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Export performance of Groundnut and its value added products in the study area

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Abstract

The 'king' of oilseed crops, groundnut, is an important crop in India's agriculture and a major exporter of the nation. India showcased its agricultural prowess in the fiscal year 2022–2023 by exporting oilseeds valued at Rs. 673,525.23 lakhs (US$ 831.6 million), with groundnut production being a major contributor to this accomplishment. The production of groundnuts in India is distributed geographically widely, with Gujarat being the leading producer and Rajasthan, Tamil Nadu, Madhya Pradesh, Andhra Pradesh, and Karnataka following in order of production. This study aims to evaluate groundnut export performance and its value-added products. The study employs secondary data, with a particular emphasis on groundnut exports from India to global markets. Using LINGO software, the investigation applies Markov Chain investigation, utilizing the first-order Markov chain technique to investigate changes in trading patterns. Indonesia stands out as one of the most steady groundnut consumers, with a retention chance of 0.43, indicating a high likelihood of retaining export share over the course of the study. However, India should stay away from relying too much on these nations in order to reduce long-term trade risks. In order to reduce market risks and ensure a more sustainable trade environment, it is necessary to develop suitable export promotional tactics targeted at diversifying the geographic concentration of groundnut exports.

Key notes : Groundnut, Export, Markov Chain Analysis.

The 'king' of oilseed crops, groundnut is an important crop in India's agriculture and a major exporter of the nation. This adaptable crop offers a wide range of applications across multiple industries and is crucial in mitigating India's oil deficit. Notably, groundnut is still in great demand due to its remarkable 26 per cent protein content, which is used in the production of textiles, cosmetics, and other products. Even its waste products, like peanut shells, are

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creatively used in a variety of industries, such as the manufacture of polymers, building materials, and electricity. India, widely recognized as a worldwide agricultural powerhouse, continuously exhibits its export capabilities, especially in the oilseed industry. India showcased its agricultural prowess in the fiscal year 2022–2023 by exporting oilseeds valued at Rs. 673,525.23 lakhs (US$ 831.6 million), with groundnut production being a major contributor to this accomplishment. The production of groundnuts in India is distributed geographically widely, with Gujarat being the leading producer and Rajasthan, Tamil Nadu, Madhya Pradesh, Andhra Pradesh, and Karnataka following in order of production. Groundnuts, which include whole groundnuts (with shells), shelled groundnuts, and groundnut oil, are an essential part of India's export portfolio due to their considerable foreign exchange gains. India exports groundnuts to more than 132 nations worldwide through a broad network. Significantly, countries like the Philippines, Vietnam, Malaysia, and Indonesia become major importers, highlighting how important India's groundnut trade is on a worldwide scale. This demonstrates the groundnut's adaptable role in maintaining home markets as well as enhancing India's standing as a major participant in the global agricultural trade arena. For the preparation of the paper relevant literature[1-8] has been consulted.

Objective of the study :

1. To assess the export performance of groundnut and its value added products in the study.

The analysis of India's groundnut exports to the international market is based on secondary data sources. The goal of the study is to better understand how importing countries handle groundnut exports from India in terms of retention and switching patterns. Reputable sources such as the Food and Agricultural Organization (FAO), the Directorate of Economics and Statistics, and the Ministry of Farmers and Welfare, Government of India, are used to gather time series data covering the fiscal years 2013–14 through 2022–23. This extensive dataset makes it possible to analyze trends and patterns in the dynamics of Indian groundnut exports' international trade throughout the given period of time.

