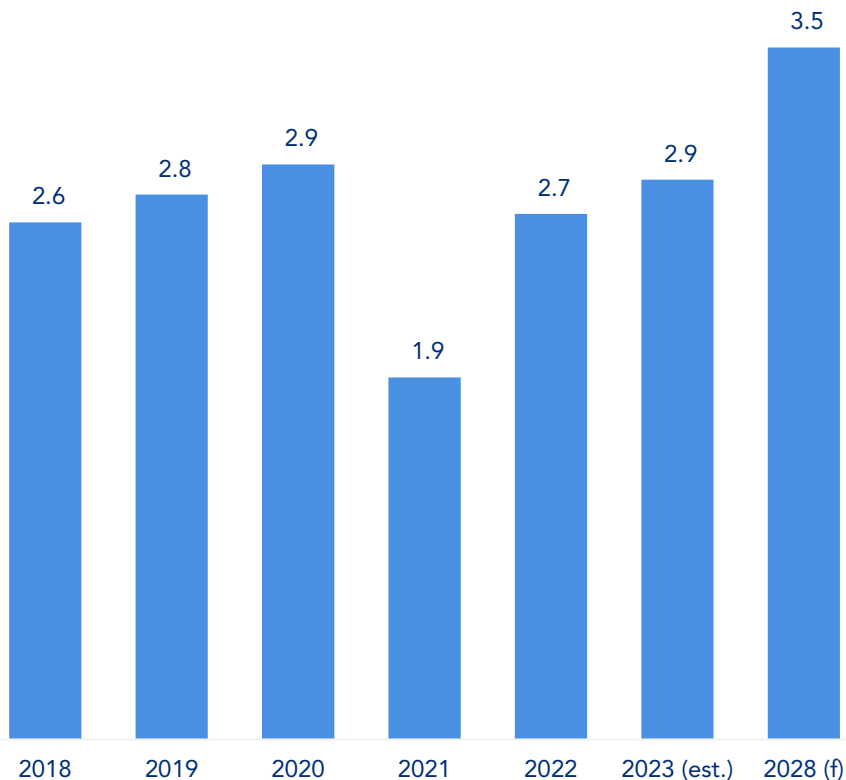




5.3.7 STOLONS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, STOLONS, 2018-2028

CAGR (2023-2028): 4.3%



Source: Mordor Intelligence

Overview

- The stolons segment of the market studied was valued at USD 2.7 million in 2022. It is estimated to reach USD 3.5 million by 2028, registering a CAGR of 4.3% during the forecast period (2023-2028).

Insights

- Stolon is a sub-aerial stem modification. It is a weak lateral branch that arises from the base of the main stem. After growing aurally for some time, it bends downwards to touch the ground, where its terminal bud gives rise to a new shoot and adventitious roots. The major crops produced from this type of propagation are asparagus and cucumbers.
- Small-scale farmers and kitchen gardeners in Vietnam often use stolon propagation for their own consumption because it is a cost-effective way to grow cucumbers. In the village of Phu My, in the northern province of Ha Giang, the villagers have been using stolon propagation to grow cucumbers for generations because of the belief that cucumbers grown through this propagation material are more flavorful and nutritious than grown from seeds.
- Asparagus Stolons can grow up to 10 feet long and can produce 10 new plants per stolon. Hence, the local growers in Vietnam are using the Stolons in the propagation, which is decreasing their cost of production.
- Lotus is one of the valuable economic cut flowers grown in Vietnam. The growers usually propagate by cutting the stolon segment since this technique allows cloning to supply uniform planting stock. Higher demand for the lotus in the country is estimated to drive the propagation materials market.

Conclusion

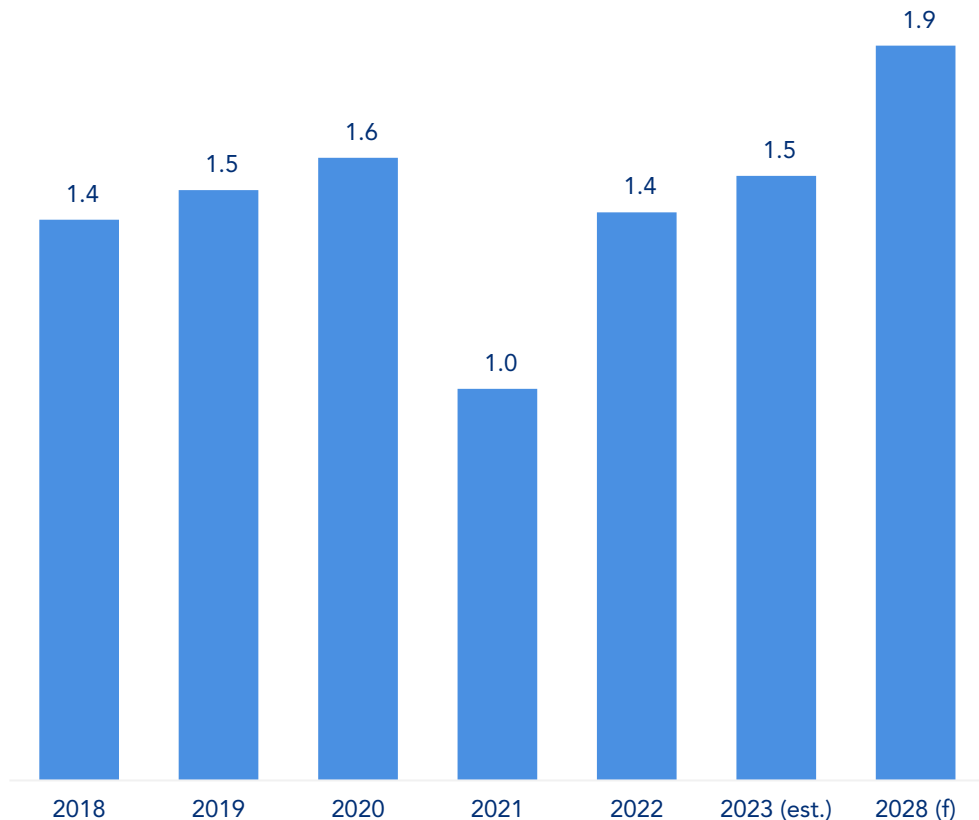
- Therefore, the cost-effectiveness of the propagation through stolons, ease of cultivation of vegetables such as asparagus and cucumbers with stolons along with the demand for these vegetables for consumption are estimated to drive the adoption of stolons as propagation mechanism during the forecast period in the country.*



5.3.8 CORM

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, CORM, 2018-2028

CAGR (2023-2028): 4.0%



Source: Mordor Intelligence

Overview

- The corm segment of the market studied was valued at USD 1.4 million in 2022. It is estimated to reach USD 1.9 million by 2028, registering a CAGR of 4.0% during the forecast period (2023-2028).

Insights

- Corm is the swollen base of the stem axis enclosed by the dry scale-like leaves. It acts as a food storage organ for sustained growth, which enables easy propagation by dividing corms into new plants.
- Gladiolus and taro are major crops that are propagated through corm in Vietnam. The propagation material is purchased from local sellers and other growers. As the local varieties are well adapted to environmental conditions.
- Gladiolus has been cultivated in provinces such as Hai Phong, Quang Ninh, Bac Giang, Son La, and Phu Yen through vegetative propagation (corm). This indicates the higher demand for the propagation material from these areas of the country. Red lilies 09 is the major variety of gladiolus selected by the Fruit and Vegetable Research Institute, which is very popular among growers and consumers.
- Taro can be rapidly propagated vegetatively with the use of cormels with apical shoots removed. The dormant bud in a single-node cutting develops into a shoot and produces roots. The Taro plant has saponin-like substances that cause a hot, itchy feeling in the mouth and throat. Northern farmers used to plant them to cook the stems and leaves to feed their hogs as they re-grew quickly from their roots. Thus, increased demand for taro in the country is estimated to have a higher demand for the propagation material.

