



## QUINOA'S GLOBAL ASCENT : UNLOCKING EXPORT POTENTIAL AND OVERCOMING MARKET CHALLENGES

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### Abstract

Quinoa, a whole grain crop from the Amaranth family, is renowned for its edible seeds and leaves. It is gluten-free and rich in nutrients such as zinc, iron, fibres, antioxidants, and vitamins B and E, offering numerous health benefits. In India, quinoa has been adopted across diverse sectors including food and beverages, cosmetics, pharmaceuticals, and animal feed. Despite contributing only 0.6 percent to global quinoa exports, India ranks 13th among all agricultural commodities, with the United States being the largest importer of Indian quinoa, accounting for over 50 percent of exports. Canada has also shown significant growth in quinoa imports from India over the past five years. India's increasing quinoa exports face several challenges, including competition from established producers like Peru and Bolivia, infrastructure and logistics constraints, adherence to quality standards and certifications, maintaining price competitiveness, and navigating export regulations and trade barriers. Addressing these challenges requires sustained efforts in research and development, infrastructure enhancement, capacity building, market diversification, and strategic trade promotion. Opportunities for expanding India's quinoa exports include increasing cultivation, ensuring quality assurance, investing in value addition and processing, exploring new markets, branding and promotion, and establishing collaborations and trade partnerships. Indian exporters must conduct thorough market research, stay attuned to evolving market trends, and leverage these opportunities to enhance export success. Collaboration among the government, agricultural institutions, exporters, and stakeholders is essential to surmount challenges and boost India's quinoa export potential.

**Keywords:** Edible seeds, Export, Quality standards, Market diversification, Trade promotion.

### INTRODUCTION

Quinoa is a whole grain crop belonging to the Amaranth family, known for its edible seeds and leaves. It is a gluten-free food product rich in zinc, iron, fibres, antioxidants, vitamins B and E, among other nutrients. Quinoa contributes to reducing the risk of cardiovascular diseases, improving metabolism, controlling high blood pressure, enhancing skin health, and maintaining blood sugar levels (Vega-Gálvez et al., 2010). In India, quinoa is widely utilised across diverse sectors, including food and beverages, cosmetics, pharmaceuticals, and animal feed.

**Trade Status of Quinoa from India:** India's quinoa exports constitute 0.6 percent of the global exports, ranking 13th among all agricultural commodities. The average distance of importing countries is 10,083 km, with an export concentration of 0.31. The United States is the largest importer of Indian quinoa, valued at USD 584 thousand, accounting for over 50 percent of India's quinoa exports.

In terms of export growth, Canada has shown a 45 percent annual increase in quinoa imports from India over the past five years (2018-2022). Morocco has exhibited the highest annual

growth rate of 224 percent in quinoa imports from India during the same period. Additionally, Georgia recorded a remarkable growth of 288 percent in quinoa imports from India in the year 2021-2022.

The USA is the leading importer among India's top ten partner countries, followed by Canada in the second position and the Netherlands in the fifth. Among these top ten partner countries, only four have shown positive growth in quinoa imports between 2018 and 2022, with Morocco demonstrating the highest growth rate. Despite this, Morocco's share in global quinoa imports is only 0.2 percent. Among the partner countries, Kenya has a concentration of 0.51 percent, and India faces the highest tariff against Kenya at 25 percent (Sharma et al., 2021).

