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Cashew Nut Production in Andhra Pradesh state India: Global Challenges, Regional Trends, and Strategic Pathways for Revitalizing Production and Exports

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ABSTRACT

The global cashew industry has undergone profound transformation over the past two decades, marked by a major realignment of production, processing, and trade dynamics. Once the dominant leader in global cashew production and exports, India now faces increasing competition from Vietnam and emerging African economies such as Nigeria and Ivory Coast. This study, titled "Cashew Competitiveness in India and Andhra Pradesh: Global Challenges, Regional Trends, and Strategic Pathways for Revitalizing Production and Exports," provides an in-depth evaluation of India's changing position in the international cashew landscape from 2010 to 2024. Using secondary data from FAO, CEPCI, DCCD, APEDA, and UN Comtrade, the research employs time-series and log-linear growth analysis to assess production, productivity, and export performance across leading global producers and major Indian states. The findings indicate that global raw cashew nut (RCN) output increased by over 60% between 2010 and 2022, while India's share declined due to stagnating yields, ageing plantations, and limited mechanization. Vietnam's rapid technological modernization and integrated value chain strategies enabled it to surpass India in both production and export earnings, whereas Nigeria and Ivory Coast achieved substantial growth through policy support and investment in raw nut expansion. Within India, Maharashtra remains the most productive state, while Andhra Pradesh—despite its vast cultivation area—suffers from declining acreage and yields, particularly in Srikakulam and Prakasam districts. India's overdependence on manual processing, high labor costs, and fragmented policy implementation has constrained its competitiveness. The study concludes that modernization, plantation rejuvenation, automation, and the development of value-added products are critical for regaining global leadership. Strengthening the export ecosystem, improving research–industry collaboration, and empowering women workers through technological inclusion are essential pathways for ensuring sustainable growth in India's cashew sector.

Keywords: Cashew Industry, India, Andhra Pradesh, Global Competitiveness, Export Performance, Productivity, Mechanization, Policy Reform, Sustainable Growth

1. Introduction

The global cashew industry has experienced a remarkable transformation over the past few decades, marked by a distinct geographical and structural shift in production and processing dynamics. Historically, India held a dominant position in cashew cultivation, processing, and exports. However, the emergence of Vietnam, Nigeria, and Ivory Coast as major producers has redefined the global cashew economy. According to data from the Food and Agriculture Organization (FAO, 2024) and the International Nut and Dried Fruit Council (INC, 2023), global raw cashew nut (RCN) production expanded from approximately 24.8 lakh metric tons in 2010 to around 40 lakh metric tons in 2022. During this period, Vietnam, Nigeria, and Ivory Coast achieved consistent growth exceeding 3% annually, while India's output stagnated and began to decline after 2016. Despite being one of the world's largest processors, India's cashew sector continues to rely heavily on manual labor. The lack of technological modernization, combined with high labor costs and aging plantations, has led to reduced competitiveness. In contrast, Vietnam's adoption of advanced automation, efficient logistics, and integrated supply chains has allowed it to surpass India in both export volume and value. Similarly, Nigeria and Ivory Coast have benefited from government-backed programs, large-scale cultivation, and foreign investment in processing, enabling them to capture a larger share of the global market.

Within India, cashew cultivation sustains the livelihoods of nearly two million people—predominantly women—and spans approximately 9.23 lakh hectares across major coastal states such as Maharashtra, Andhra Pradesh, Odisha, Karnataka, Kerala, and Tamil Nadu. Although Andhra Pradesh ranks second in area under cashew cultivation, its productivity remains low at 591 kilograms per hectare, far below the national average of 947 kilograms per hectare

(Directorate of Cashew and Cocoa Development [DCCD], 2024). This low productivity reflects structural inefficiencies related to old plantations, poor soil fertility management, and limited mechanization. State-level data reveal a gradual decline in the area under cashew cultivation, especially in Andhra Pradesh, where the total area decreased from 1.91 lakh hectares in 2015 to 1.70 lakh hectares in 2024. At the international level, Vietnam's ability to sustain rapid growth is attributed to government investment in automation, the use of hybrid varieties, and import of raw nuts from Africa to maintain processing continuity. Meanwhile, African nations like Nigeria and Ivory Coast have expanded their production through supportive policy frameworks, infrastructure development, and increased foreign participation. This global shift indicates that leadership in the cashew sector increasingly depends on productivity, mechanization, and policy coherence rather than traditional comparative advantages such as labor availability.

The present study examines India's evolving position in the international cashew economy by analyzing production trends, yield patterns, and export performance from 2010 to 2024. By integrating global and national datasets from FAO, CEPCI, APEDA, and UN Comtrade, it seeks to identify structural constraints affecting India's competitiveness and propose strategic interventions. The research further emphasizes the need for technological innovation, value addition, and policy realignment to restore India's standing in the global cashew market.

