



Cumin (*Cuminum cyminum* L.)



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Cumin Global Trade – India’s Role

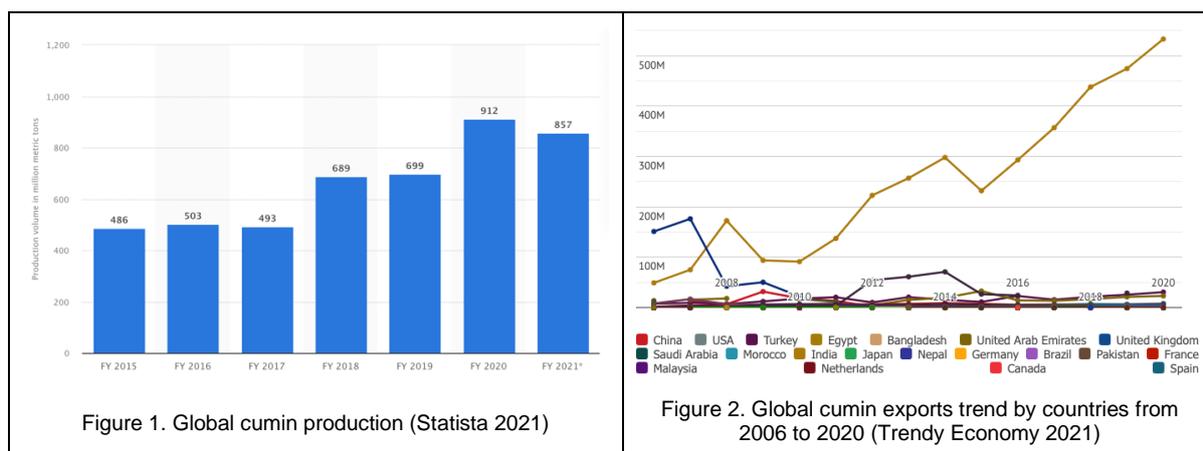


Table 1. Top five cumin exporting countries in 2020

Country	Export Share 2020 (%)	Export Value in 2020 (US\$ million)	Export Growth Value from 2017-20 (%)
India	83.36	593.94	+50.11
Syria	4.03	24.39	-72.74
Turkey	3.13	18.95	-3.97
Afghanistan	2.28	13.80	+834.04
Iran	1.67	10.09	+152.58

Table 2. Leading cumin importing countries from India

Trade flow	Import Value In 2020 (US\$ million)	1 -Year Export Growth value 2019-20 (%)
India to China	151.34	+51.55
India to Bangladesh	71.53	+29.65
India to USA	28.54	+0.93
India to UAE	22.91	+59.37
India to Nepal	22.62	+30.74
India to Egypt	21.25	+1,98
India to Morocco	11.26	-11.10
India to UK	10.74	+28.64

- India is the world’s largest cumin producing country contributing more than 70% of total world production, followed by Syria (13%), Turkey (5%), UAE (3%) and others (Gondalia et al., 2019).
- Global cumin seed trade exceeded 521 million US\$ in 2021, which is more than 100 million US\$ compared with 2019 (Trendy Economy 2021).
- India is ranked 1st with a global market share of 83.36 % in 2020 (Tridge 2021).
- From 2006 to 2020, India’s cumin export growth value increased exponentially. During the last five years, the growth value increased on average by 16 %.
- In 2020, China was the top country importing cumin from India.

Table 3. Indian cumin exports share to EU member states in 2020

Country	share (%)
UK	81%
Spain	71%
Netherlands	38%
Germany	25%
Poland	19%
France	7%

Cumin Import Trends in European Union



Figure 3. Leading importers of cumin in the EU

- Since 2016, European cumin seed imports have increased by an annual rate of 7% to more than 24 thousand tonnes in 2020, worth €65 million (CBI 2021).
- UK has been the top importer of cumin in the EU during the last 5 years. India’s share is currently 81%

Cumin Import Trends in Germany

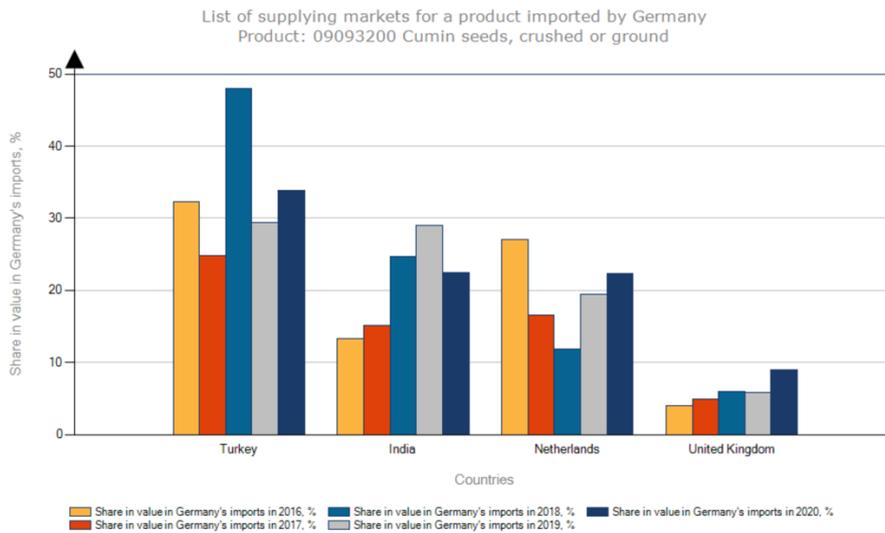


Figure 4. German cumin imports growth in value by leading countries from 2016 to 2020 (ITC 2021)