**Table 1: Trade indicators for the Quinoa export with top ten partner countries in the world**

Importers	Value exported in 2022 (USD thousand)	Trade balance (USD thousand)	Share in India's exports (%)	Quantity exported in 2022	Unit value (USD/unit)	Growth in exported value between 2018-2022 (% p.a.)	Growth in exported quantity between 2018-2022 (% p.a.)	Growth in exported value between 2021-2022 (% p.a.)	Ranking of partner countries in world imports	Share of partner countries in world imports (%)	Total imports growth in value of partner countries between 2018-2022 (% p.a.)	Average distance between partner countries and all their supplying markets (km)	Concentration of all supplying countries of partner countries	Average tariff (estimated) faced by India (%)
Total	1107	1027	100	0		17	12	-11		100	-6			
USA	584	584	52.8	273	2139	13	4	137	1	33	-6	6028	0.4	1.1
Morocco	154	154	13.9	82	1878		224	31	45	0.2	31	8245	0.36	2.5
Greece	71	71	6.4	42	1690		26	-4	25	0.6	14	7853	0.26	0.7
Netherlands	68	68	6.1	42	1619			152	5	4.4	-7	7406	0.27	0.7
Canada	43	43	3.9	15	2867	45	51	27	2	10.3	-5	6384	0.37	0
Bulgaria	36	36	3.3	20	1800				34	0.3	-1	6889	0.31	0.7
Thailand	27	27	2.4	14	1929	-20	-13	73	30	0.4	-5	18017	0.72	1
Georgia	23	23	2.1	13	1769			288	77	0.04	25	5942	0.19	0
Kenya	19	19	1.7	6	3167			54	98	0.01		5896	0.51	25
Mongolia	13	13	1.2	4	3250	8	-18	26	93	0.02	13	8952	0.34	5

**Resource: Author's compilation from secondary data selected from ITC trade map**

**Export status of Quinoa in the world in terms of value:** The export of quinoa has shown a decline in the last two years, from 2021 to 2022, after experiencing an increase from 2018 to 2020. Table 2 indicates that the highest exports were recorded by Peru, followed by Bolivia, the Netherlands and the USA over the past five years (2018-2022). India exported quinoa valued at USD 1106 thousand in 2022, a significant increase from USD 282 thousand in 2018. India ranks 13th among the top exporters of quinoa globally in terms of value. The highest export value from India was recorded in 2021 at USD 1372 thousand. Detailed data on the top exporters of quinoa is presented in Table 2.

**Table 2: Top 10 exporters of the quinoa in the world in terms of value**

**Value in Thousand USD**

Exporters	2018	2019	2020	2021	2022
World	290270	321163	305332	243356	200053
Peru	121829	134460	124706	104832	88994
Bolivia	80630	90656	92414	61709	46462
Netherlands	24500	15084	14023	12597	11841
United States of America	15358	13996	13829	12125	10486
Canada	2881	3680	7611	7938	6340
Germany	7054	7886	8745	8306	5881
Spain	8111	16489	9225	7969	5488
Italy	3297	4139	4324	4831	4752
France	6312	7172	6774	4646	4014
Ecuador	4270	6117	4572	3380	3316
India	282	960	1009	1372	1106
Others	15746	20524	18100	13651	11373

**Resource: Author's compilation from secondary data selected from ITC trade map**

### Export status of Quinoa in the world in terms of Quantity

In all over the world quinoa exported 102.36 million tons in the year 2022 but it was 112.23 million tons in 2018, it means there is decline in quantity exported from different countries in the world which shows declining trend. Highest quantity exported by the Peru followed by Bolivia, Netherlands and Canada in last 5 years from 2018 to 2022. It is seen that in 2022, Chile is on 3<sup>rd</sup> position in export quantity of quinoa. India has 13<sup>th</sup> rank in the top exporters of the quinoa in the world in terms of quantity. Highest export of quinoa from India to the world was seen in 2021 which is 829 tons. Top ten countries export data is shown in table 3.

**Table 3: Top 10 Exporters of quinoa in the world in terms of quantity**  
**Quantity in Tons**

Exporters	2018	2019	2020	2021	2022
World	112237	112480	120142	112585	102362
Peru	50084	48781	50998	51598	45530
Bolivia	33106	32145	37298	28158	22324
Chile	24	29	60	44	10101
Netherlands	6918	4303	4253	4264	4641
Canada	3344	4001	7041	5804	4319
United States of America	4434	3825	3681	3377	3069
Spain	3101	5073	3464	3726	2514
Germany	1723	2066	2231	2310	1822
Italy	1298	1312	1347	1406	1477
Ecuador	1719	2389	1798	1439	1442
India	106	561	615	829	712
Others	6486	8556	7971	10459	5123

