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Enhancing India's groundnut export performance: Trends and trade dynamics

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Abstract

India plays a significant role in the global groundnut market as a major producer and exporter of groundnuts and value-added products, contributing substantially to agricultural trade and foreign exchange earnings. This study evaluates India's groundnut export performance using secondary data sourced from the Agricultural and Processed Food Products Export Development Authority (APEDA) and related publications. During 2020–21, groundnut exports recorded a notable growth of 15.12 per cent, reaching a value of USD 815.68 million, with groundnut oil accounting for a considerable share of export earnings. Trend analysis based on compound annual growth rates over a twenty-year period reveals an overall positive trajectory in production and exports; however, a comparative assessment indicates a slowdown in growth during the later period (2016–2025) relative to 2006–2015. The direction of trade was examined using Markov chain analysis, highlighting changing export destination patterns among major importing countries such as Indonesia, Vietnam, Malaysia, and Thailand. The results indicate increasing diversification and evolving trade relationships in the global groundnut market. The findings underline the economic importance of groundnut exports to India and emphasize the need for sustained efforts to enhance productivity, competitiveness, and market access. The study offers valuable insights for policymakers and trade institutions in designing strategies to strengthen India's position in international agricultural markets.

Keywords: Groundnut export, agricultural export, growth, trend

Introduction

India is the world's leading producer and exporter of groundnuts and peanut products. Groundnut and its derivatives export performance from India has been exceedingly good throughout the years, with a significant increase in exports in recent years. Total exports of groundnut and related derivatives from India in fiscal year 2020-21 were USD 815.68 million, a 15.12% increase over the previous year's exports of USD 708.30 million, according to statistics from the Agricultural and Processed Food derivatives Export Development Authority (APEDA). The United States of America, Vietnam, Indonesia, the Philippines, and Malaysia are the top export destinations for Indian groundnuts and their products. Among the export goods are raw groundnuts, groundnut oil, and roasted groundnuts. Groundnut oil is India's most exported commodity, accounting for over 70% of total groundnut exports. India is the largest producer and exporter of groundnut oil in the world. In fiscal year 2020-21, India's groundnut oil exports reached USD 567.91 million, a 17.64% increase over the previous year's exports of USD 482.63 million. Indian groundnuts and products are becoming more popular throughout the globe because to its exceptional quality, taste, and nutritious value. The Indian government is also taking attempts to increase groundnut production and exports. With expanding demand and favourable regulations, India's groundnut and product export performance is expected to increase dramatically in the next years.

India enjoys a competitive advantage in the production and export of agricultural goods. The export of these commodities is the primary source of foreign currency earnings. In a multitude of agricultural fields, India is the world's top or one of the biggest producers. The agricultural business in the nation is well-known for producing a diverse variety of goods. As the country's total food output is predicted to rise over the next decade, the Indian agriculture sector is on the

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clasp of a revolution that will modernise the whole food chain. Trade policy changes resulted in increased agricultural output and trade competitiveness in the WTO and AoA preview. The competitiveness of Indian groundnut in terms of production and export in the post-WTO era is crucial for determining groundnut sustainability in local and international markets. The study's results will be immensely beneficial to government organisations and agencies in the country that play crucial roles in marketing and pricing policy creation at the national and state levels. Overall, information on production and export will be useful to policymakers in enhancing domestic output and exports from India. It would help to retain India's reputation as a constant and trustworthy supplier of groundnuts to the global market. With this in mind, this research was carried out with the goal of identifying the trend in groundnut and its products from India, as well as analysing the direction of groundnut trade from India to the key exporting nations.

Review

Palani Singh *et al.* The percentage proportion of groundnut exports in total exports varies. India is the top exporter to Indonesia, with US \$118.62 million in 2009-10 and US \$ 234.56 million in 2013-14, with a 5.59 percent CAGR. India is the leading exporter to the ASEAN area, with US \$ 246.36 million in 2019-10, US \$ 590.1 million in 2014-15, and US \$ 340.14 million in 2018-19, with a CAGR of 3.65%.