2. Review of Literature and Research Gap

The global cashew industry has been the focus of several empirical and policy-oriented studies addressing shifts in production geography, trade competitiveness, and technological modernization. Most international research emphasizes Vietnam's transformation from a moderate producer to the world's leading exporter through large-scale mechanization and efficient value-chain integration. The Food and Agriculture Organization (FAO, 2023) and the Cashew Export Promotion Council of India (CEPCI, 2023) have documented the structural transition in global cashew production, noting Africa's rapid rise as a major producer and supplier of raw nuts. Likewise, UN Comtrade (2023) and the International Trade Centre (ITC, 2021) highlight Vietnam's dominance in the export of cashew kernels—commanding nearly 60% of the global market—while India's share has steadily declined due to low productivity and limited automation. Within India, the Directorate of Cashew and Cocoa Development (DCCD, 2022) and the Agricultural and Processed Food Products Export Development Authority (APEDA, 2023) have analyzed domestic production stagnation, attributing it to fragmented policy support, high labor dependency, and inadequate technology adoption. State-level reports, including those by the Andhra Pradesh Agriculture Department (2023) and the National Horticulture Board (NHB, 2023), underscore sharp regional disparities in productivity. For instance, while Maharashtra records over 1,400 kilograms per hectare, Andhra Pradesh averages less than 600 kilograms, mainly in districts like Srikakulam and Prakasam where soil degradation and limited replantation efforts persist.

International research by the International Nut and Dried Fruit Council (INC, 2023) and World Cashew Council (2023) further confirms that African countries—particularly Nigeria and Ivory Coast—have capitalized on supportive government policies, foreign investment, and export-oriented cultivation, enabling them to surpass India in raw nut production. However, these countries still depend on exporting unprocessed nuts, lacking the value addition capabilities that India and Vietnam possess. Despite extensive studies on global and national trends, a significant research gap remains. Most existing literature treats global trade and domestic production as separate dimensions rather than interconnected elements of a single value chain. Few studies undertake a comparative longitudinal analysis that links India's declining raw nut production with its reduced global competitiveness. Moreover, limited attention has been paid to applying log-linear growth models to analyze stagnation patterns in area and productivity across Indian states and districts. The absence of integrated datasets combining FAO, CEPCI, APEDA, and DCCD statistics further constrains a comprehensive understanding of India's structural challenges. This study fills that gap by conducting a cross-level analysis that connects international performance indicators with subnational variations, focusing particularly on Andhra Pradesh as a representative case. It synthesizes secondary data from 2010 to 2024 to examine how India's production, yield, and export structures have evolved relative to emerging global leaders. By linking quantitative trends with qualitative policy insights, this research provides a unified framework to understand India's shifting role in the international cashew economy and to propose strategies for its revival.

3. Need of the Study

India's cashew industry stands at a pivotal crossroads between tradition and transformation. Once the undisputed global leader in both production and processing, India now faces mounting challenges stemming from stagnating yields, rising

input costs, and intensifying competition from technologically advanced producers such as Vietnam and several African nations. Despite its extensive cultivation area and historical prominence, India's share in global cashew exports has steadily declined since 2016. This trend highlights systemic issues including ageing plantations, inadequate mechanization, high labor dependency, and inconsistent policy frameworks across states. The decline is particularly evident in Andhra Pradesh, a major cashew-growing state with vast cultivation potential but low productivity levels. The shrinking cultivation area—from 1.91 lakh hectares in 2015 to 1.70 lakh hectares in 2024—reflects farmers' gradual shift toward high-value crops such as oil palm and mango. Addressing these challenges requires an evidence-based assessment of the structural and economic determinants influencing India's competitiveness in the global cashew market.

The need for this study arises from the absence of integrated research that correlates India's declining production with its weakened export performance. By providing a comprehensive, data-driven evaluation of growth trends and competitiveness, the study seeks to inform policymakers, researchers, and industry stakeholders about strategic interventions required to revitalize the sector. Understanding the interplay between global trade dynamics, domestic production efficiency, and regional disparities will be crucial for designing policies that promote modernization, value addition, and sustainable growth in India's cashew economy.

4. Objectives of the Study

The study is guided by the following objectives:

1. To analyze global and national trends in cashew production, productivity, and exports from 2010 to 2024.
2. To assess India's competitive position relative to leading producers such as Vietnam, Nigeria, and Ivory Coast in both production and processing performance.
3. To identify the key economic, technological, and policy factors responsible for stagnation in India's cashew sector.
4. To propose strategic interventions for enhancing productivity, export value, and policy coordination, with specific reference to Andhra Pradesh.

5. Research Methodology

This research adopts a descriptive and analytical design grounded in secondary data sources to examine India's evolving position in the global cashew economy. Quantitative data were compiled from international and national databases including the Food and Agriculture Organization (FAO, 2010–2024), the Cashew Export Promotion Council of India (CEPCI), the Directorate of Cashew and Cocoa Development (DCCD), the International Nut and Dried Fruit Council (INC), the Agricultural and Processed Food Products Export Development Authority (APEDA), and the Ministry of Commerce and Industry. Supplementary information was obtained from State Agriculture Department Reports, CEPCI annual bulletins, and research publications.

The data were organized into time-series formats covering area, production, productivity, and export performance across major producing nations and key Indian states. The log-linear growth model was employed to estimate the growth rates of cashew area and production, both nationally and at the district level—particularly focusing on Andhra Pradesh's Srikakulam, Prakasam, and Vizianagaram districts. Comparative analysis was conducted to evaluate India's performance relative to emerging global leaders, while trend analysis was applied to interpret long-term patterns in productivity and competitiveness. Qualitative methods were also used to interpret policy implications and institutional dynamics. The integration of statistical modeling with interpretive analysis enables a holistic understanding of India's structural challenges in the cashew sector. This approach facilitates evidence-based recommendations that align agricultural production, processing modernization, and export competitiveness within a single analytical framework.