**Resource: Author's compilation from secondary data selected from ITC trade map**

### REVIEW OF LITERATURE

**Table 4: Top studies on Exporters of Quinoa**

Study	Authors	Year	Title	Region Focus	Key Findings
1	Bazile et al.	2016	"Worldwide Evaluations of Quinoa: Preliminary Results from Post International Year of Quinoa FAO Projects in Nine Countries"	Global	Quinoa has gained significant attention post-2013, with FAO projects boosting its cultivation in diverse climates.
2	Jacobsen et al.	2015	"Quinoa: Botany, Production and Uses"	Global	Quinoa's adaptability to various climates makes it a viable crop for export growth.
3	Murphy & Matanguihan	2015	"Quinoa: Improvement and Sustainable Production"	Global	The demand for quinoa has increased in developed countries, promoting global trade.
4	Gomez-Pando & Aguilar-Castellanos	2016	"The Global Expansion of Quinoa: Trends and Market Drivers"	Global	Rising health consciousness is driving quinoa demand, with significant export growth from South America.
5	Thamaga-Chitja et al.	2017	"Prospects for the Quinoa Industry in Developing Countries"	Global	Developing countries are emerging as both producers and consumers of quinoa, influencing global trade dynamics.
6	Spehar	2015	"Quinoa Production and Research in Brazil"	Brazil	Brazil's quinoa production is increasing, aiming to reduce

					dependence on imports and boost exports.
7	Bhargava et al.	2016	"Quinoa: Utilization and Production in India"	India	India has potential for quinoa cultivation due to suitable agro-climatic conditions, with rising domestic and export demand.
8	Pathak et al.	2017	"Quinoa: An Emerging Crop for India"	India	The Indian government is promoting quinoa through research and subsidies, enhancing its export potential.
9	FAO	2013	"Quinoa: An Ancient Crop to Contribute to World Food Security"	Global	Quinoa's nutritional benefits and adaptability make it a strategic crop for food security and trade.
10	Ebert et al.	2017	"Quinoa in the World: Facts and Challenges"	Global	Global quinoa trade faces challenges like climate adaptability and market competition, but potential remains high.
11	Ruiz et al.	2014	"Quinoa Genetic Resources and Ex Situ Conservation"	Global	Genetic diversity in quinoa is crucial for breeding programs aimed at enhancing export-quality crops.
12	Miranda et al.	2015	"Quinoa in Bolivia: Traditional Cultivation and Export Growth"	Bolivia	Bolivia remains a leading quinoa exporter, with traditional farming practices balancing export demands.
13	Bhargava & Ohri	2018	"Quinoa: The Golden Grain of the Andes"	Global	The Andes region continues to be the heart of quinoa production, driving global export trends.
14	Tuan et al.	2016	"Vietnam's Emerging Quinoa Market"	Vietnam	Vietnam is developing its quinoa production capabilities to meet both domestic demand and export opportunities.
15	Kumar et al.	2017	"Quinoa: Production and Marketing in India"	India	Indian quinoa market is growing, supported by government initiatives and increasing health awareness.
16	Lindeboom	2014	"Quinoa: Nutritional Value and Potential for Food Processing"	Global	Quinoa's high nutritional value makes it a popular choice in health-conscious markets, boosting exports.
17	Rojas et al.	2016	"Quinoa Export and Sustainability Challenges"	Global	Sustainable farming practices are crucial for maintaining quinoa's export growth and market stability.
18	Ojeda et al.	2015	"Economic Analysis of Quinoa Production in Peru"	Peru	Peru's quinoa industry is economically viable, with strong export potential driven by global demand.
19	Zurita-Silva et al.	2014	"Quinoa Expansion in Chile"	Chile	Chile is increasing its quinoa production, targeting export markets with high-quality crops.
20	Bhargava et al.	2015	"Potential of Quinoa in India"	India	Quinoa can significantly contribute to India's agricultural exports due to its adaptability and demand.