Conclusion

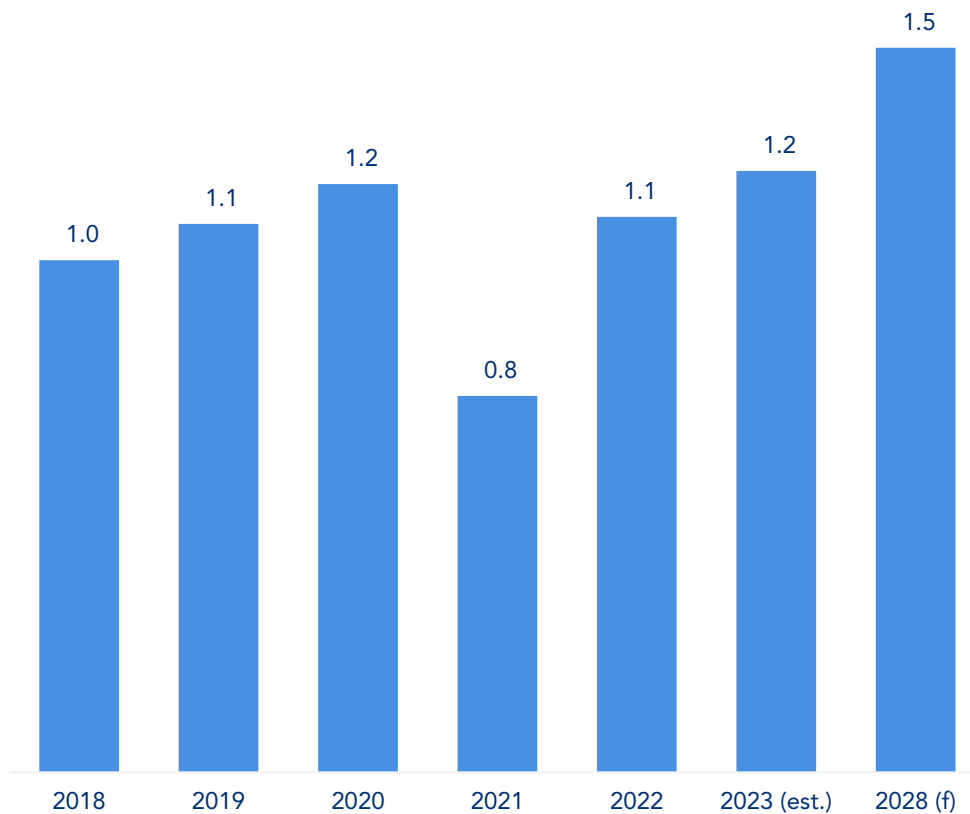
- Therefore, the usage of corms as vegetables for consumption, ease of propagation of local varieties with corms, availability of superior varieties commercially, and the demand for vegetables from corms as feed and food are estimated to drive this propagation material market during the forecast period in the country.*



5.3.9 NODES/EYE

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, NODES/EYE, 2018-2028

CAGR (2023-2028): 3.8%



Source: Mordor Intelligence

Overview

- The nodes/eye segment of the market studied was valued at USD 1.1 million in 2022. It is estimated to reach USD 1.5 million by 2028, registering a CAGR of 3.8% during the forecast period (2023-2028).

Insights

- Nodes in ornamental plants refer to the points on a stem where leaves, branches, or roots emerge. These nodes can be used for propagation as they contain meristematic tissue, which enables the plant to produce new roots and shoots.
- Nodes are used as cuttings with a portion of the stem with one or more nodes. Single node cuttings are used in ornamental plants with alternate leaves when space or stock material is limited. Whereas double node cuttings are used in plants with opposite leaves.
- Nodes are a popular method for propagating Coleus, which can be planted in a variety of settings, such as gardens, hanging baskets, and containers, by both home gardeners and commercial growers. This propagation material is widely used by growers in the country due to its ability to produce genetically identical new plants from a single parent, resulting in multiple plant production.
- Propagation of Phalaenopsis orchids in Vietnam often involves cutting the flowering stem above a stem internode to produce new plants from the dormant 'eyes.' Phalaenopsis LVR2 orchid and Butterfly orchid LVR4 are varieties recognized and allowed to be cultivated in Hanoi, Bac Ninh, and Hung Yen regions of the country.
- The Dalat and Dong Tap regions have become popular tourist destinations during the Lunar New Year and springtime, when the flowers are in full bloom, leading to an increase in demand for these flowers and their propagation material in the forecast period.

Conclusion

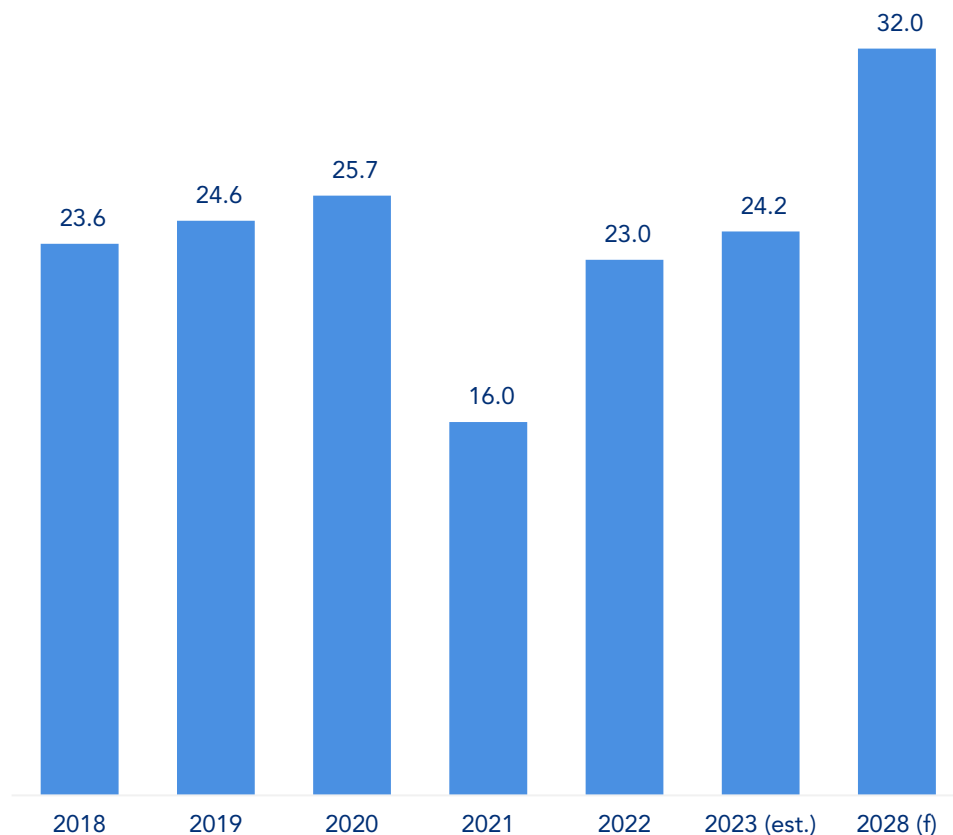
- *The increase in the demand for flowers from tourists, home gardeners, and commercial growers in the country due to its ability to produce genetically identical new plants from a single parent is driving the market growth during the forecast period.*



5.3.10 OTHERS

VIETNAM PROPAGATION MATERIALS MARKET, VALUE IN USD MILLION, OTHERS, 2018-2028

CAGR (2023-2028): 5.8%



Source: Mordor Intelligence

Overview

- The others segment of the market studied was valued at USD 23.0 million in 2022. It is estimated to reach USD 32.0 million by 2028, registering a CAGR of 5.8% during the forecast period (2023-2028).