Markov chain analysis :

Markov Chain Analysis was utilized to examine the groundnut export performance. Specifically, the first-order Markov chain method was applied through the use of LINGO software. This required building the Transitional Probability Matrix (P), in which the probability of exporting groundnuts from country 'i' to country 'j' is represented by each element (Pij). The diagonal element Pij, where i=j, represents the likelihood that a nation would hold onto its market share or, to put it another way, the importer's loyalty to the exporter(s). For this investigation, annual export data from 2013 to 2023 was used. The above equation expressed the average exports to a certain country algebraically, and it was considered a random variable based only on past shipments to that country.

$$Ejt = \Sigma\, ni=1[Eit-1]Pij+ejt$$

where,

Ejt = Exports from India to the jth country in the year t

Eit-1 = Exports of ith country during the year

t-1

Pij = The probability that exports shift from ith country to jth Country

Ejt = Statistically independent error term of eit-1

n = No. of importing countries

The transitional probabilities Pij, can be arranged in a (c x n) matrix, with the following properties:

$$0 \leq Pij \leq 1$$

$$\Sigma\, ni{=}1 Pij = 1$$

The dynamics of groundnut import and export in India were examined using the Markov Probability model. The transitional probabilities Pij, which represent the chance of a trade moving over time from market i to market j, are evaluated by this model. The probability Pij for each importing market represent the benefits or losses in trade for $i \neq j$. In the meantime, the probability of retention for every importing market is represented by the diagonal probabilities Pij for i = j.

Among the top groundnut customers, Indonesia stands out as a wonderfully steady market. This is demonstrated by its retention chance of 0.43, which indicates that Indonesia has a strong possibility of keeping its export share throughout the study period. Currently, 43 per cent of the total is sent to Indonesia as groundnuts. The remaining 57 per cent of the Indonesian market is divided as follows: 22 per cent goes to Vietnam Special Administrative Region; 9 per cent goes to the Philippines; 7 per cent goes to Malaysia; 5 per cent goes to Thailand; 2 per cent goes to the United Arab Emirates; 1 per cent goes to Bangladesh; 2 per cent goes to Iran; and 5 per cent goes to other small nations.

Direction of Groundnut export in India during 2013-14 to 2022-23

	Indo-nesia	Vietnam Soc Rep	Philip-pines	Malay-sia	Thai-land	U Arab Emts	Bang-ladesh Pr	Iran	Others
Indonesia	**0.437**	0.221	0.099	0.074	0.055	0.028	0.011	0.021	0.054
Vietnam Soc Rep	0.241	**0.288**	0.060	0.113	0.087	0.013	0.011	0.019	0.169
Philippines	0.223	0.000	**0.117**	0.011	0.003	0.000	0.000	0.007	0.639
Malaysia	0.063	0.154	0.020	**0.331**	0.127	0.000	0.000	0.008	0.298
Thailand	0.419	0.025	0.123	0.140	**0.092**	0.027	0.000	0.044	0.130
U Arab Emts	0.275	0.012	0.077	0.190	0.097	**0.118**	0.166	0.031	0.034
Bangladesh Pr	0.012	0.203	0.000	0.058	0.000	0.233	**0.494**	0.000	0.000
Iran	0.000	0.514	0.000	0.000	0.243	0.000	0.000	**0.107**	0.136
Others	0.324	0.109	0.094	0.001	0.012	0.008	0.001	0.009	**0.442**
SSP	**0.307**	**0.171**	**0.083**	**0.084**	**0.057**	**0.021**	**0.018**	**0.018**	**0.241**

According to the steady-state probabilities, almost 30 per cent of India's groundnut exports would go to Indonesia in the future if the current trend continues. Furthermore, seventeen percent would go to the Socialist Republic of Vietnam, eight percent would go to the Philippines, eight percent would go to Malaysia, five percent would go to Thailand, two percent would go to the United Arab Emirates, one percent would go to Bangladesh, one percent would go to Iran, and twenty-four percent would go to other small nations. These forecasts show Indonesia's potential as a dependable future partner for Indian groundnut exports.

As one of the top two oilseed crops in terms of cultivation area and production, groundnuts are highly significant in India. The most stable market, according to the Markov chain study of India's groundnut exports, is small importers, or other nations, followed by Indonesia and Vietnam Special Republic. On the other hand, among importing nations, the Philippines, Malaysia, Thailand, and the United Arab Emirates stand out as having the most unstable markets. In order to reduce trade risks over time, India should try to reduce its reliance on these erratic markets. Developing suitable export marketing plans with the goal of spreading out the geographic focus of groundnut exports is essential. By doing this, India can guarantee a more stable and long-lasting trading environment for its groundnut exports while reducing market risks.

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