21	Jeong et al.	2017	"Quinoa: Market Trends in South Korea"	South Korea	Quinoa is becoming popular in South Korea, leading to import growth and market expansion.
22	Yadav et al.	2016	"Quinoa Production and Export Potential in India"	India	India's export potential for quinoa is high, driven by government support and increasing global demand.
23	Sharma & Chauhan	2017	"Quinoa: An Emerging Health Food in India"	India	Health trends in India are boosting quinoa's domestic consumption and export potential.
24	Bazile et al.	2015	"Quinoa: From Local Andean Crop to Global Food"	Global	Quinoa's journey from a local Andean crop to a global food commodity reflects its export growth.
25	Escribano et al.	2018	"Quinoa Breeding and Export Strategies"	Global	Breeding programs are enhancing quinoa's quality and yield, supporting export market growth.
26	Liu et al.	2016	"Quinoa's Market Penetration in China"	China	China's demand for quinoa is rising, with imports increasing to meet consumer needs.
27	Tonini & Cabrera	2016	"Quinoa Export Growth in Bolivia"	Bolivia	Bolivia continues to lead in quinoa exports, driven by traditional farming and international demand.
28	Vilca et al.	2015	"Quinoa Market Potential in Europe"	Europe	Europe's health food market is driving quinoa imports, offering significant export opportunities.
29	Gonzalez et al.	2017	"Quinoa's Role in Sustainable Agriculture"	Global	Quinoa supports sustainable agriculture practices, enhancing its appeal in export markets.
30	Das et al.	2018	"Quinoa: Economic Viability in India"	India	Quinoa is economically viable for Indian farmers, with high market potential for exports.
31	Williams & Brenner	2016	"Quinoa in the United States"	USA	The US is a major importer of quinoa, driven by health trends and dietary changes.
32	Ruiz et al.	2016	"Challenges in Quinoa Export Markets"	Global	Quinoa exporters face challenges like quality control and market competition, but opportunities remain strong.
33	Chou et al.	2017	"Quinoa's Market Growth in Taiwan"	Taiwan	Taiwan's quinoa market is expanding, with increasing imports to satisfy consumer demand.
34	Singh et al.	2016	"Quinoa Production Strategies in India"	India	Effective production strategies are key to enhancing India's quinoa export capabilities.
35	Bazile et al.	2017	"Global Quinoa Production and Trade"	Global	Quinoa's global trade is expanding, with significant contributions from South America and emerging markets.
36	Ng & Anderson	2018	"Quinoa Market Dynamics in Australia"	Australia	Australia is developing its quinoa market, focusing on both production and imports.
37	Bhargava & Srivastava	2016	"Quinoa's Health Benefits and Market Demand in India"	India	Health benefits drive quinoa's demand in India, enhancing its market potential and export prospects.

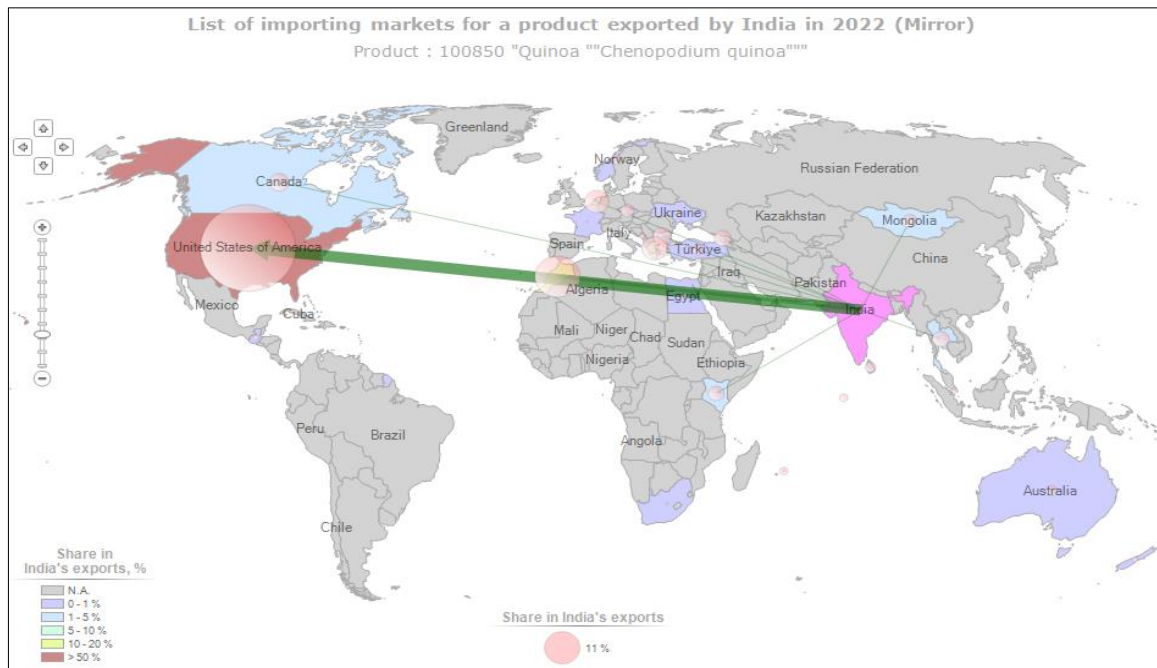
38	Hirano et al.	2017	"Quinoa Consumption Trends in Japan"	Japan	Japan's quinoa consumption is increasing, leading to higher import levels and market growth.
39	Perez et al.	2016	"Quinoa Export Trends in Peru"	Peru	Peru's quinoa export market is growing, supported by government policies and international demand.
40	Gill et al.	2018	"Future Prospects of Quinoa in Global Markets"	Global	Quinoa has strong future prospects in global markets, driven by health trends and sustainable agriculture.