Insights

- Vegetative reproduction also takes place through the leaves of a plant. The leaves of some plants like Begonia and Bryophyllum. In Bryophyllum, leaves have notches along their borders and are broad. The notches give rise to buds. These buds can develop into new plants with roots, shoots, and tiny leaves. When the young plants meet the soil, they separate from the leaves and grow into mature plants.
- In plants such as sweet potato and dahlia, a new plant is developed through tuberous roots. The internal and external features of a typical root and buds are formed only at the crown, and new roots are at the opposite end. Vinh Long, Long An, and Lam Dong and the Central Highlands region of the country's small-scale farmers are still using vegetative propagation materials for the cultivation of sweet potatoes.
- Major floriculture and vegetable growers in the country are purchasing planting materials from the local growers and nurseries because they are well adapted to local conditions. For many vegetatively propagated crops (VPCs), the informal system, in which farmers produce their propagation material and exchange/share it with other farmers, is the dominant system of supply in Vietnam.
- The demand for the other propagation materials is estimated to increase with growing demand from the increasing population in the country, the increased area under cultivation, and high export demand for the vegetable crops from processing industries and household consumption and especially the demand for cut flowers from tourists are driving the market growth.

Conclusion

- Therefore, the cost-effectiveness of the vegetative propagation methods for small farmers, demand for sweet potatoes and flowers for consumption and processing industries, and availability of varieties adaptable to local conditions are estimated to drive the propagation materials market during the forecast period in the country.*



5.4 PROPAGATION TRADE ANALYSIS

5.4.1 Import analysis

5.4.2 Export analysis

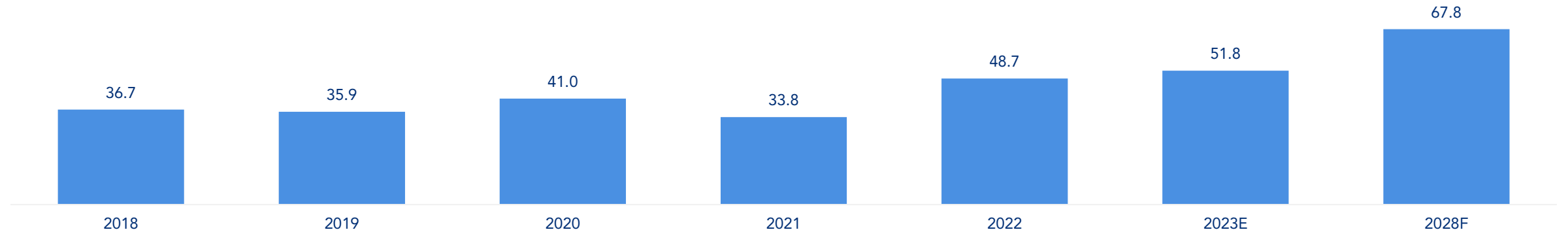




5.4.1 IMPORT ANALYSIS

VIETNAM PROPAGATION MATERIALS MARKET, IMPORT VALUE IN USD MILLION, 2018-2028

CAGR (VALUE) (2023-2028): 5.5%



OVERVIEW

- The import of propagation materials into Vietnam was valued at USD 48.7 million in 2022. It is expected to reach USD 67.8 million by 2028, registering a CAGR of 5.5% during the forecast period.

MARKET INSIGHTS

- According to the ITC Trade Map data, the import of propagation materials was higher in the country, which increased by 44% between 2021 and 2022 in terms of value. The import of propagation materials declined in 2019 and 2021 because of the decrease in the cultivation area of major vegetables and flowers.
- The major countries exporting the propagation materials, such as tubers, to Vietnam in 2022 were the Netherlands, France, Chile, New Zealand, and Israel. The Netherlands was the major country among all the countries, which accounted for 75.7% of the overall import value in 2022. The higher share of the Netherlands was because of its higher flower production along with the propagation materials.

CONCLUSION

- Owing to the rising demand for vegetables and flowers, the import of propagation materials is anticipated to increase during the forecast period.*

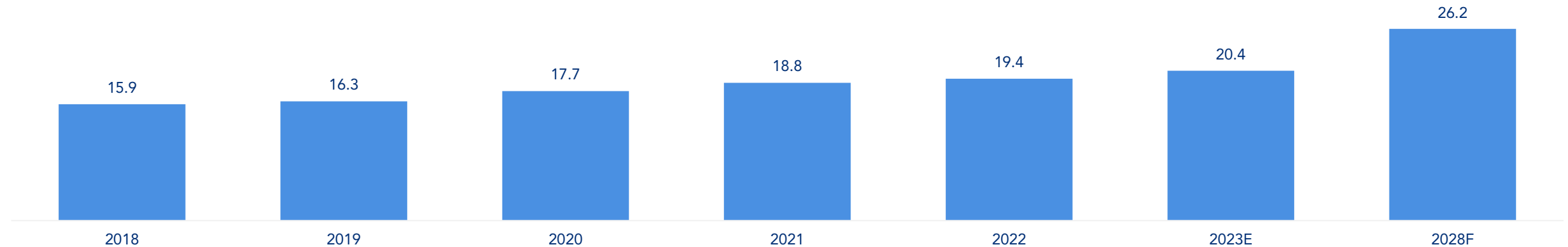
Source: Mordor Intelligence



5.4.2 EXPORT ANALYSIS

VIETNAM PROPAGATION MATERIALS MARKET, EXPORT VALUE IN USD MILLION, 2018-2028

CAGR (VALUE) (2023-2028): 5.1%



OVERVIEW

- The export of propagation materials to Vietnam was valued at USD 19.4 million in 2022. It is expected to reach USD 26.2 million by 2028, registering a CAGR of 5.1% during the forecast period.

MARKET INSIGHTS

- The floriculture market in Vietnam is thriving, and for many vegetatively propagated crops, farmers produce their propagation material exchange or share it with other farmers. Due to the domestic production of propagation materials being mostly utilized or consumed in local markets, the export of propagation materials is lower when compared to imports.
- According to the ITC Trade Map statistics, China is the major importer of vegetable propagation materials such as tubers, which accounted for more than 50% since 2020, which is attributed to the lower cost and ease of trade between the two countries along with the preference of farmers for specific varieties of vegetables and flowers.

CONCLUSION

- Therefore, the increase in the demand for propagation materials from neighboring countries and demand for native varieties are estimated to drive exports at a slower rate during the forecast period.*

Source: Mordor Intelligence

6 COMPETITIVE LANDSCAPE

6.1 Most Adopted Strategies

6.2 Market Share Analysis

6.3 Company Profiles





6.1 MOST ADOPTED STRATEGIES

0 PRODUCT INNOVATIONS

2018-2023

- *No production innovations were observed during the study period 2018-2023.*

0 MERGER & ACQUISITIONS

2018-2023

- *No Mergers & Acquisitions were observed during the study period 2018-2023.*

1 EXPANSION

2018-2023

- In August 2021, Hivico started a new project named "Expanding Production And Business Of Invitro Plant Seedlings" with an investment of over 2 million USD with an aim to increase its annual production capacity to over 18 million invitro seedlings by 2024 to serve both domestic and export market.

2 PARTNERSHIPS

2018-2023

- In June 2023, Dalat Hasfarm and Graff Young Plants announced their partnership to increase their business in both global and Vietnam markets. Under the partnership, Dalat Hasfarm became a major shareholder of the Graff Young Plants, which help in increasing the availability of propagating materials in Vietnam in the coming years.
- In June 2021, Thien Dieu Trading and Processing Joint Stock Company partnered with KP Holland under the Netherland Vietnam Horticulture Business Platform to bring the Dutch Kalan Choe flower varieties to Vietnam, through which the company has increased its product offering in the local market.