- The German industry prefers whole seeds as they are easier to test for allergens and contaminants. In 2020, more than 80% of the imports concerned whole cumin seeds, the remaining 20% being crushed or ground seeds.
- Germany's imports of cumin seeds have increased by an annual growth rate of 13%, reaching 3 thousand tonnes, worth €9.1 million.
- In 2020, Turkey was the leading supplier of cumin seeds to Germany, with 32%, followed by India and Netherlands with 22% respectively, and the UK with 9%. The Netherlands and UK are third party countries in this regard.
- India has increased its market share in Germany, raising its exports of cumin seeds from 245 thousand tonnes in 2016 to 780 thousand tonnes in 2020.

Cumin Market Segmentation in Europe

Cumin seeds are sold in EU member states through different channels to reach end segments of retail, foodservice, and industry segments, such as spice manufacturers and the food industry. Figure 6 summarises the supply chain, where the cumin seeds can be placed on the market through exporters directly to food processors, food service companies or through agents.

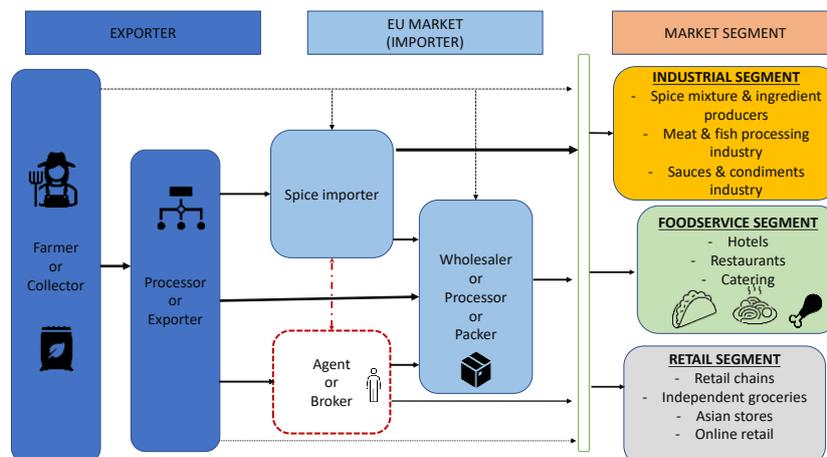


Figure 5. Supply chain logistics model

Importers - Industrial Segment

Bulk spice importers – In Europe, this category includes wholesale traders and owners of retail brands. Major bulk spice importers are for example:

- British Pepper & Spice (United Kingdom)
- AKO (Germany)
- Husarich (Germany)
- Nedspice (Netherlands)
- Euroma (Netherlands)
- European Spice Services (Netherlands)
- Saran Enterprises (Poland)
- ISFI Spices (Belgium)

Ethnic food importers – These importers specialize in supplying the ethnic foodservice segment and ethnic shops. Very often, these traders import branded products or packs that are smaller than typical bulk packs, such as 1 kg – 5 kg. For example

- Fudco (United Kingdom)
- Alamgeer (United Kingdom),
- Kreyenhop & Kluge (Germany)
- Germany's Scheid (meat processing industry)

Spice mixes and ingredient suppliers – These traders specialize in supplying to a wide range of food industries. This category includes businesses such as

- Kerry Ingredients (Ireland)
- Worlée (Germany)
- Culinar (Sweden)
- Epos (Netherlands)
- Colin Ingredients (France)

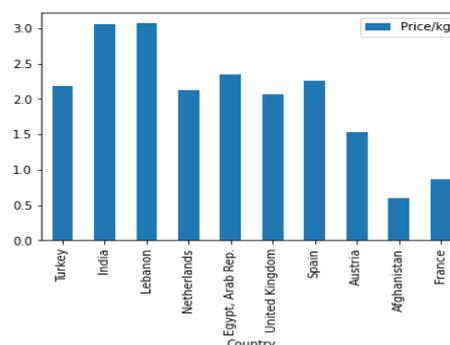


Figure 6. Average EU importer's cumin price per kilogram from different exporting countries

Importer's / wholesaler's price:

In 2020, the average price for Indian cumin seed was 3.6 US\$ per kilogram. Cumin imports from Afghanistan recorded the lowest price with 0.65 US\$ per kilogram.

