

Export Performance of Small Cardamom in India

M. Karthikeyan^{1*} and V. Banumathy²

Department of Agricultural Economics, Faculty of Agriculture,
Annamalai University - 608 002 (India)

Corresponding author*: karthikknmurali@gmail.com

Abstract

The present study was undertaken to study the export scenario of Indian small cardamom and trade direction among different trading countries using Compound Annual Growth Rate (CAGR) and Markov Chain Analysis. For this purpose, the secondary data were collected from the years 2011-12 to 2022-23 from the official website of Spice Board. The results of CAGR showed that both the quantity and value of small cardamom were increased in 2020-21. The volume of exports had an irregular trend over the past 12 years due to various causes like natural disasters, modifications in export policy, variations in production because of pests and disease, physical loss during transit, etc. The result of Markov analysis revealed that, Saudi Arabia and UAE were the most stable importers of Indian small cardamom with a probability of retention of 68 per cent and 46 per cent respectively. The UK lost a major share to Saudi Arabia at 90 per cent followed by Kuwait at 10 percent and it gained 9 per cent from USA. Australia retained its original share of up to 24 per cent. Canada has not retained its original share and it lost one hundred per cent share to UAE. Therefore, the study recommended to boost domestic production of small cardamom to enhance global trade and establishing trade partnerships with dependable countries.

Key words : Small Cardamom, Export, Growth rate, and Markov chain analysis.

Cardamom is the dried ripe fruit (capsules of cardamom plant) often referred to as the “Queen of Spices” because of its very pleasant aroma and taste. Cardamom is native to the moist evergreen forests of the Western Ghats of Southern India. Cardamom is locally known as “Elam” or “Ellakka”.

Cardamom is generally produced in the tropical regions of the world. Guatemala is the largest cardamom-producing country followed by India.⁹ The total world production of this spice is around 62,000 MT in the year 2021-22 (eventellglobal.com). Consumption of cardamom has sharply increased throughout

¹Research Scholar, and ²Professor

the world during the last two decades. The major consuming countries of cardamom are the Middle Eastern countries, India, Pakistan, European countries, the US, and Japan. Middle Eastern countries such as Saudi Arabia and the United Arab Emirates and South-East Asian countries such as India, etc., account for more than 60 per cent of the world's consumption. Saudi Arabia is the single largest importer of cardamom in the world, followed by Kuwait. The price of cardamom is unstable due to the irregular demand from major importers such as Saudi Arabia and UAE amid the COVID-19 pandemic and the decrease in the global supply of cardamom due to poor weather conditions in major producing countries. Small cardamom is produced and exported consistently by countries such as Guatemala, Indonesia, and Sri Lanka (cardamomassociation.com). India holds the largest share in the total area under cardamom in the world (27.79 percentage)⁴. Major states producing cardamom in India are Kerala (70 per cent), Karnataka (20 per cent) and Tamil Nadu (10 per cent). The total production of small cardamoms was 12,940 MT in the year 2020. However, the production of cardamom in 2020 was slightly increased by one percent as compared to 2019 (cardamomassociation.com). The fluctuations in export competitiveness were more associated with international competition. India, Guatemala, and Indonesia are the major supply sources of cardamom in the international market with a share of more than 85% of the global trade. A significant share of the cardamom produced in the country originates from small holdings and hence the trade and market performance of the crop is important for the livelihood security of the primary producer of the commodity. Being a globally traded commodity, the trade compe-

titiveness of cardamom is the key factor in shaping the crop economy in terms of competitiveness and guiding resource allocation decisions by farmers. Apart from price instability which affects farm business income for cardamom producers, the export demand for cardamom can also significantly influence the cardamom economy². Hence, the present study was undertaken with the following objectives.

Objectives :

1. To analyse the trend in export of small cardamom.
2. To examine the direction of trade in the export of small cardamom.

The present study is based on the secondary data collected from Spice Board. The data on the quantity of cardamom exported to various countries from 2011 to 2023 were collected and analysed using Growth rate and Markov chain analysis.

Growth Rate Analysis :

The compound growth rate was computed using the exponential growth model.

$$Y = a b^t$$

Where, Y= Export in year 't', a = Constant, b = Regression co-efficient, t = Time in years.

The Compound Growth Rate (CGR) was given as

$$CGR = [(Antilog of b)-1] *100$$

Markov Chain Analysis :

The structural change in the share of export of small cardamom was examined by

estimating the transition probability using the Markov-chain model. The element 'P_{ij}' in the transitional probability matrix indicates the probability that exports will switch over from country to country over time. Hence, an examination of the diagonal element indicated the loyalty of an importing country to a particular's exports. The average exports to a particular country were considered to be a random variable that depends only on the past exports to that country, which can be denoted algebraically as

$$E_{jt} = \sum_{(i=1)}^r (E_{it-1})P_{ij} + e_{jt}$$

Where, E_{jt} = Exports from India during the year t to jth country, E_{it-1} = Exports of ith country during the year t-1, P_{ij} = The probability that exports will shift from ith country to jth country, e_{jt} = The error term which is statistically independent of E_{it-1}, r = The number of importing countries.

The obtained results are discussed in two sections viz., Growth rate analysis and Markov chain analysis.

Growth rate in export of Small Cardamom from India :

The export quantity of small cardamom for the period of 12 years from 2011-12 to 2022-22 along with its value is presented in Table-1. The CGR of quantity and value of export of Small Cardamom is 0.039 per cent and 0.076 respectively. The analysis revealed that, both the quantity and value of export of Small Cardamom shows a steady increase over the study period. It showed that the export of small cardamom in the year 2019-20 was very low *i.e.*, 1,850 tonnes. This might be due

to covid pandemic situation but the value of the exported quantity in 2019-20 was higher than that of the previous year.