Source: Annual Reports, Company Websites



6.2 MARKET SHARE ANALYSIS

- The Vietnam Propagation Materials Market is fragmented, with the major players holding a market share of 37.9% in terms of revenue, with other players having a market share of 62.1% in the country.
- Dalat Hasfarm Company Limited, Dasar Agriculture Company Limited, and Ha Lans Bulbs Supply Company Limited are the leading companies dominating the propagation materials market in Vietnam. These three companies hold market shares of 11.9%, 10.2%, and 10.0%, respectively, in the year 2022.
- The market is dominated by the local agriculture enterprises involved in producing and supplying cut flowers and planting materials for the floriculture industry. These companies import most of the propagation material from countries such as the Netherlands, Chile, New Zealand, and France, which are often used for their production and supplied to local flower growers.
- The leading players operating in the market have established huge production farms to ensure a year-round supply of propagation materials, such as cuttings, bulbs, etc., in the local market. Furthermore, there are a significant number of biotechnology companies, such as Hivico and F1 Biotechnology Company Limited, engaged in the production of tissue-cultured seedlings to increase the domestic availability of propagation materials in the country.
- These players are highly focused on continuously increasing the local production of propagation materials through increasing production capacities in the coming years. For instance, in August 2021, Hivico Biotech announced a new Project, "Expanding Production And Business Of Invitro Plant Seedlings" investing over 2 million USD to increase its production capacity to over 18 million Invitro seedlings per year by 2024.
- Other major companies in the market include domestic and international companies such as Tropical Flowers Joint Stock Limited, Thien Dieu Trading, and Processing Joint Stock Company, which also hold significant market shares of 1.4% and 1.2%, respectively, in the country.
- ***Therefore, with major companies focused on increasing their production capacities and partnerships in the country, the Vietnam Propagation Materials Market is anticipated to be further consolidated in the coming years.***

Source: Mordor Intelligence

VIETNAM PROPAGATION MATERIALS MARKET, MARKET SHARE (%), MAJOR PLAYERS BY REVENUE, PROPAGATION MATERIALS, 2022

Sr No.	Name of the Company	Value Share (%) in 2022
1	Dalat Hasfarm Company Limited	11.9
2	Dasar Agriculture Company Limited	10.2
3	Ha Lans Bulbs Supply Company Limited	10.0
4	Tropical Flowers Joint Stock Limited	1.4
5	Linh Ngoc Company Limited	1.2
6	Thien Dieu Trading and Processing Joint Stock Company	1.1
7	Hivico	1.0
8	F1 Biotechnology Company Limited	0.8
9	Hoa Chi An Limited	0.3
10	Others	62.1

*Market ranking has been calculated, based on publicly available data (company websites, annual reports, SEC filings, association data, etc.), third-party paid sources (D&B Hoovers), and our estimation of the companies' production capacities in the relevant market (in case of unavailability of specific data in the public domain)



6.3 PROFILE OF KEY PLAYERS

6.3.1 Dalat Hasfarm Company Limited

6.3.2 Dasar Agriculture Company Limited

6.3.3 Hoa Chi An Limited

6.3.4 Tropical Flowers Joint Stock Company

6.3.5 Thien Dieu Trading and Processing Joint Stock Company

6.3.6 Ha Lans Bulbs Supply Company Limited

6.3.7 Hivico

6.3.8 Linh Ngoc Company Limited

6.3.9 F1 Biotechnology Company Limited





6.3 PROFILE OF KEY PLAYERS

Sr. No.	Company	Established	Headquarters	Global Revenue (USD Million)	Employees
6.3.1	Dalat Hasfarm Company Limited	1994	Da Lat, Vietnam	112.12	~ 4,000
6.3.2	Dasar Agriculture Company Limited	2021	Lam Dong, Vietnam	10.22	10+
6.3.3	Hoa Chi An Limited	2013	Da Lat, Vietnam	0.45	~ 20
6.3.4	Tropical Flowers Joint Stock Company	2004	Ha Noi, Vietnam	5.27	160
6.3.5	Thien Dieu Trading and Processing Joint Stock Company	2000	Ha Noi, Vietnam	1.55	~ 16
6.3.6	Ha Lans Bulbs Supply Company Limited	2017	Ha Noi, Vietnam	11.98	10+
6.3.7	Hivico	2006	Da Lat, Vietnam	1.55	130+
6.3.8	Linh Ngoc Company Limited	2004	Da Lat, Vietnam	1.39	20+
6.3.9	F1 Biotechnology Company Limited	2013	Da Lat, Vietnam	2.61	34+

Source: Company website, Annual Reports



6.3.1 DALAT HASFARM COMPANY LIMITED – COMPANY OVERVIEW



www.dalathasfarm.com/en

DUNS NUMBER: 55-527-5994

GLOBAL OVERVIEW

Dalat Hasfarm Company Limited is one of the leading producers and distributors of cut flowers and young plants in Asia Pacific. The company has nearly 30 years of experience in the flower business, growing significantly with the help of its high-tech solutions and cool chain management.

The company delivers its wide product range to both global and domestic markets, which makes it one of the top flower market players in the country.

The company is continuously looking for innovative and sustainable ways to grow products and create value from a young plant to the finished product.

USD 112.12 million

Global revenue in FY 2022

~ 4,000

Employees

1994

Founded

Da Lat, Vietnam

Headquarters

USD 10.88 million

Segmental Revenue (2022)

11.9%

Market Share % (2022)

KEY INFORMATION

- Innovation is one of Dalat Hasfarm's main goals, and it is continuously looking for new products. The company and its partnered international breeders test and develop innovations in young flower plants, and it is measured by the production team for attributes like productivity, disease resistance, and vase life to ensure only the highest quality products are grown commercially.
- Hasfarm Young Plants has a wide range of product offerings such as Begonia elatior koppe, Campanula ocean, Carnation caryophyllus, Chrysanthemum indicum, Dipladenia q-deville, Hibiscus rosa hibisqs, Lavandula butterfly garden, Lavandula thumbelina, Osteospermum hybrid, Pilea peperomioides, Queen kalanchoe, Queen maya dahlia, Rhipsalidopsis thor, Schlumbergera thor, and Schlumbergera thor.
- The company supplies cuttings and propagation materials to growers throughout the world. Dalat Hasfarm produces 250 million cuttings annually. The company has increased the production quality of carnation cutting with the help of the Ellepot system, which provides a suitable growing media to grow cutting faster.

Source: Company website, D&B Hoovers Database



6.3.2 DASAR AGRICULTURE COMPANY LIMITED – COMPANY OVERVIEW



The company website and logo are not available in the public domain.

DUNS NUMBER: 67-386-4592

GLOBAL OVERVIEW

Dasar Agriculture Company Limited is one of the largest companies engaged in the marketing and distribution of lily bulbs in Vietnam.

The company operates in the field of importing and supplying lily bulbs for gardeners. The company specializes in providing lily bulbs imported directly from countries such as the Netherlands, Chile, and New Zealand.

The company supplies a wide range of products, including lily bulbs and seeds of different varieties. These product offerings are well adapted by the growers and gardeners of Vietnam for their small to large-scale farms. The company ensures the quality of its products through several tests, which enhances the market value.

USD 10.22 million

Global Revenue in FY 2022

10+

Employees

2021

Founded

Lam Dong, Vietnam

Headquarters

USD 9.34 million

Segmental Revenue (2022)

10.2%

Market Share (2022)

KEY INFORMATION

- Dasar Agriculture Company Limited has partnered with suppliers of the Netherlands, Chile, and New Zealand who have the copyright of the lily bulbs originating from the respective countries.
- The company has sourced seeds from reputed companies for a long time to provide the best quality bulbs to flower growers in Vietnam. This is further strengthened by the company's well-established distribution network and partnerships with growers across the country.
- The company is dedicated to quality as it is the most important factor in flower and lily bulb supply, thereby increasing consumer preference while purchasing the products. Dasar Agriculture Company Limited is also a pioneer company in testing and transferring new varieties to people in Vietnam.

Source: Company website, D&B Hoovers Database



6.3.3 HOA CHI AN LIMITED – COMPANY OVERVIEW



www.hoachian.vn

DUNS NUMBER: 55-601-7891

GLOBAL OVERVIEW

Hoa Chi An Limited is one of the leading distributors of cut flowers, flower bulbs, and crops in Vietnam. The company also provides technical support to customers during the cultivation process.