**Resource: Scopus Dataset**

**ANALYSIS AND DISCUSSION**

**Import markets of Quinoa:** United State of America is the largest importer of quinoa exported from India. USA imported 11 per cent share in India’s export which is more than 50 per cent. Other partner countries also mapped and shown by the arrow in Figure 1.

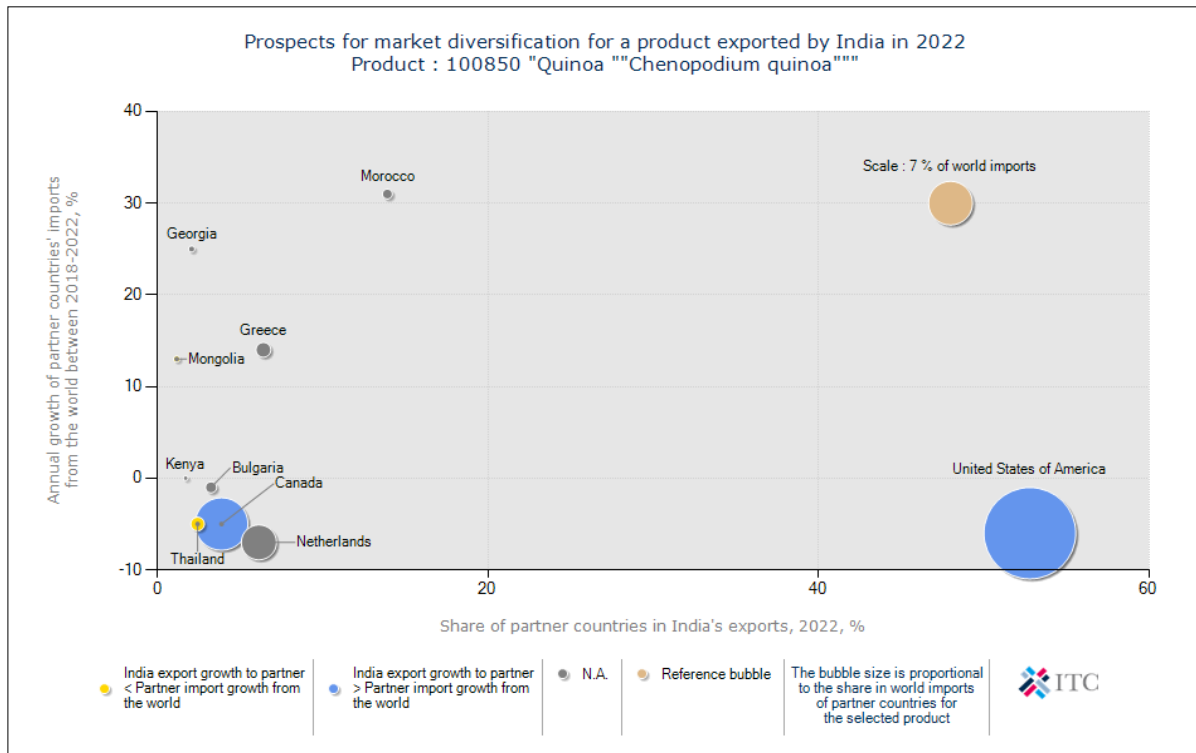
**Figure 1: Importing markets for quinoa exported by India in 2022**