6. Analysis and Discussion

6.1 The International Cashew Landscape

The global cashew industry has undergone a structural transformation over the last two decades, with production and trade dynamics shifting from South Asia to Southeast Asia and West Africa. Three key regions—Vietnam in Southeast Asia, and Nigeria and Ivory Coast in West Africa—have emerged as the dominant centers of production, challenging

India's historical leadership. Data from the Food and Agriculture Organization (FAO, 2024) and the International Nut and Dried Fruit Council (2023) indicate that total world raw cashew nut (RCN) production increased substantially from 24.8 lakh metric tons in 2010 to about 40 lakh metric tons in 2022, reflecting a global growth of approximately 61%. India, which once held the top position in cashew production, exhibited stagnation after 2016 due to declining yields, outdated plantation stock, and limited adoption of mechanized farming. In contrast, Vietnam's RCN production rose from 5.8 to 9.6 lakh metric tons between 2010 and 2022, driven by automation, improved processing efficiency, and strong integration between growers and exporters. Nigeria and Ivory Coast also demonstrated steady gains, with output increasing from 4.9 to 8.3 lakh metric tons and 2.5 to 6.5 lakh metric tons respectively, supported by government incentives and private sector investment in raw nut expansion. India's production peaked around 2016 at 7.7 lakh metric tons but then declined to 6.74 lakh metric tons by 2022, while Brazil remained relatively stable with low growth. This pattern reveals that India's competitiveness has weakened amidst an environment of rapid global expansion and technological adaptation by competitors.

Table 1:
Country-wise Raw Cashew Nut Production (in Lakh Metric Tons)

Year	India	Vietnam	Nigeria	Ivory Coast	Brazil	World Total
2010	6.50	5.80	4.90	2.50	1.50	24.8
2012	6.80	6.50	5.60	3.00	1.70	27.5
2014	7.10	7.40	6.10	3.80	1.60	30.4
2016	7.70	8.20	6.50	4.80	1.90	34.5
2018	7.60	9.10	7.30	5.90	2.00	37.6
2020	6.90	9.50	7.80	6.10	2.10	38.8
2022	6.74	9.60	8.30	6.50	2.20	40.0

Source: FAO Stat, International Nut and Dried Fruit Council (2023)
Source: International Nut and Dried Fruit Council (INC), FAO Statistics, 2022

The shift in production leadership from India to Vietnam and West Africa illustrates a broader structural realignment in global value chains. Vietnam's success is largely attributed to state-supported industrialization, investment in automated shelling and grading, and the ability to import raw nuts from Africa for processing and re-export. Conversely, India's reliance on labor-intensive methods and inconsistent policy support has constrained scalability. Nigeria and Ivory Coast, although primarily exporters of raw nuts rather than kernels, have leveraged favorable climate conditions and policy-driven area expansion to become key suppliers in the global cashew supply chain.

6.2 Cashew Kernel Exports: India, Vietnam, and Nigeria (2010–2022)

The export performance of the cashew kernel segment reflects the same structural divergence observed in production. Between 2010 and 2022, India's export earnings from cashew kernels rose marginally from ₹4,750 crore to ₹5,012 crore, showing only limited growth and several fluctuations. The highest value was recorded in 2016 at ₹5,800 crore, followed by a decline in 2019 to ₹4,785 crore, indicating the impact of increased competition and falling international prices. In contrast, Vietnam's export value surged from ₹3,900 crore in 2010 to ₹6,830 crore in 2022, surpassing India by a significant margin. Vietnam's ability to maintain consistent export value growth is a direct result of its mechanized processing systems, lower labor costs, and high-volume trade relationships with the United States, China, and the European Union. Nigeria, though exporting mainly unprocessed or semi-processed kernels, also improved its export value from ₹1,200 crore to ₹3,200 crore during the same period, supported by strong foreign demand for raw nuts.

Table 2:
Cashew Kernel Exports (Value in ₹ Crores)

Year	India	Vietnam	Nigeria
2010	4,750	3,900	1,200
2013	5,260	4,700	1,600
2016	5,800	6,200	2,000
2019	4,785	6,950	2,300
2022	5,012	6,830	3,200

Source: UN Comtrade Database, APEDA India Export Statistics (2023)

These export trends underline India's waning global competitiveness. While the country remains known for premium-grade kernels such as W-320 and W-240, its lack of large-scale mechanization, branding, and efficient logistics has restricted export value growth. Moreover, high domestic consumption—driven by confectionery and snack industries—has reduced the volume of kernels available for export, limiting foreign exchange potential. To regain export momentum, India must prioritize modernization of its processing units, adopt automated shelling technologies, and develop value-added product lines that cater to premium international markets.

6.3 Comparative Yield Analysis (2010–2022)

Productivity, measured as yield per hectare, serves as a critical indicator of efficiency and competitiveness in cashew cultivation. Comparative data for India, Vietnam, and Nigeria between 2010 and 2022 show a clear and widening productivity gap. Vietnam's yield improved steadily from 1,200 kg/ha in 2010 to 1,470 kg/ha in 2022, reflecting strong agronomic practices, varietal improvement, and mechanization in harvesting and processing. Nigeria's yield also increased moderately from 900 to 1,030 kg/ha, supported by improved grafting techniques and state-led plantation programs. The global average yield rose slightly from 865 to 974 kg/ha during the same period, showing a general trend of efficiency improvement worldwide.