The company mainly exports to five countries worldwide located across the Middle East, Asia-Pacific, the United States, and Europe. Its product portfolio includes over 20 different flower varieties.

The company is associated with 30 global partners to ensure continuous sourcing and supplying of flowers and planting materials. In addition to this, the cultivation area of the company accounts for over 15,000 sq. m, which is suitable for efficient year-round production of cut flowers and flower bulbs.

Source: Company website, D&B Hoovers Database

USD 0.45 million

Global Revenue in FY 2022

~ 20

Employees

2013

Founded

Da Lat, Vietnam

Headquarters

USD 0.24 million

Segmental Revenue (2022)

0.3%

Market Share (2022)

KEY INFORMATION

- To ensure the best product quality of its products, the company follows careful observation throughout the planting process, nurturing process, protection process, and harvesting process.
- Most of the company's activities are conducted manually. However, the company's professionals use some modern equipment that helps to measure and control the general situation. Apart from that, they manually handle everything, which ensures better handling of the products.
- The company has a close business relationship with the most well-known brands in the flower bulb industry, including P.Aker BV, Jan de Wit en Zonen BV, Dejong Lelies Holland BV, and Gebr Bot BV.
- The company has a vast range of product varieties of Liliams and Snapdragons. Liliam varieties such as Indiana, Manissa, Pico, Nello, Robina, Show Winner, Tiber, and Yelloween are the most popular. In Snapdragon, the company offers varieties like Claima and Admiral in various colors, such as yellow, deep yellow, deep pink, and ivory white.



6.3.4 TROPICAL FLOWERS JOINT STOCK COMPANY – COMPANY OVERVIEW



www.hoanhietdoi.vn

DUNS NUMBER: 52-765-35549

GLOBAL OVERVIEW

Tropical Flower Joint Stock Company has been a pioneer in the flower business for around 20 years. The company is a producer and distributor of fresh flowers and flower-propagating materials like bulbs and tubers.

The company supplies flowers and propagating material to the capital, Ha Noi, and other regions of the country throughout the year.

Apart from flowers and flower propagating materials, the company grows vegetables and melons such as tomatoes, cucumber, sweet peppers, plum melons, and mesh melons in small quantities in its production farms.

USD 5.27 million

Global Revenue in FY 2022

160

Employees

2004

Founded

Ha Noi, Vietnam

Headquarters

USD 1.25 million

Segmental Revenue (2022)

1.4%

Market Share (2022)

KEY INFORMATION

- Tropical Flower Joint Stock Company has 25 ha of land where it grows flowers, vegetables, and melons commercially. The company has great facilities for protected cultivation in giant greenhouses with modern equipment.
- With varieties imported from the Netherlands, the company has grown and supplied lily and orchid bulbs to Vietnamese growers. The company has a total production area of 20 ha engaged in the production of lilies and orchids, along with propagation material for various flower varieties.
- The company operates its flower propagating material business in lily, orchids, and gladiolus. Some of the products offered in propagating materials in lily include Zambesi tuber, yellow diamond bulbs, and Yelloween bulbs. In orchids, it offers aida tubers, Antarctica tubers, Atlantic bulbs, blue jacket bulbs, blue pearl tubers, blue star tubers, delft blue, fondant root, gipsy queen bulbs, pink pearl bulbs, purple sensation bulbs, splendid cornelia bulbs, and yellow stone tubers. In Gladiolus, it offers almeria tubers.

Source: Company website, D&B Hoovers Database



6.3.5 THIEN DIEU TRADING AND PROCESSING JSC – COMPANY OVERVIEW



The company website is not available in the public domain.

DUNS NUMBER: 55-524-4273

GLOBAL OVERVIEW

Thien Dieu Trading and Processing Joint Stock Company is one of the leading companies in import, export, and investment in the field of flowers and decoration. The company is a member of the Netherlands Vietnam Horticulture Business Platform.

The company provides potted and bedding flowers for real estate projects, luxury amusement parks, and leisure resorts, exports cut flowers, and delivers flowers nationwide.

USD 1.55 million

Global Revenue in FY 2022

~16

Employees

2000

Founded

Ha Noi, Vietnam

Headquarters

USD 1.02 million

Segmental Revenue (2022)

1.1%

Market Share (2022)

KEY INFORMATION

- The company imports, grows, and supplies bulbs and young plants for flowers of Holland origin. The company has a production farm in Sapa where the imported crop has been grown to check the quality of the products.
- In June 2021, Thien Dieu partnered with KP Holland under the Netherland Vietnam Horticulture Business Platform (NVHBP) to bring Dutch Kalanchoe flowers to Vietnam.
- KP Holland's Dutch Kalanchoe unrooted cuttings have been provided to Thien Dieu and immediately brought to the company's Sapa farm for cultivation. Kalanchoe has large and succulent leaves, so it is very suitable as an ornamental plant for indoor decoration or gardening.
- The company works in collaboration with Sapa High Tech Agriculture Joint Stock Company on its 8-ha farm in the Sapa District of Lao Cai province. The company is also a member of the NVHBP platform and works with many Dutch and local growers to increase its sourcing and supply of propagation materials.

Source: Company website, D&B Hoovers Database



6.3.6 HA LAN BULBS SUPPLY COMPANY LIMITED – COMPANY OVERVIEW



The company website and logo are not available in the public domain.

DUNS NUMBER: 55-715-6803

GLOBAL OVERVIEW

The company has come a long way from a small trading business company to one of the leading businesses in the Vietnamese floriculture industry.

The company is a major importer and supplier of lily bulbs, as it partners with various companies such as Deleeuw Flowerbulb, C Steenvoorden, Gebr De Jong Flowerbulbs, Van Der Zon Export B V Flowerbulbs, Zabo Plant, and Formosa in countries such as the Netherlands, France, Chile, and New Zealand.

The company predominantly imports lily bulbs from these countries and supplies them in Vietnam.

USD 11.98 million

Global Revenue in FY 2022

10+

Employees

2017

Founded

Ha Noi, Vietnam

Headquarters

USD 9.17 million

Segmental Revenue (2022)

10.0%

Market Share (2022)

KEY INFORMATION

- The company has vast product offerings of lily flower bulbs such as tarragon, Redford, Dalian, Eremo, La Nashville, Conca D'or, Maldano, Eldoret, Robina, Tiny Pearl, Tiny Heros, Trocadero, Anouska, Profundo, Bacardi, Tabledance, Shine, Lake Carey, Yelloween, Corvette, Frontera, Shine on, Talisker, Sedona, and Red desire.
- With a strong product line, the company also has a broad and rigorous supply chain dedicated to the distribution of lily bulbs and propagation materials of other crops to growers across the country.

Source: Company website, D&B Hoovers Database





6.3.7 HIVICO – COMPANY OVERVIEW



www.hivicobiotech.com

DUNS NUMBER:55-553-7400

GLOBAL OVERVIEW

Cao Nguyen Seedling Joint Stock Company, HIVICO, specializes in producing and trading high-quality tissue culture seedlings for the domestic and international markets. The company focuses on synchronously operating all management processes of production planning, human resources, finance, and sales to meet the seedling needs of customers.

In the context of growing domestic and international customers for tissue culture seedlings, the company has links with foreign partners to process and export tissue culture seedlings.

With a total area of 4000 m² and skilled employees with extensive experience in the field of breeding flower varieties and ornamental plants, the company provides consulting, transfer of production, and manufacturing processes.