**Resource: Author’s compilation from secondary data selected from ITC trade map**

**Prospects for market diversification for quinoa exported by India:** Graph plotted between annual growth of partner countries imports from the world during 2018 to 2022 and share of partner countries in India, 2022. Share of United State of America in India’s export is 52.8 per cent. USA import annual growth rate is -6 per cent which is increasing in last one year and share in world imports 33.01 per cent. USA import growth from the world is less than India export growth to USA. Share of Thailand is 2.44 per cent in India’s export. Annual growth rate of Thailand’s imports is -5 per cent (González et al., 2015; Jacobsen, 2003; McDonnell, 2021; Bazile et al., 2016). Share in the world imports is -5 per cent which is increasing and Thailand import growth from the world is greater than India’s export growth to Thailand. Market diversification is shown in Figure 2.

**Figure 2: Market diversification for Quinoa exported by India**



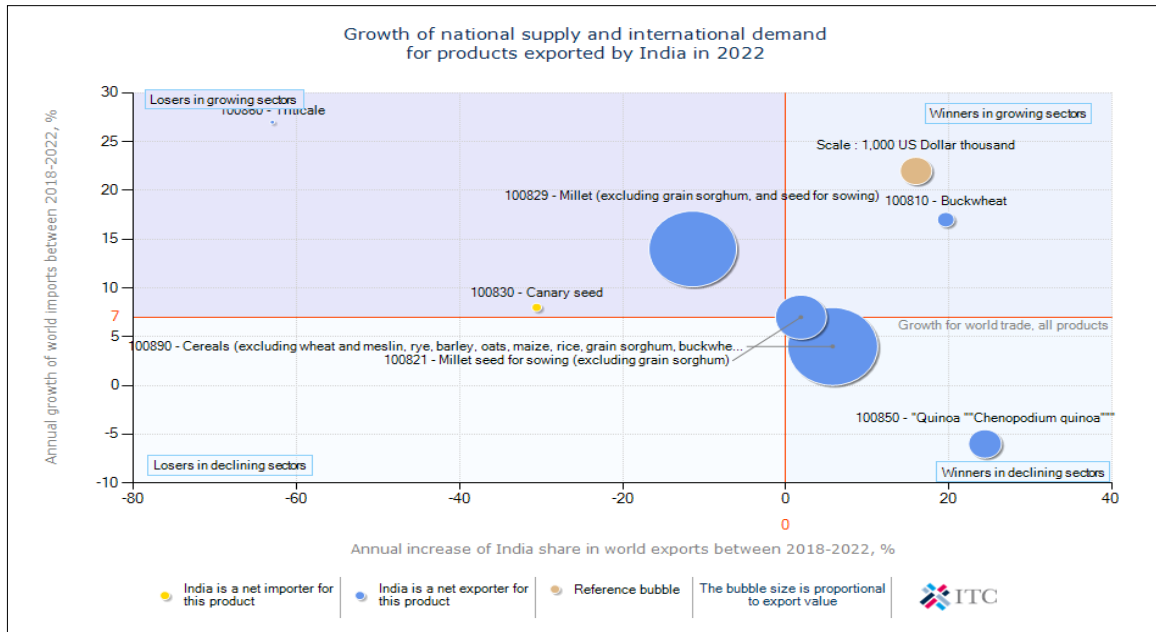
**Resource: Author's compilation from secondary data selected from ITC trade map**

**Growth of national supply and international demand for Quinoa:** India has been increasing its supply and exporting quinoa to meet international demand. Quinoa cultivation in India has been expanding, particularly in regions such as Uttarakhand, Himachal Pradesh, Jammu and Kashmir, and parts of Rajasthan, which offer suitable agro-climatic conditions for its growth (Bhargava et al., 2006). The Indian government has been actively promoting quinoa cultivation and providing support to farmers through various agricultural programs and initiatives (Kumar et al., 2016). These efforts aim to boost the domestic production of quinoa and cater to the growing international demand.