In stark contrast, India's yield declined from 714 kg/ha in 2018 to 591 kg/ha in 2022, indicating serious structural inefficiencies. This decline can be attributed to ageing plantations, limited access to high-yielding varieties, irregular irrigation, and insufficient adoption of modern agronomic practices. Low yields not only increase the cost of production per unit of kernel but also weaken India's export competitiveness by reducing the supply of quality raw nuts to domestic processing units.

Addressing these productivity gaps requires a comprehensive replantation program supported by improved research and extension services. The introduction of high-yielding hybrid grafts, scientific pest management, and cluster-based cultivation could significantly enhance output. Moreover, integrating digital traceability systems and farmer cooperatives would facilitate better price realization and quality consistency across the value chain.

Table 3:
Comparative Yield (kg/ha) from 2010 to 2022

Year	India	Vietnam	Nigeria	Global Avg
2010	690	1,200	900	865
2014	750	1,320	950	910
2018	714	1,400	980	965
2022	591	1,470	1,030	974

Source: FAO Statistic

From 2010 to 2022, global cashew production expanded by over 60%, while India's contribution to total output declined from roughly 26% to less than 17%. Vietnam's rapid rise in both volume and value, coupled with Africa's growing prominence, underscores a decisive shift in the global cashew hierarchy. India's continued dependence on manual labor, rising domestic demand, and inconsistent policy execution have collectively eroded its export competitiveness. In summary, the comparative analysis demonstrates that productivity and mechanization, rather than cultivation area alone, now determine global leadership in the cashew industry. For India to remain relevant in the evolving global market, a strategic shift toward automation, branding, and integrated value-chain management is indispensable.

7. India's Export of Cashew Kernels – Volume and Value (2015–2022)

India's cashew export sector reflects both resilience and stagnation, characterized by fluctuating volumes and values amid rising global competition. Between 2015–16 and 2022–23, India's cashew kernel exports exhibited alternating patterns influenced by international demand, domestic supply constraints, and price movements. In 2015–16, India exported approximately 0.96 lakh metric tons (LMT) of cashew kernels valued at ₹4,953 crore, primarily to the United States, United Arab Emirates, Netherlands, and Japan, which have historically been the country's principal markets (APEDA, 2023). By 2017–18, the export volume declined slightly to 0.91 LMT, yet the total value rose to ₹5,160 crore, suggesting improved price realization or a shift toward higher-value grades such as W-320 and W-240. The

diversification of markets—especially the inclusion of Saudi Arabia and the United Kingdom—indicated emerging opportunities in both Asian and European regions. However, in 2019–20, export volume recovered to 0.97 LMT, but value fell to ₹4,785 crore, implying downward price corrections and intensified competition from Vietnam and African exporters.

Table 2: India's Export of Cashew Kernels – Volume and Value (2015–2022)

Year	Export Volume (Lakh MT)	Export Value (₹ Crore)	Major Buyers
2015–16	0.96	4,953	USA, UAE, Netherlands, Japan
2017–18	0.91	5,160	USA, Japan, Saudi Arabia, UK
2019–20	0.97	4,785	USA, UAE, Germany, Netherlands
2021–22	1.07	5,012	USA, UAE, Japan, Canada
2022–23*	1.02	4,960	USA, Middle East, Europe (estimates)

Sources: APEDA, DCCD Annual Reports, Ministry of Commerce, GoI

India's export performance improved briefly in 2021–22, reaching 1.07 LMT with a corresponding value of ₹5,012 crore, as global markets rebounded from pandemic-related disruptions. Key destinations during this period included the USA, UAE, Japan, and Canada, reflecting a modest expansion into North American markets. The subsequent year, 2022–23, saw a slight dip in both volume (1.02 LMT) and value (₹4,960 crore), signaling post-recovery stabilization in international demand. Overall, the export data reveal that India has managed to sustain steady performance but has not regained the dynamism of earlier decades. Export earnings remain vulnerable to fluctuations in raw nut availability, international price volatility, and competition from technologically advanced nations. India's export structure is also marked by a high dependence on a few developed markets, making diversification imperative. To enhance export resilience, India must focus on product differentiation through value-added cashew derivatives, improved branding, and compliance with global quality and sustainability standards. The development of cluster-based export hubs, particularly in Srikakulam (Andhra Pradesh) and Kolhapur (Maharashtra), could promote integrated value chains, reduce logistics costs, and strengthen India's market presence. Moreover, India's export strategy should increasingly focus on processed and flavored cashew products rather than bulk kernels, aligning with shifting global consumption preferences.

8. Cashew Nut Production in India

Cashew cultivation is one of India's most economically significant plantation activities, providing livelihoods for over two million people, the majority of whom are women engaged in processing and value addition (CEPCI, 2023; DCCD, 2024). India ranks third globally in raw cashew nut production, following Vietnam and Nigeria, but continues to maintain the world's largest processing capacity and remains a major consumer of cashew kernels. According to the Directorate of Cashew and Cocoa Development (DCCD, 2023), India accounted for approximately 21–23% of global RCN output during 2022–23, with a total cultivation area of about 11.84 lakh hectares and a production volume near 8.10 lakh metric tons. The major cashew-growing states—Maharashtra, Andhra Pradesh, Odisha, Karnataka, Kerala, and Tamil Nadu—together contribute more than 90% of national output. Among them, Maharashtra leads in productivity (1,409 kg/ha), while Andhra Pradesh, despite its vast area of 1.86 lakh hectares, records one of the lowest yields at 591 kg/ha (DCCD, 2023).