Lokapur *et al.* They investigated groundnut production and export from India. They discovered that, among the major groundnut growing Indian states, Gujarat was the leading state in the country, accounting for 33.26 percent of the nation's groundnut production. Furthermore, groundnut exports increased from 1.3 lakh tonnes in 2000-01 to 4.1 lakh tonnes in 2010-11. Because India is the world's largest producer and consumer of groundnuts, the increase in export corresponded to an increase in production.

Audichy Ranjana *et al.* (2017) [2] They investigated the production and export performance of Indian groundnut from 2004-05 to 2013-14. According to the report, peanut output has increased by 00.44 percent year on year at the national level. Groundnut output was highest in 2013-14 and lowest in 2012-13. Nationally, groundnut production has increased at a rate of 3.43 percent every year.

Data and Methodology

The information for this study was acquired from a number of secondary sources. Time series data on groundnut exports and imports (in quantity and value terms) for the globe and India, production, and top destinations for groundnut exports were acquired from INDIASTAT, the Statistical Handbook of India, APEDA, FAO STAT, and WITS.

Compound annual growth rate

The growth of any variable exposes its previous performance and is extensively used in economic research to identify a variable's trend through time. CGR was computed using the exponential form to assess the trend in groundnut production and export from India: $\ln Y_t = \ln Y_0 + t \ln (1 + r)$. Here, Y_t is the variable for which growth is calculated, r is the compound growth rate and $\ln$ is the natural logarithm. Now, let $\ln Y_0 = \beta_1$ and $\ln (1+r) = \beta_2$ Therefore, the above equation becomes, $\ln Y_t = \beta_1 + \beta_2 t$ Now, β_1 and β_2 are estimated by Ordinary Least Square (OLS) method and the CAGR is given by, $R = (\text{antilog } \beta_2 - 1) \times 100$

$$Y = b_0 + b_1 t$$

$$\ln(Y) = \ln(b_0) + \ln(b_1) T$$

Where,

Y = Values of Production ('000 MT) and Export (MT/yr)

t = time variable.

b_0 and b_1 = coefficients to be estimated and $\ln$ is the natural log.

CAGR = (Antilog of $b_1 - 1$) $\times 100$

Markov-Chain Analysis

Using export data from 2014-15 to 2024-25, the flow of trade and changing patterns of groundnut exports from India were investigated. The top seven importing nations in terms of quantity (MT) of natural honey from India, namely Indonesia, Vietnam, Philippines, Malaysia, Thailand, Pakistan, and Ukraine were chosen with the remaining countries considered as others, and the transition probability matrix was constructed using LP solve Software. Using the actual export-to-import ratios of the chosen countries, a transitional probability matrix for the study period was built. The matrix's component P represents the possibility that an item's export from j to i country will fluctuate over time. The matrix's diagonal components study the possibility of a country's export share staying constant. In this research, transitional probabilities were determined using a random technique using eight importing nations. The exports to a certain country can be represented as:

$$X_{it} = \sum_{j=1}^n X_{jt-1} (P_{ij}) + e_{it}$$

X_{it} = Exports from India to $i^{\text{th}}/j^{\text{th}}$ country during the year t i.e., current year.

X_{jt-1} = Exports to $i^{\text{th}}/j^{\text{th}}$ country during the period $t-1$ i.e., previous year

P_{ij} = Probability that the exports will change from i^{th} country to j^{th} country.

e_{it} = Statistically independent error terms of.

T = Time period

N = Number of countries

Results and Discussion

The compound annual growth rate was calculated for twenty years from 2006 to 2025. For better understanding twenty years of data on export quantity (in MT) and production (in '000 MT) of groundnut in India was segregated into three periods viz., Period I (2006-2015), Period II (2016-2025) and Overall Period (2006-2025) and the results was presented below in Table 1.

Table 1. reveals that in Period I production and export of groundnut have a growth rate of 5.60 percent per annum and 22.55 percent per annum respectively and were found to be statistically significant at a one percent level. For the second period, the growth rate of production and export have a growth rate of 2.48 percent per annum and 1.19 percent per annum respectively, and also statistically significant at one percent level. The overall twenty years growth rate of production and export of groundnut was significant and found to be 2.35 percent per annum and 9.19 percent per annum.

Both production and export of groundnut show a positive growth trend for the study period of twenty years but in period II both production and export quantity was declined from period I.