USD 1.55 million

Global Revenue in FY 2022

130+

Employees

2006

Founded

Da Lat, Vietnam

Headquarters

USD 0.95 million

Segmental Revenue (2022)

1.0%

Market Share (2022)

KEY INFORMATION

- The company’s product portfolio includes gerbera tissue culture seedlings and perennial ornamental plant tissue culture seedlings. Hivico produces over 2 million seedlings per year, out of which are mostly consumed in the domestic market.
- The company aims to be the pioneer in this business with its 16 years of experience in the field of providing quality tissue culture seedlings for export and domestic markets.
- It has adopted various strategic developments to meet the growing consumer demand. For instance, in August 2021, Hivico Biotech initiated a new project named “Expanding Production and Business of Invitro Plant Seedlings.” The company has invested over USD 2 million to increase its annual production capacity to over 18 million in-vitro seedlings by 2024 to supply in domestic and export markets.
- The company has a broader export network for invitro seedlings, improved laboratory facilities, modern equipment, and advanced techniques. Most of the company’s exports are focused on countries such as the Netherlands, the United States, Australia, New Zealand, and Japan.

Source: Company website, D&B Hoovers Database





6.3.8 LINH NGOC COMPANY LIMITED – COMPANY OVERVIEW



www.linhngocbulbs.com.vn

DUNS NUMBER: 55-570-1988

GLOBAL OVERVIEW

Linh Ngoc Company Limited has been gradually becoming popular among Da Lat flower growers. With a long time to synthesize and test almost all types of flowers suitable for the soil and climate of this highland region, Linh Ngoc is making efforts to produce the most beautiful and stable flower varieties for its customers.

The main products of the company include cut flower varieties, ornamental plant varieties, fertilizers, and flower-growing supplies.

The company has a production area of 20 ha, producing 30 million bulbs, 100 thousand cymbidium branches, 100 million decorative leaves, and 50 thousand dahlia flowers per year.

USD 1.39 million

Global Revenue in FY 2022

20+

Employees

2004

Founded

Da Lat, Vietnam

Headquarters

USD 1.13 million

Segmental Revenue (2022)

1.2%

Market Share (2022)

KEY INFORMATION

- The company grows and produces various bulb varieties of lily and orchids. The products include Lake Carey, Brunello, Corvara, Cobra, Lido, Lesotho, Parasol, Keywest, Florian, Fenice, Briancon, Caruso, Goldcity, Siberia, Cassini, Tiber, Robina, Manissa, Sorbonne, Rialto, Nello, Marlon, Donato, Concador, Biarritz, Belladonna, Bernni, Yelloween, Tresor, and Pavia in lily bulbs.
- Similarly, in orchid bulbs, the company offers varieties such as Uluru, Lumines, Lunakera, Winter-Patrica, Jinjerra Desiree, Beau-guest, Ruby valley Clare, incense cat, Linh Ngoc Gold, and Australian Hong Orchids.
- The company delivers the best quality products tested by leading companies. The company has a highly specialized technical team dedicated to its customers.
- The company transports flexible numbers of flower varieties in a timely to help growers secure higher profits. The company has a clear after-sales policy for customers to make them feel more secure with their farming work.

Source: Company website, D&B Hoovers Database



6.3.9 F1 BIOTECHNOLOGY COMPANY LIMITED – COMPANY OVERVIEW



The company website is not available in the public domain.

DUNS NUMBER: 55-666-3802

GLOBAL OVERVIEW

F1 Biotechnology Company Limited is one of the leading producers of invitro flower seedlings. The company has extensive knowledge and background in tissue culture technology, and it focuses on providing the best quality young plants to meet the needs of all customers in the agricultural industry and gardening.

The company exports a significant amount of its output to the global market. The major importers of the company include the United States, the Netherlands, and New Zealand.

USD 2.61 million

Global Revenue in FY 2022

34+

Employees

2013

Founded

Da Lat, Vietnam

Headquarters

USD 0.77 million

Segmental Revenue (2022)

0.8%

Market Share (2022)

KEY INFORMATION

- The company specializes in propagating tissue-cultured perennial and ornamental young plants. Furthermore, the company has well-maintained packaging support for smooth transportation.
- The company supplies tissue culture young plants of Bambino arrow, Aglaonema, Caladium, Syngonium, Peace lily, Ctenanthe, Philodendron Pink, Gerbera, Peperomia, Limonium, and dwarf rose, among others.
- The production process of tissue culture seedlings at F1 is strictly controlled and managed by a team of experienced, skilled, and dedicated technicians. The company has a modern laboratory system used for cultivation and propagation. This ensures the quality of the products and great value in the global market.
- The company has a huge laboratory area of 8,500 sq. m, which helps to achieve a significant output per year. The company supplies its products domestically and globally to several major countries.
- This helps the company distribute its products easily in the market and gives a competitive advantage over other domestic and global players in the supply chain.

Source: Company website D&B Hoovers Database

7 LIST OF PROPAGATION KEY IMPORTERS, EXPORTERS, AND PRODUCERS





7 LIST OF KEY IMPORTERS, IMPORTERS, EXPORTERS AND PRODUCERS FOR PROPAGATION MATERIALS

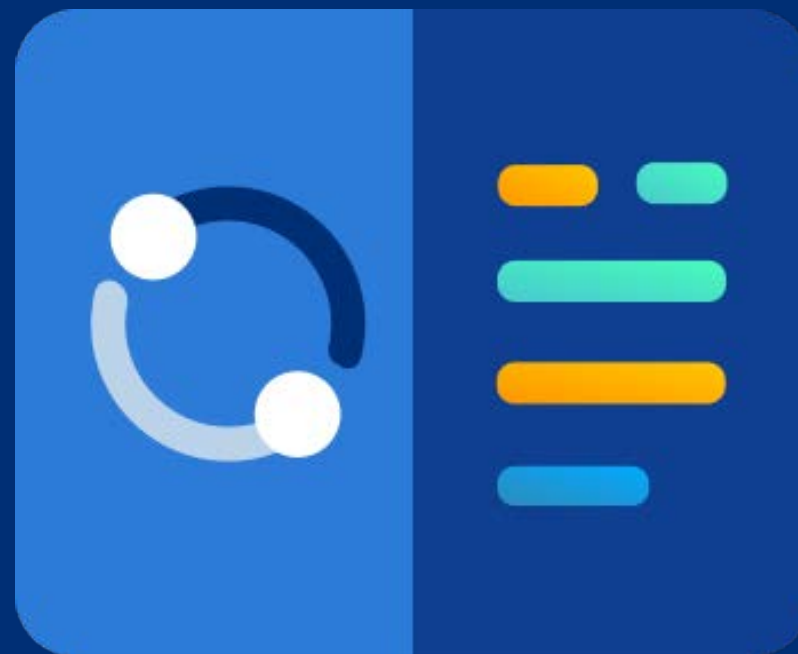
S No.	Name	Address	Website	Category	Type of Propagation Materials
1	Vinaseed	Dong Da Dist., Hanoi, Vietnam	https://vinaseed.com.vn/en	Producer & Exporter	Seed
2	Southern Seed Corporation	TP. Hồ Chí Minh, Vietnam	http://ssc.com.vn/en	Producer & Exporter	Seed
3	Dalat Hasfarm	Lam Dong, Vietnam	https://www.dalathasfarm.com/en	Importer, Producer & Exporter	Saplings
4	Tan Loc Phat Seeds	Ho Chi Minh City, Vietnam	http://www.tanlocphatseeds.com/	Producer & Exporter	Seed
5	Apolloflora	Tinh Lam Dong, Vietnam	http://www.apolloflora.com/	Producer & Exporter	Saplings
6	Sunprideflora	Taipei City, Taiwan	http://www.sunprideflora.com/EN_about.aspx	Producer & Exporter	Saplings
7	Hoa Chi An	Da Lat, Vietnam	https://www.hoachian.vn/	Producer & Exporter	Flower buds
8	Dummen Orange	Shanghai, China	https://apac.dummenorange.com/site/en	Producer & Exporter	Bulbs & Tubers
9	MP Modeltrees	Ho Chi Minh City, Vietnam	http://mpmodeltrees.com/	Producer & Exporter	Saplings
10	Orient Corp.	Ho Chi Minh City, Vietnam	https://phuongdongvn.vn/	Producer & Exporter	Seeds, Seedlings
11	F1 Biotechnology Company Limited	Da Lat, Vietnam	http://f1biotech.com	Producer & Exporter	Seedlings
12	Tropical Flowers JSC	Hanoi, Vietnam	https://hoanhietdoi.vn/	Producer & Exporter	Bulbs