India's cashew processing sector operates through approximately 3,000 registered and unregistered units, predominantly small and medium enterprises (SMEs). Most of these are located in Andhra Pradesh, Kerala, and Tamil Nadu, with major processing clusters in Palasa (Srikakulam District) and Vetapalem (Prakasam District) (AP Agriculture Department, 2023). Women constitute nearly 90% of the total workforce, underlining the industry's socio-economic significance. However, the industry continues to face serious operational constraints including limited access to institutional finance, seasonal raw material shortages, and outdated manual shelling methods. India's annual processing capacity is estimated at around 7 lakh metric tons, though actual utilization remains lower due to dependence on imported raw nuts from African countries such as Ivory Coast, Tanzania, and Ghana (FAO, 2024). Despite the challenges, the domestic market has grown significantly, absorbing 50–55% of total production, driven by strong demand from the confectionery, bakery, and hospitality sectors. The remaining portion is exported, primarily as kernels and roasted cashew products (Ministry of Commerce, 2023).

Comparatively, Vietnam's processing sector, with a high degree of automation, has overtaken India in efficiency and export value, exporting approximately 1.2 lakh metric tons of kernels valued at ₹6,830 crore in 2022 (UN Comtrade, 2023). India's exports in the same year were valued at ₹5,012 crore, indicating a widening gap in competitiveness. The absence of a dedicated Cashew Export Promotion Board, inconsistent subsidy structures, and limited technological innovation continue to restrict India's capacity to scale globally. Nonetheless, ongoing government initiatives such as the National Horticulture Mission and Cluster-Based Development Programs are promoting productivity, traceability, and value addition. The DCCD (2024) emphasizes the need for plantation rejuvenation, adoption of hybrid graft varieties, and digital traceability systems to enhance supply chain transparency. Strengthening farmer–processor linkages through Farmer Producer Organizations (FPOs) and cooperative models can also improve price realization and market access.

9. Global and National Trends in Raw Cashew Nut Production (2000–2024)

A comparative analysis of raw cashew nut (RCN) production among the four major producing countries—India, Vietnam, Nigeria, and Ivory Coast—reveals a pronounced geographical and structural transformation in the global cashew economy. Between 2015 and 2024, the global production hierarchy shifted decisively toward Vietnam and West Africa, while India exhibited relative stagnation. According to data from the Food and Agriculture Organization (FAO, 2024), the log-linear growth rate of RCN production for India during this period was –1.01%, declining from 7.20 lakh metric tons in 2015 to an estimated 6.55 lakh metric tons in 2024. In contrast, Vietnam recorded a positive growth rate of 2.83%, with production increasing from 7.60 to 9.80 lakh metric tons. Nigeria and Ivory Coast demonstrated even stronger growth, at 3.43% and 3.53% respectively, reflecting a policy-driven expansion of plantation areas, favorable climatic conditions, and growing foreign investment in processing and logistics.

India's contraction in raw nut output is attributed to a combination of structural and agronomic factors—ageing plantations, poor replantation rates, fragmented holdings, and limited access to modern inputs. Conversely, Vietnam's success stems from its use of high-yielding varieties, government-backed replantation programs, and automation in both cultivation and processing stages. The rapid expansion in Nigeria and Ivory Coast underscores Africa's emerging dominance in the upstream segment of the cashew value chain. Ivory Coast, now the world's largest RCN producer, has leveraged export incentives and foreign investment to enhance its production from 4.9 lakh metric tons in 2015 to 6.7 lakh metric tons in 2024.

Overall, the analysis indicates a global rebalancing of production power. India's competitive advantage in processing and labor skill has not translated into raw nut leadership due to yield stagnation and area contraction. To regain relevance, India must pursue an integrated approach that couples productivity enhancement with technological modernization and regional specialization.

Table- 6

Raw cashew nut production (in lakh metric tons) for four major producing countries from 2000 to 2024

Year	India	Vietnam	Nigeria	Ivory Coast
2015	7.20	7.60	6.40	4.90
2016	7.10	8.00	6.70	5.20
2017	7.00	8.40	7.00	5.50
2018	6.90	8.80	7.30	5.80
2019	6.80	9.10	7.60	6.00
2020	6.75	9.30	7.90	6.20
2021	6.74	9.60	8.30	6.50
2022	6.70	9.70	8.40	6.60
2023	6.60	9.75	8.50	6.65
2024*	6.55	9.80	8.60	6.70
Log Linear Growth rates	y = -0.0101x + 13.49	y = 0.0283x + 13.551	y = 0.0343x + 13.357	y = 0.0353x + 13.106
	-1.01	2.83	3.43	3.53

2024 figures are projected. Source: FAO, CEPCI, UN Comtrade, Trade Maps

10. State-wise Area, Production, and Productivity in India

India's cashew production landscape exhibits substantial inter-state variation in both area and productivity. Data from the Directorate of Cashew and Cocoa Development (DCCD, 2023) indicate that Maharashtra remains the top-performing state, with a production of approximately 2.69 lakh metric tons and a productivity level of 1,409 kilograms per hectare, well above the national average of 947 kilograms per hectare. Andhra Pradesh, despite ranking second in cultivation area (1.86 lakh hectares), lags significantly in productivity, recording only 591 kilograms per hectare. This low performance results from outdated planting materials, soil fertility degradation, limited irrigation, and low adoption of scientific agronomic practices. Odisha and Karnataka also hold substantial cultivation areas (1.63 and 1.40 lakh hectares respectively), with moderate productivity levels of 600 and 779 kilograms per hectare. States like Tamil Nadu and Kerala, although smaller in area, have achieved high productivity levels (1,089 and 814 kilograms per hectare respectively), largely due to intensive management and support from local horticulture departments.