Direction of trade in groundnut

Export trend dynamics are an important aspect of evolving export-oriented programs in order to improve or sustain current

export trends. As a result, understanding changing export trade across destinations is critical. The dynamics of changes in the groundnut export trade were investigated using a transitional probability matrix and the results was presented below in Table 2.

Table 2. reveals that the major importing nations of groundnut from India viz., Indonesia, Vietnam, Philippines, Malaysia, Thailand, Pakistan and Ukraine were selected for analysis while the rest of the nations were considered as others. The time period from 2014-15 to 2024-25 was used for the analysis. The diagonal elements of the transitional probability matrix are used to interpret the probability of retaining the previous period's market share.

The rows represent the current state (or country) from which we want to know the probabilities of transitioning to other countries. The columns represent the next possible states (or countries) that can be reached from the current state. The values in the matrix represent the probabilities of transitioning from the current state (row) to the next state (column). From Indonesia, there is a 100% probability of remaining in Indonesia, and no transitions to other countries are possible. From Vietnam, there is a 30% probability of staying in Vietnam. The highest

probabilities for moving to other countries are Malaysia (31%), Thailand (13%), and Ukraine (4%). The probabilities for moving to the Philippines, Indonesia, Pakistan, and Others are very low. From the Philippines, The highest probabilities for moving to other countries is Indonesia (100%), with no transitions to other countries. From Malaysia, The highest probabilities are moving to Pakistan (11%) and Ukraine (10%). From Thailand, The highest probability is moving to Pakistan (29%). From Ukraine, The highest probabilities for moving to other countries is Indonesia (100%), with no transitions to other countries.

Table 1: Trend in production and export of groundnut (2006-2025)

Production ('000 MT)			
Particulars	Period I	Period II	Overall Period
CGR	2.48**	5.60**	2.35**
t-Value	0.84	2.42	2.57
R ²	0.08	0.42	0.26
Export Quantity (MT)			
Particulars	Period I	Period II	Overall Period
CGR	22.55**	1.19**	9.19**
t-Value	7.48	0.67	6.17
R ²	0.87	0.05	0.67

Table 2: Direction of trade of groundnut export from India

Country	Indonesia	Vietnam	Philippines	Malaysia	Thailand	Ukraine	Pakistan	Others
Indonesia	1	0	0	0	0	0	0	0
Vietnam	0	0.30	0.20	0.31	0.13	0.04	0	0.001
Philippines	1	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0.08	0.10	0.11	0.69
Thailand	0	0	0	0	0	0	0.29	0.70
Ukraine	1	0	0	0	0	0	0	0
Pakistan	0	0	0	0	0	0	0	1
Others	1	0	0	0	0	0	0	0

Conclusion

In conclusion, the article highlights India's prominent position as the world's leading producer and exporter of groundnuts and groundnut products. The export performance of groundnuts and their derivatives from India has been consistently excellent, with substantial growth in exports in recent years. According to data from the Agricultural and Processed Food Products Export Development Authority (APEDA), India witnessed a significant 15.12% increase in groundnut and its products exports in the fiscal year 2020-21, reaching USD 815.68 million.

Groundnut oil emerges as the most significant exported product, accounting for around 70% of total groundnut exports from India. India's competitiveness in agricultural commodities production and exports is a critical factor, as it drives foreign exchange revenues for the country. The agriculture industry in India offers a wide range of products, and the government is actively taking measures to enhance groundnut production and export capacities.

The study employs compound annual growth rate (CAGR) calculations to assess the trend in groundnut production and exports over a 20-year period. While the results reveal positive growth trends in both areas, the second period (2016-2025) witnessed a decline in production and export quantities compared to the first period (2006-2015).

Additionally, the study employs Markov-chain analysis to investigate the direction of groundnut trade, focusing on major importing countries. The analysis unveils probabilities of transitioning from one country to another in groundnut exports. Notably, Indonesia, Vietnam, Malaysia, and Thailand are among the key countries with notable probabilities of exporting to other

nations.

Overall, the research emphasizes the importance of groundnut exports for India's economy and international standing. It provides valuable insights for policymakers and government agencies involved in trade policy formation and marketing, encouraging measures to boost local production and enhance India's exports. With India's competitive advantages, rising demand, and favorable trade policies, the article concludes that India's export performance for groundnuts and their products is poised for significant improvement in the coming years.

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