7 LIST OF KEY IMPORTERS, IMPORTERS, EXPORTERS AND PRODUCERS FOR PROPAGATION MATERIALS

S No.	Name	Address	Website	Category	Type of Propagation Materials
13	Dasar Farms Co. Limited	Da Lat, Lam Dong, Vietnam	NA	Importer	Bulbs
14	Western Highland Flower Limited	Da Lat, Lam Dong, Vietnam	NA	Importer	Bulbs
15	HA LAN BULBS SUPPLY COMPANY LIMITED	Ha Noi, Vietnam	NA	Importer	Tubers & Bulbs
16	Flower Fansipan Company Limited	Phuc Yen City, Vinh Phuc Province, Vietnam	NA	Importer	Bulbs, Tubers, Tuberous Roots, Corms, Rhizomes & Chicory Saplings
17	HUNG SUONG FLOWERS COMPANY LIMITED	Lam Dong Province, Vietnam	NA	Importer	Bulbs & Seeds
18	Vietnam Lily Flower Company Limited	Lam Dong, Vietnam	NA	Importer	Saplings, Bulbs, Tubers, Rhizomes, and Corms
19	HOA NHiet DOI JOINT STOCK COMPANY	Son La, Vietnam	NA	Importer	Bulbs & tubers
20	THIEN AN HA NOI SEEDS COMPANY LIMITED	Ha Noi, Vietnam	NA	Importer	Bulbs

8 MARKET OPPORTUNITIES AND FUTURE TRENDS





8 MARKET OPPORTUNITIES AND FUTURE TRENDS

AVAILABILITY CREDIT FACILITIES FOR PURCHASE OF PROPAGATING MATERIAL

- Agriculture, forestry, and fishery have been at the root of the Vietnamese economy for thousands of years. The trend of borrowing credit from banks such as LienVietPostBank, AgriBank, and BIDV by struggling farmers in the country is prevalent and has allowed them to escape poverty by focusing more on food security.
- These loans enable farmers to purchase quality propagation materials to grow their crops and yield a wider profit margin. Thus, the availability of credit facilities drives the market for the propagation materials in the country.

LAUNCH OF NEW CULTIVARS BY COMPANIES

- Many seed and propagation material manufacturers are present in the Vietnamese market. The market is fragmented with a huge number of players. These players are launching new varieties to occupy the major share of the market, which is supporting the overall market's growth.
- Likewise, seed manufacturing companies are involved in the development and launch of the new cultivars. For instance, in 2022, Rijk Zwaan launched a new variety of tropicalized lettuce, which was named Arunas RZ, to increase the market share in the country. Thus, these kinds of strategies are highly prevalent in the market studied.

INCREASING DEMAND FOR HEALTHY FOOD IN THE COUNTRY

- Agriculture is one of the major sectors of the Vietnamese economy. However, food security and hunger issues are still prevalent in the country. So, to decrease this, the government formulated various policies. One among those was Vietnam's Plan for Zero Hunger by 2025.
- This policy aims to increase access to healthy foods and the diversification of diets throughout the country. Roots, tubers, bulbs, and rhizomes, among others, can play their part in achieving that goal. This drives the increased usage of the propagation material, thereby aiding the market's growth.

FAVORABLE GOVERNMENT INITIATIVES

- There has been growing encouragement from various government agencies to promote the farming of flowers and ornamentals and support the production and marketing of propagation materials.
- For instance, in January 2022, the Ministry of Agriculture and Rural Development (MARD) of Vietnam drew up a ten-year investment project to strengthen floriculture in Vietnam. This project is expected to boost the quantity and quality of flowers grown in the country.
- Similarly, in November 2022, Anthura, one of the world's leading experts in anthurium and orchid breeding, confirmed its participation in HortEx Vietnam 2023 with the aim to get a foothold in the Vietnamese floriculture sector that has huge growth potential.

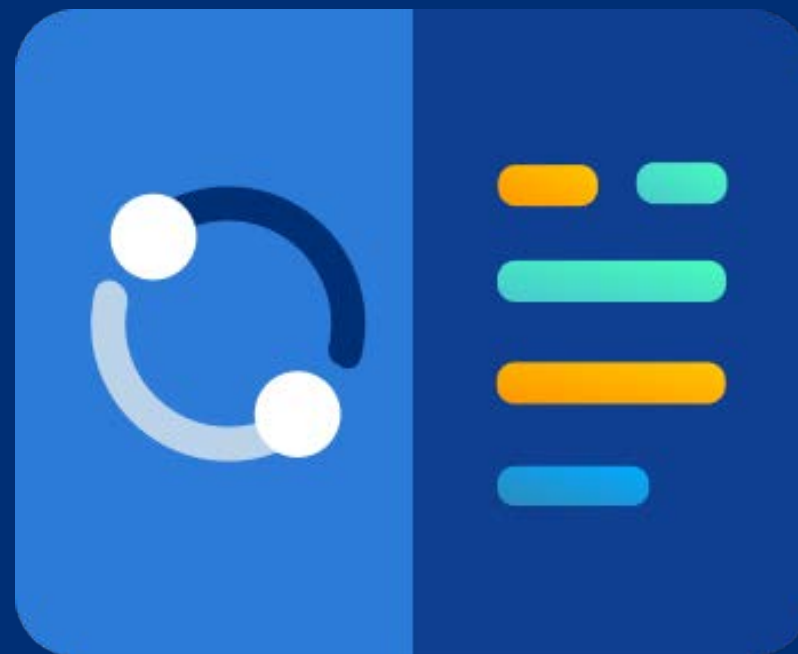
GROWING RESEARCH AND DEVELOPMENT IN SEED INDUSTRY

- Climate is one of the major factors affecting the production of the food systems in Vietnam. Thus, to reduce this, various international organizations are involved in the research and development of climate-resistant cultivars.
- VentureFruit partnered with Plant & Food Research in New Zealand and the Southern Horticultural Research Institute Programme to commercialize three new varieties of dragon fruit in 2023. This type of collaboration is expected to drive the production and usage of new varieties, thereby supporting the market's growth.

INCLINATION TOWARD THE UNREGULATED MARKET FOR PROPAGATION MATERIAL IN VEGETATIVELY PROPAGATED CROPS (VPCS)

- Despite a regulatory regime that imposes strict rules on producing and trading planting material for VPCs like potatoes and cassava, the market is mainly becoming unregulated because of weak enforcement capacity.
- This is because the producers and traders of VPC planting material promise quality to farmers through trust, reputation, and long-term relationships. Thus, though effective at a localized scale, these informal systems are unlikely to accommodate the expansion of the cassava and potato sectors in the country. Therefore, this inclination toward the informal sector is expected to continue during the forecast period.

9 BRIEF INSIGHT ABOUT BREEDING SERVICE FOR EXPORT PURPOSE IN VIETNAM





9 BRIEF INSIGHT ABOUT BREEDING SERVICE FOR EXPORT PURPOSE IN VIETNAM

- Different varieties in each crop, in terms of higher quality and quantity of yield and sometimes both, attracted global agricultural producers to the idea of introducing these new varieties into their countries. Meanwhile, Vietnam has also stepped into trading plant propagation materials apart from agricultural products.
- Government and non-government entities started pumping funds to develop technical methodologies for plant propagation by investing hugely in research and development, infrastructure, and technical manpower engagement. Supporting this, the country's membership in the World Trade Organization from January 11, 2007, brought opportunities to expose, export, and import its plant materials and products. Popular propagation techniques are tissue culture, hybridization, and selective breeding for large-scale production.
- Coming out from a broader perspective, legal formalities like quarantine authorities, plant health, certifications, collaboration with authorities, supply chain management, environmental sustainability, networking, and partnerships play a prime role in trading. Besides these, propagation and on-time supply challenges from the production point of view, like varietal selection, quality control, and packaging from transport, also influence the market studied.
- Farmers in the country are obtaining breeding stock from formal seed markets, informal seed suppliers, and farmer-to-farmer. Materials from formal seed markets are certified and quality assured with proper standards. However, from informal seed markets and farmer-to-farmer acquisitions, the stock will go on goodwill and trust the words of previous growers.
- Producers are facing problems like the high cost of certified seeds, limited availability, and lack of knowledge about seed quality. To address these issues, the Vietnamese government provides subsidies for certified seeds, produces seeds in government research stations and institutes to meet the demand of farmers, and conducts awareness campaigns.