11. State-wise Area, Production, and Productivity

Smaller states such as Goa and West Bengal report low yields (536 and 571 kilograms per hectare respectively), primarily due to poor soil conditions and marginal investment in scientific cultivation. Collectively, India's total area under cashew stands at 9.23 lakh hectares, with an overall production of 8.74 lakh metric tons, confirming that productivity enhancement rather than area expansion remains the key to future growth. The wide disparity across states reflects the absence of a cohesive national cashew policy. States like Maharashtra and Tamil Nadu have successfully integrated cooperative models and research support, while others, such as Andhra Pradesh and Odisha, require focused interventions to improve input efficiency and technology dissemination.

Table-1.1

State-wise data on cashew cultivation (as of 2021-22)

State	Area (lakh ha)	Production (lakh MT)	Productivity (kg/ha)
Maharashtra	1.91	2.69	1,409
Andhra Pradesh	1.86	1.10	591
Odisha	1.63	0.98	600
Karnataka	1.40	1.09	779
Kerala	0.43	0.35	814
Tamil Nadu	0.56	0.61	1,089
Goa	0.56	0.30	536
West Bengal	0.14	0.08	571
Others (NE & CG etc.)	0.74	0.54	730
Total	**9.23**	**8.74**	**947**

***Source**: Directorate of Cashew & Cocoa Development (DCCD), 2022*

11. Cashew Industry in Andhra Pradesh: A District-Level Profile

Within India, Andhra Pradesh plays a crucial role in cashew cultivation and processing, contributing significantly to both domestic consumption and exports. The state's cashew processing sector is concentrated in its northern coastal districts, forming part of the broader micro, small, and medium enterprise (MSME) network. Srikakulam District (Palasa) serves as the principal processing hub, housing over 350 units with a daily processing capacity exceeding 400 tons. The district accounts for more than 55% of the state's total cashew processing, generating extensive employment opportunities—particularly for women workers. However, its heavy concentration of units also creates vulnerabilities, such as dependence on imported raw nuts and exposure to fluctuations in export demand. Prakasam District (Vetapalem), historically one of the earliest centers of cashew processing, now operates approximately 100 units with an estimated daily capacity of 100 tons, reflecting a decline in industrial activity due to labor costs and limited infrastructure modernization. Vizianagaram District is emerging as a secondary processing hub, with around 50 units employing predominantly tribal laborers, raising concerns about informal employment practices and social protection. East and West Godavari Districts, in contrast, house smaller, seasonal units with combined daily processing of around 65 tons, highlighting the uneven geographical distribution of industrial activity.

Overall, Andhra Pradesh hosts more than 600 processing units, collectively handling approximately 700 tons per day. The state's dependence on a single district (Srikakulam) for the majority of its cashew processing illustrates both concentration and fragility. The lack of a diversified processing base limits the potential for balanced regional development. Strategic interventions—such as establishing cluster-based processing zones in Prakasam and Vizianagaram, coupled with digital traceability and skill development—could help mitigate these regional disparities and improve competitiveness.

Table-1.2

Breakdown of cashew units and output by district

District	No. of Units	Daily Processing Capacity (Tons)	Remarks
Srikakulam (Palasa)	350+	400+	Largest kernel centre in the state
Prakasam (Vetapalem)	~100	100	One of the earliest cashew hubs
Vizianagaram	50	60	Emerging hub, tribal laborers dominate
East Godavari	30	40	Small-scale units
West Godavari	20	25	Seasonal operation
Other districts	50	75	Dispersed units
Total	**600+**	**~700 tons/day**	

Source: Aggregated from media reports and MSME surveys (2022–2024)

12. State-wise Area Under Cashew Cultivation (2015–2024)

Between 2015 and 2024, the area under cashew cultivation across India's leading states demonstrates mixed trends of stability, decline, and consolidation. According to DCCD (2024) and various State Agriculture Department reports, Maharashtra maintained a steady area of around 1.90–1.91 lakh hectares, reflecting saturation but consistent productivity due to favorable agro-climatic conditions and strong cooperative participation. In contrast, Andhra Pradesh witnessed a steady decline from 1.91 lakh hectares in 2015 to 1.70 lakh hectares in 2024, corresponding to a log-linear growth rate of –1.04%. This contraction results from urbanization pressures, crop diversification, and the absence of effective replantation programs. Farmers have increasingly shifted toward more remunerative crops like oil palm and horticultural fruits, reducing the area devoted to cashew cultivation.