India's export of quinoa has been rising steadily, with countries like the United States, Canada, Europe, and other parts of Asia being major importers. Quinoa from India has gained recognition for its quality and competitive pricing in the international market (Vega-Gálvez et al., 2010). A bubble graph plotted between the annual increase of India's share in the world export market and the annual growth of world imports during 2018 to 2022 helps identify the growth of national supply and international demand for quinoa exported from India. Data analysis using bubble graphs shows the different commodities exported from India, with quinoa standing in the fourth quadrant, indicating growth but in a declining sector. Winners and losers in the sector are shown in Figure 3 (Bazile et al., 2016; Jacobsen, 2003; Murphy et al., 2016).



**Figure 3: Growth of national supply and international demand for quinoa exported from India**



**Resource: Author’s compilation from secondary data selected from ITC trade map**

**Companies involved in export of Quinoa:** Companies that have been involved in the export of quinoa from India are shown in table 4. Bishnoi Export situated in Ahmadabad traded around 75 products or service categories all over the world and have base 15 employees. Morarka Organic Foods Private Limited situated in Jaipur and traded 12 agri commodities to the partner countries. Details of companies involved in quinoa trading shown in table 4.

**Table 4: Top Companies involved in export of Quinoa from India**

Company name	Number of product or service categories traded	Number of employees	Country	City
Bishnoi Exports	75	15	India	Ahmadabad
Kamdhenu Enterprise	19	5	India	Ahmadabad
Kilaru Naturals Private Limited	5	NA	India	Hyderabad
Morarka Organic Foods Private Limited	12	375	India	Jaipur
Navadhane Agro Foods Private Limited	44	75	India	Chennai
PNH Trader	2	NA	India	Jodhpur
World Wide Exports	8	15	India	Greater Noida

**Resource: Author’s compilation from secondary data selected from ITC trade map**

**Hurdles on the Horizon: Overcoming Challenges in India's Quinoa Export Journey**

While India has been making progress in the export of quinoa, there are several challenges that the country may face. These challenges include:

**i. Market Competition:** Quinoa is a globally traded commodity, and India faces competition from major producers such as Peru and Bolivia. These countries have established themselves as traditional suppliers known for their high-quality quinoa (Bazile et al., 2016). Competing with these established players in the international market presents a significant challenge for India (Boasi et al., 2012; Jacobsen, 2003).





**ii. Infrastructure and Logistics:** Efficient infrastructure and logistics are crucial for the timely export of quinoa. India may encounter difficulties related to transportation, storage facilities, and logistics networks, particularly when exporting from remote quinoa-growing regions (McDonnell, 2021). Ensuring proper post-harvest handling and maintaining the quality of quinoa during transit can be logistically challenging (Murphy et al., 2016).

**iii. Quality Standards and Certification:** International markets often have stringent quality standards and certification requirements. Consistently meeting these standards and obtaining the necessary certifications can be challenging for Indian exporters (Vega-Gálvez et al., 2010). Adhering to food safety, organic, and fair trade certifications may require additional investments and efforts (Bazile and Santivanez, 2015).

**iv. Price Competitiveness:** Quinoa is a price-sensitive market, and maintaining competitive pricing is challenging for Indian exporters. Price fluctuations, currency exchange rates, and production costs can impact the competitiveness of Indian quinoa in the global market (Bellemare et al., 2018).

**v. Market Awareness and Branding:** Developing and promoting the Indian quinoa brand in international markets is essential for differentiation from competitors. Building market awareness, educating consumers about the quality and nutritional value of Indian quinoa, and establishing a strong market presence can be challenging (Pabon, 2013; Eisenstein, 2011).

**vi. Export Regulations and Trade Barriers:** Export regulations, import tariffs, and trade barriers imposed by importing countries can affect the export of quinoa from India. Navigating trade policies and overcoming potential barriers pose significant challenges for Indian exporters (González et al., 2015).

These challenges can be addressed through continuous efforts in research and development, infrastructure improvement, capacity building, market diversification, and effective trade promotion strategies (Yadav et al., 2021). It is also important to recognise that the specific challenges faced by India in quinoa exports may evolve over time as the industry progresses and market dynamics change (Small, 2013).