VIETNAM PROPAGATION MATERIALS MARKET



Source: Mordor Intelligence



9 BRIEF INSIGHT ABOUT BREEDING SERVICE FOR EXPORT PURPOSE IN VIETNAM

Production Challenges	Description	Services
Diseases	Bacterial and fungal diseases like rice blast and coffee rust are common in grown-up plants. Though these do not affect production, they give an impression of quality regarding resistance and adaptability of plants post-sale. Damping-off, fungal leaf spots, canker, wilting, and leaf blights are the most occurring diseases at the nursery stage, challenging production.	For late maturity stage diseases, conventional, marker-assisted, and mutation breeding and biotechnology tools for resistant varieties, and diseases occurring at the nursery stage, seed treatment, meristem tissue culture, grafting healthy plants, sterile growing media, using appropriate biocontrol agents and pesticides and regular monitoring is under practice.
Insects	Aphids, beetles, caterpillars, and whiteflies are the most common insects at the nursery stage. Zebra longicorn is a major pest in coffee affecting the post-nursery stage. These insects, apart from damaging plant parts, spread diseases.	Breeding for disease-resistant varieties, meristem culture, proper cultivation of land, and conventional integrated pest management practices at nursery stages are being practiced.
Legal	To export and import from Vietnam, there is a need for a phytosanitary certificate and certain quarantine measures.	All exporters take care of these formalities from production. They have their certifications to export and maintain those standards of their target country to be exported with all permissions.
Packing and Transit	Since the materials being transported are live and highly perishable, high packaging standards to maintain their condition are being followed.	Good quality plants are selected and packed in plastic papers without getting damaged. The inner pack is also sealed at gaps to reduce movement and mechanical damage. High precaution in transit is taken to maintain cool and humidity in containers.
Transfer of Technology	For effective export and import activities, besides production, participation in exhibitions, conferences, collaborations, sharing of technology, and integrated platforms for research is a must for the growing sector.	Vietnam has signed technology transfer agreements with other countries. Together with Cambodia, it is creating a market niche for food-safe vegetables. Vietnam and Laos agreements for rice and rubber with Indonesia are examples. Vinaseed is engaged in transferring hybrid seed production techniques to other countries. Hong Hoang Agriculture Company is a technical consultancy for planting and caring for vegetables and flowers.

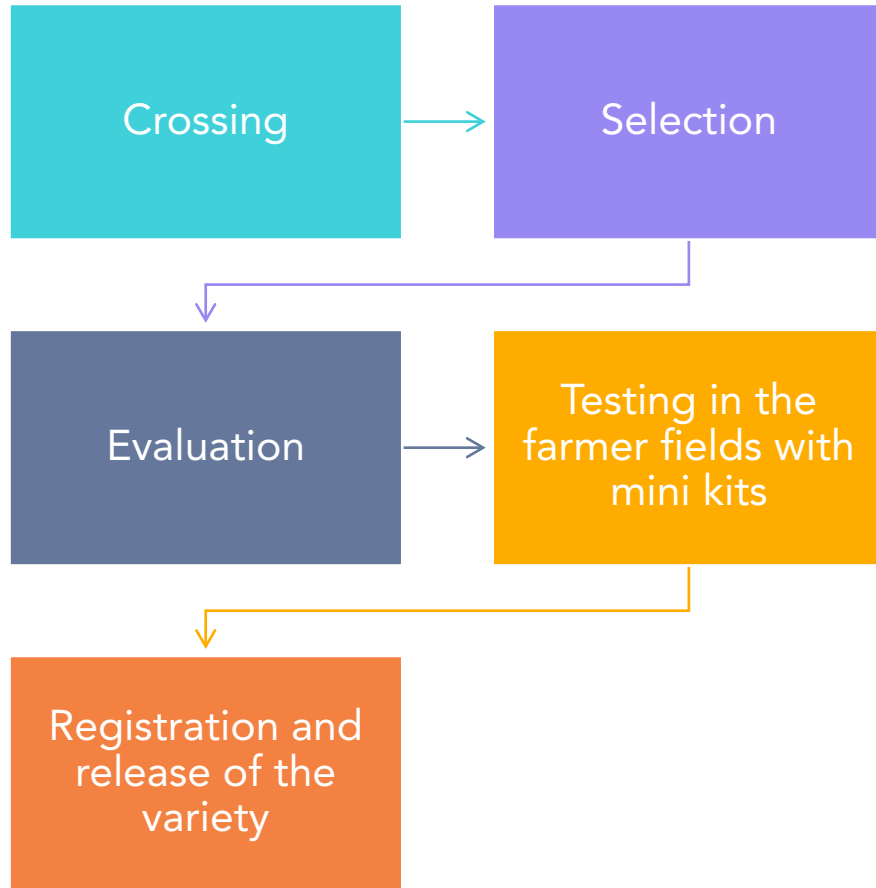
ANALYSIS OF VARIETAL DEVELOPMENT PROCEDURE IN VIETNAM





ANALYSIS OF VARIETAL DEVELOPMENT PROCEDURE IN VIETNAM

VIETNAM PROPAGATION MATERIALS MARKET, VARIETAL DEVELOPMENT PROCEDURE



Insights

- Vietnam is a member of UPOV (International Union for the Protection of New Varieties of Plants). The countries under this union have a PBR (Plant Breeder Rights) system that grants breeders exclusive rights on their new varieties. These rights of the breeders apply to all varieties and hybrids.
- Along with this, the duration of PBR rights granted for the varieties will be 15 years for small crops and vegetables and 20 years for trees.
- Likewise, a variety or hybrid must be distinct from other varieties of species in one or more characters, uniform in performance, and stable without any variations in characters to get registered.
- Furthermore, to register a variety, under the Intellectual Property Office, the application should be submitted to the New Plant Variety Protection Office under the Department of Crop Production, Ministry of Agriculture and Rural Development.
- All new varieties will be registered under the Plant Variety Protection Office (PVPO) authority. To register a new plant variety, an application form with the details of the variety and breeder should be manually submitted to the PVPO under the Ministry of Agriculture and Rural Development (MARD), located in Ba Dinh District, Hanoi, Vietnam. Here (https://www.ipvietnam.gov.vn/en_US/web/english/statistic//asset_publisher/lkBHulAdnfEF/content/new-plant-variety-protection-office) is the link for the official website of intellectual property rights registration. For plant material export, a phytosanitary certificate will be issued by the Plant Protection Department (PPD). For import, the International Plant Protection Convention (IPPC) is the authority concerned.
- The documents to be attached are:
 1. Request for registration using the prescribed form
 2. Photos and technical declaration form as prescribed
 3. Power of Attorney in favor of Bross & Partners
 4. Documents proving the entitlement to registration, if the registrant is the person assigned the right to register
 5. Documents proving the priority if the application has a claim for priority
- After the scrutiny of the application, the certificate holder has the right to produce, sell, and export the protected variety.
- The procedure of Varietal Development in Vietnam starts with the Crossing, Selection, and Evaluation, which includes Initial Varietal Trials and Advanced Varietal Trials. This is further followed by testing in farmer fields with mini kits, and the suitable varieties are then registered and released in the market.

Source: Mordor Intelligence

FOR MORE INFORMATION, PLEASE CONTACT



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