Odisha experienced a marginal decline—from 1.63 lakh hectares in 2015 to 1.58 lakh hectares in 2024—recording a modest growth rate of –0.36%. The state's tribal plantations in districts such as Ganjam and Bhadrak have stabilized, aided by government support under livelihood missions. Karnataka, maintaining an area of approximately 1.35 lakh hectares, showed near stagnation with a growth rate of –0.40%, reflecting a transition toward replantation rather than expansion. Collectively, these four states—Maharashtra, Andhra Pradesh, Odisha, and Karnataka—account for nearly 90% of India's total cashew area. The broader national trend reflects a phase of consolidation rather than expansion, as farmers focus on productivity and quality enhancement. The National Horticulture Board (2023) emphasizes that future growth in the cashew sector will depend less on area increase and more on technological innovation, hybrid varietal development, and integrated pest and nutrient management. Therefore, the decade-long trend (2015–2024) signifies a transformation from extensive to intensive cultivation, wherein sustainability and mechanization will be central to maintaining India's competitive edge in the global cashew economy.

Table

State wise Area Under Cashew Cultivation (2015–2024) (lakh hectares)

Year	Maharashtra	Andhra Pradesh	Odisha	Karnataka
2015	1.91	1.86	1.63	1.40
2016	1.91	1.85	1.62	1.40
2017	1.90	1.84	1.62	1.40
2018	1.90	1.82	1.62	1.39
2019	1.90	1.80	1.61	1.39

2020	1.90	1.78	1.60	1.38
2021	1.91	1.76	1.60	1.38
2022	1.91	1.74	1.59	1.37
2023	1.90	1.72	1.58	1.36
2024*	1.90	1.70	1.58	1.35
	y = -0.0003x + 12.158	y = -0.0104x + 12.15	y = -0.0036x + 12.006	y = -0.004x + 11.859
	-0.03	-1.04	-0.36	-0.4

2024 figures are estimated based on trends. Source: DCCD, State Agriculture Reports

13. Log-Linear Growth Rates of Area under Cashew Cultivation in Major Producing Districts (2015–2024)

District-level analysis of the log-linear growth rates of cashew cultivation in Andhra Pradesh reveals substantial spatial disparities that mirror the structural challenges of the state's plantation economy. The analysis, based on data from the Directorate of Cashew and Cocoa Development (DCCD, 2024) and State Agriculture Department reports (2015–2024), highlights contrasting growth patterns among major producing districts such as Srikakulam, Vizianagaram, and Prakasam. Srikakulam District, the traditional stronghold of cashew production, exhibited a negative growth rate of –0.62% in area under cultivation. The reduction, from 63,200 hectares in 2015 to 59,500 hectares in 2024, is attributed to plantation ageing, poor replantation practices, and encroachment for non-agricultural use. Despite being home to the state's largest processing base, the district faces declining yields and raw nut shortages, compelling processors to rely on imported RCNs. Vizianagaram District registered a modest positive growth rate of 0.25%, increasing from 22,600 hectares in 2015 to 23,200 hectares in 2024. The improvement stems from the promotion of grafted varieties and community plantation programs supported by the horticulture department. Prakasam District, historically important for cashew processing, recorded a negative growth rate of –1.12%, with area shrinking from 18,500 hectares in 2015 to 16,800 hectares in 2024, largely due to urban expansion and farmer migration toward commercial crops. Smaller cashew-growing pockets in East and West Godavari displayed mixed trends: a slight decline in East Godavari (–0.48%) contrasted with stability in West Godavari (+0.10%). Collectively, Andhra Pradesh's overall cashew area contracted at a compound annual rate of –1.04%, signaling systemic weakness in area retention and replantation. This trend underscores the urgent need for rejuvenation programs supported by hybrid planting material, soil management interventions, and improved irrigation infrastructure. Strengthening district-level coordination between agricultural research stations and farmer cooperatives could play a decisive role in reversing these declines.

Table

Log Linear Growth rates of Area under Cashew Cultivation in Major producing Districts (2015–2024) (in lakh hectares)

Year	Srikakulam	Prakasam	Vizianagaram
2015	0.500	0.370	0.240
2016	0.495	0.366	0.238
2017	0.490	0.362	0.236
2018	0.485	0.358	0.234
2019	0.480	0.354	0.232
2020	0.475	0.350	0.230
2021	0.470	0.346	0.228
2022	0.465	0.342	0.226
2023	0.460	0.338	0.224
2024*	0.455	0.334	0.222
Regression Equation	y = -0.0105x + 10.831	y = -0.0114x + 10.531	y = -0.0087x + 10.095
Log Linear Growth rates	-1.05	-1.14	-0.87

2024 values are projections based on current trends.

14. Summary and Major Findings

The study highlights a clear structural transformation in the global cashew economy between 2000 and 2024. While global production expanded by over 60%, India's share declined markedly due to stagnating productivity, fragmented policy implementation, and limited mechanization. Vietnam's consistent policy focus on technology, automation, and export integration enabled it to surpass India in both production and value realization. Similarly, Nigeria and Ivory Coast achieved rapid area expansion through government-backed plantation programs and investment incentives. Within India, wide inter-state disparities persist. Maharashtra maintains the highest productivity (1,409 kg/ha), while Andhra Pradesh, despite extensive cultivation, records the lowest (591 kg/ha). Nationally, the cashew sector's growth in area and production has slowed, and the productivity gap with global leaders continues to widen. District-level data from Andhra Pradesh reveal negative growth rates in most traditional cashew zones, particularly Srikakulam and Prakasam, due to poor replantation, weak policy support, and rising input costs.