Addressing these challenges requires collaboration between the government, agricultural institutions, exporters, and other stakeholders. Efforts to improve infrastructure, promote quality standards, provide market information, and support market development can help overcome these challenges and enhance India's export potential for quinoa (Nieuwenhuys et al., 2012; Sharma and Chaudhary, 2021).

### **Unlocking New Horizons: Expanding India's Quinoa Export Market**

India has numerous opportunities to enhance its quinoa export sector. Key potential avenues for expanding quinoa exports from India include:

**i. Increased Cultivation:** India can further expand quinoa cultivation by identifying additional regions with suitable agro-climatic conditions. Promoting quinoa farming in new areas and encouraging more farmers to adopt quinoa cultivation can significantly increase overall production and export potential (Bazile et al., 2016; Yadav et al., 2021).

**ii. Quality Assurance:** Emphasising quality control measures and ensuring consistent quality standards are crucial for boosting exports. India can invest in improving post-harvest



management practices, including better grading, cleaning, and processing techniques, to enhance the quality of Indian quinoa (Vega-Gálvez et al., 2010). Implementing robust quality assurance systems can help build a reputation for reliable and high-quality quinoa exports (Bazile and Santivanez, 2015).

**iii. Value Addition and Processing:** Investing in value addition and processing facilities can create opportunities for exporting processed quinoa products. By diversifying the product range to include quinoa flour, flakes, pasta, and other value-added products, India can cater to a broader market and attract buyers seeking convenience and versatility in quinoa-based products (McDonnell, 2021).

**iv. Market Diversification:** While the United States, Canada, Europe, and parts of Asia are major importers of quinoa, India can explore new markets and expand its export reach. Identifying emerging markets or niche segments with growing demand for quinoa can help India tap into untapped opportunities and diversify its export destinations (Boasi et al., 2012; Jacobsen, 2003).

**v. Branding and Promotion:** Building a strong brand identity for Indian quinoa in international markets can create a competitive advantage. India can focus on promoting the unique qualities of its quinoa, such as organic cultivation practices, diverse varieties, and sustainable sourcing. Participation in international trade shows, conducting marketing campaigns, and leveraging digital platforms can help raise awareness and generate interest in Indian quinoa (Eisenstein, 2011; Pabon, 2013).

**vi. Collaboration and Trade Partnerships:** Establishing collaborations and trade partnerships with importers, distributors, and retailers in target markets can facilitate market access and increase export opportunities. Strengthening relationships with international buyers, exploring strategic alliances, and participating in bilateral trade agreements can create a favourable environment for quinoa exports from India (González et al., 2015; Nieuwenhuys et al., 2012). It is important for Indian exporters to conduct market research, understand consumer preferences, and adapt to evolving market trends to capitalise on these opportunities and successfully increase quinoa exports (Bellemare et al., 2018; Small, 2013).

## CONCLUSION

India's quinoa exports represent 0.6 percent of the global market, with the USA alone importing over 50 percent of India's quinoa. From 2018 to 2022, only four of the top ten partner countries showed positive growth in import value, with Morocco experiencing the highest growth. Kenya has a concentration of 0.51 percent, and India faces a high tariff of 25 percent when exporting to Kenya. The highest quinoa exports in the past five years were recorded by Peru, followed by Bolivia, the Netherlands, and the USA. The USA's import growth rate has been -6 percent annually, though it has increased in the last year, making up 33.01 percent of global imports. Notably, the growth rate of USA imports from the world is less than the growth rate of India's exports to the USA. Thailand holds a 2.44 percent share of India's exports.

The export of quinoa from India faces several challenges, including limited cultivation areas, yield variability, inadequate infrastructure, quality control issues, market competition, and the need for increased market awareness and promotion. Addressing these challenges requires improving cultivation practices, enhancing post-harvest management, implementing stringent quality control measures, and adopting effective marketing strategies. Nonetheless, there are significant opportunities to increase quinoa exports from India. These opportunities include expanding cultivation areas, enhancing quality assurance, investing in value addition and



processing, diversifying export markets, building a strong brand identity, and establishing trade partnerships.

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