Table-1. Export of Small Cardamom from India

Year	Quantity (in tonnes)	Value (in Lakhs)
2011-12	4,650	36,322
2012-13	2,250	21,215
2013-14	3,600	28,381
2014-15	3,795	32,347
2015-16	5,500	44,983
2016-17	3,850	42,150
2017-18	5,680	60,908
2018-19	2,850	35,625
2019-20	1,850	42,537
2020-21	6,486	1,10,346
2021-22	10,571	1,37,566
2022-23	7,352	87,514
CGR	0.039	0.076

In 2022-23, small cardamom export again decreased due to weak demand, both in the domestic market and overseas, has pushed down prices from around Rs.1,000 per kg to Rs.750-850 per kg. It is because of heavy rainfall, robust production and cheaper imports. The volume of exports had an irregular trend over the past 12 years due to various causes like natural disasters, modifications in export policy, variations in production because of pests and disease, physical loss during transit, etc. The results are depicted in Fig. 1.

Trade direction of Small Cardamom exports:

For employing Markov chain analysis, the export of small cardamom from India to

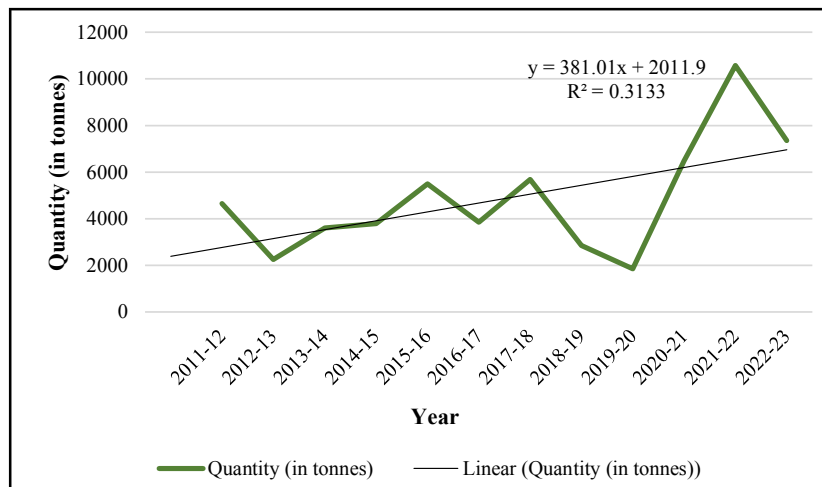


Figure 1. Export of Small Cardamom

various countries were collected. Eight major countries imported Indian small cardamom viz., Saudi Arabia, UAE, Kuwait, USA, Japan, UK, Australia, and Canada were selected for the analysis. The transitional probability matrix for the quantity of small cardamom exported during the period 2011 to 2023 was presented in Table-2.

The retention coefficient along the diagonal probability matrix indicated the probability of retaining the current share of exports for the forthcoming years. The table

revealed that Saudi Arabia was the most stable importer of Indian small cardamom, which retained 68 per cent of its original share in the study period and it gained from the USA to the extent of 59 per cent. The second biggest importer of Indian small cardamom was UAE which retained 46 per cent of its original share, however, it had a probability of losing its original share to the extent of 18 per cent to Canada, 13 per cent to the USA, and 11 per cent to Kuwait. It gained from the share of Japan to an extent of 31 per cent, hundred per cent each from Kuwait and Canada.

Table-2. Transitional Probability Matrix

Countries	Saudi Arabia	UAE	Kuwait	USA	Japan	UK	Australia	Canada
Saudi Arabia	0.68	0.15	0.17	0	0	0	0	0
UAE	0.12	0.46	0.11	0.13	0	0	0	0.18
Kuwait	0	1	0	0	0	0	0	0
USA	0.59	0	0	0	0	0.09	0	0.32
Japan	0	0.31	0.51	0	0	0	0	0.18
UK	0.9	0	0.1	0	0	0	0	0
Australia	0	0	0.62	0	0	0.14	0.24	0
Canada	0	1	0	0	0	0	0	0

Australia retained 24 per cent of its original share. However, it had a probability of losing its original share to the extent of 14 per cent to the UK and 62 per cent to Kuwait. USA has not retained its original share and it lost a major share to Saudi Arabia *i.e.*, 59 per cent. It gained from the share of UAE (13 per cent). Japan lost a major share (51 per cent) to Kuwait followed by UAE (31 per cent) and Canada 18 per cent. The UK lost a major share to Saudi Arabia at 90 per cent followed by Kuwait at 10 per cent and it gained 9 per cent from the USA. Canada has not retained its original share and it lost one hundred per cent share to UAE. The results of the Markov chain analysis showed that countries such as Kuwait, the USA, the UK, Japan, and Canada were not the stable importers of Indian small cardamom and these countries lost all their share and retention per cent of the original share was found to be zero per cent. Hence, these countries were not reliable export destinations for Indian small cardamom. The results of the Markov chain analysis also revealed that Saudi Arabia was the most reliable importer of Indian small cardamom followed by UAE and Australia.

For Indian Cardamom crop, Saudi Arabia, UAE, Kuwait, USA, Japan, UK, Australia, and Canada are major export markets. The trend revealed that export of cardamom to these countries was at increasing trend as revealed by the growth rates estimates. Markov chain analysis revealed that, the

countries like Saudi Arabia, UAE, and Australia are the stable partners as far as the Small Cardamom export is concerned.

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