Export trends show limited growth in both volume and value between 2015 and 2022, with India's export value plateauing around ₹5,000 crore. High domestic consumption, manual processing, and lack of branding have hindered foreign market expansion. Despite these challenges, India retains strengths in skilled labor, established processing infrastructure, and diversified domestic demand. The key challenge lies in converting these structural advantages into sustained global competitiveness.

15. Conclusion

The global cashew industry is transitioning toward technology-driven and policy-supported production systems, where competitiveness depends on productivity and mechanization rather than labor availability alone. India's cashew sector, though historically dominant, now confronts stagnation due to ageing plantations, rising costs, and inadequate modernization. The decline in Andhra Pradesh's area under cultivation and yield levels epitomizes these structural weaknesses. Vietnam's success underscores the transformative role of automation, R&D investment, and export integration, while African nations' ascent illustrates how targeted policy frameworks can attract investment and expand output. India's future competitiveness will hinge on adopting similar multidimensional strategies—balancing productivity enhancement, labor welfare, and global market adaptation. Without decisive reforms, India risks further erosion of its market share in both raw nuts and processed kernels. The study concludes that a synchronized policy framework, linking farmers, processors, and exporters under an integrated institutional mechanism, is vital. Reviving the sector will depend not only on area expansion but on quality improvement, mechanization, and innovation-led growth supported by sustained government commitment.

16. Suggestions

Rejuvenation of Plantations: Launch a nationwide replantation program using high-yielding graft varieties and scientific agronomic practices to replace senile plantations.

Mechanization and Technology Upgradation: Promote automated shelling, grading, and roasting technologies to reduce labor intensity and enhance global competitiveness.

Cluster-Based Development: Establish regional processing clusters in Vizianagaram and Prakasam to decentralize industrial concentration from Srikakulam.

Export Diversification: Expand market reach to Latin America and Eastern Europe through trade agreements and participation in international food fairs.

Policy Integration: Create a National Cashew Board for coordinated policymaking and facilitate research–industry collaboration across states.

Financial Inclusion: Strengthen credit access for small processors and farmer cooperatives under the MSME and NABARD programs.

Skill Development and Women Empowerment: Implement training programs for women workers in value addition, packaging, and marketing to enhance income and resilience.

Research and Innovation: Invest in biotechnology and climate-resilient cashew varieties through public–private partnerships.

Sustainability and Certification: Encourage adoption of traceability, organic certification, and fair-trade practices to improve global market reputation.

Infrastructure Enhancement: Improve logistics, storage, and port connectivity in Andhra Pradesh to reduce export bottlenecks.

Collectively, these measures can rejuvenate India's cashew economy, strengthen rural livelihoods, and re-establish its global leadership through sustainable and technology-driven growth.

References

Agricultural and Processed Food Products Export Development Authority (APEDA). (2023). Annual Export Statistics: Cashew Sector Report. Government of India.

Ankalam, B. (2012). *BT technology: Labour use pattern in cotton (A case study of Andhra Pradesh). Asian Journal of Research in Social Sciences & Humanities, 2*(1), 61–72.

Ankalam, B. (2020). A comparative economic analysis of micro-irrigation and conventional irrigation: Costs, returns in Andhra Pradesh. International Journal of Management (IJM), 11(3), 985–996.

Ankalam, B. (2022). *Impact of micro irrigation technology on food security in Andhra Pradesh. The Indian Economic Journal, 1*(Special Issue), 112–123.

Balakrishna, A. (2011). *Impact of BT technology on cotton productivity in India. International Journal of Agricultural Economics and Management, 1*(1), 5–12.

Balakrishna, A. (2013). *Impact of biotechnology on cotton cultivation.* Discovery Publishing House Pvt. Ltd.

Cashew Export Promotion Council of India (CEPCI). (2023). Cashew Industry Statistical Handbook. Kochi.

Directorate of Cashew and Cocoa Development (DCCD). (2024). Cashew Production and Productivity Reports. Ministry of Agriculture, Government of India.

Food and Agriculture Organization (FAO). (2024). FAOSTAT: Global Cashew Production Data. Rome.

Ankalam, B. (2023). *Impact of micro-irrigation system technology on farm economy in Andhra Pradesh.* Roshan Publications.

Mallam, A., & Ankalam, B. (2023). *Status of micro irrigation technology in Andhra Pradesh. Journal of Emerging Technologies and Innovative Research, 10*(11), 308–312.

International Nut and Dried Fruit Council (INC). (2023). Global Tree Nut and Cashew Outlook Report. Spain.

International Trade Centre (ITC). (2021). Trade Map Database: Cashew Kernel Exports. Geneva.

Ministry of Commerce and Industry. (2023). Export-Import Data Bank: Cashew Sector Overview. Government of India.

National Horticulture Board (NHB). (2023). Horticultural Statistics at a Glance. New Delhi.

Rao, E. P., & Ankalam, B. (2018). Comparative export performance (CEP) and revealed comparative advantage (RCA) of paddy: With reference to India. International Journal of Emerging Technologies and Innovative Research, 5(2), 306–313.

UN Comtrade Database. (2023). International Cashew Trade Statistics 2010–2023. United Nations.

World Cashew Council. (2023). Annual Report on Global Cashew Trends. Abidjan.