Food Service Segment

Specialised distributors supply the foodservice channel, including hotels, restaurants, catering and institutions. These distributors can import cumin seeds directly, but they often buy from wholesale bulk importers. The food service segment usually requires specific packaging of cumin seeds, which is different from size or retail packaging, for example, from 400 g to 1 kg packs. Examples of distributors supplying the foodservice segment with cumin seeds are Metro Cash & Carry and Brake Brothers.

Retail Segment

European (often national) brands and private labels share the retail and food service segments. Supermarket private label brands are essential as well. European spice packers and blenders conduct production for all these brands. For example, significant cumin seeds are sold under private labels at various groceries in the German retail segment. Table 4 summarizes the price of 100 g of cumin seed or milled at sold different brands at groceries. Cumin seeds can be found in some European ethnic shops, such as Asian, North African and Middle Eastern food stores. In Asian shops, cumin seeds are much cheaper than in other European shops.

Table 4 Consumer price of various German cumin brands

Brand	Cumin seeds 100g (in €)	Cumin milled 100g (in €)
Fuchs Group	8,20	7,78
BioWagner (Bio)	4,86	8,16
Brecht (Bio)	9,97	10,54
Ostmann	4,36	6,54
TRS (available only at Asian shops)	1,09	1,09



Figure 7. Various cumin brands

EU Regulatory Requirements

Harmful contaminants, such as excessive levels of pesticide residues and plant toxins such as pyrrolizidine alkaloids or allergens, are banned. The content of the packaging should be readily apparent from the labelling. For example, Table 5 summarizes critical information of EU regulations of cumin product requirements that importers must know. Annex 1 summarizes the product specifications of cumin; this is a sample document showing minimum requirements the exporter must maintain.

Table 5. Cumin - EU regulatory requirements

Contaminants control in cumin seeds Contamination with foreign bodies	<p>The most common requirements regarding contaminants in cumin seeds relate to microbiological contamination and the presence of pesticide residues, foreign bodies, and product composition.</p>
Microbiological contaminants	<p>The Quality Minima Document (see annex1) of the European Spice Association does not allow the presence of any foreign objects greater than 2mm in diameter, while the limit of the extraneous matter is set to 1% by weight. Specific limits for microbiological contaminants for spices are not harmonised on the European Union (EU) level, so you should follow the national legislation of your target market. Analytical test results on microbiological contaminants are a standard part of the product specification. Pathogenic bacteria, such as Salmonella or Listeria, must be completely absent. Aerobic bacteria, Escherichia coli, yeasts and moulds can be tolerated in tiny quantities depending on the target market and specific buyer requirements. To prevent contamination of cumin seeds with insects and microbiological contaminants, you should have preventive measures in place. These could include heat treatment or fumigation. If you use fumigation, you must use only officially approved disinfectants.</p>
Pesticides Residues	<p>The EU has banned methyl bromide and ethylene oxide. Still, European buyers are finding residues of these banned substances in spices. It is therefore strongly recommended to heat-treat (sterilise) the cumin seeds, as it is a much safer procedure compared to fumigation. If sterilisation costs are too high for your company, please note that sterilisation services can be done in Europe, for example, by service providers, such as Food Ingredients Service Center Europe or others¹.</p> <p>The European Commission has set maximum residue levels (MRLs) for pesticides in and on food products. Products containing more pesticide residues than allowed will be withdrawn from the European market. The European Commission regularly publishes and updates a list of approved pesticides² that are authorised for use in the EU. The European Farm to Fork Strategy³ aims to reduce the use of pesticides by 50% before 2030. In 2020 and 2021, several pesticides were withdrawn from the European market, namely: beta-cyfluthrin, benalaxyl, bromoxynil, mancozeb, benfluralin, chlorpyrifos, chlorpyrifos-methyl and thiacloprid. Specifically, chlorpyrifos pesticide is a frequent reason for the rejection at the border of cumin seeds intended for the European market.</p>
Irradiation	<p>Irradiation of cumin seeds is not often used but it is authorised by the European Union as a way of sterilisation. Irradiation must take place in approved facilities and irradiated foods must be labelled. However, European consumers dislike irradiated food. Buyers in Europe are increasingly asking for radioactivity contamination tests for imported cumin seeds. Food irradiation legislation⁴, maximum permitted levels of radioactive contamination, and the European Commission's radiation protection legislation⁵ are base regulations for laboratory tests for the detection of increased levels of radioactivity in cumin seeds.</p>
Plant toxins	<p>Some toxins may be naturally present in weeds, which can contaminate cumin in the field. The most important plant toxins in cumin seeds are pyrrolizidine alkaloids (PA). According to the Rapid Alert System for Food and Feed, in 2020, there were 10 officially reported cases of cumin seeds being rejected at the border due to the presence of PA. Since December 2020, on the basis of Regulation (EU) 2020/2040⁶, maximum levels for PA in cumin seeds is set to 400 µg/kg. This regulation will come into force on 1 July 2022.</p>
Packaging and labelling requirements	<p>Packaging used for cumin seeds must protect the flavour, colour, and other quality characteristics of the product. The content of the packaging must correspond with the indicated quantity on the label. In the case of retail packaging, product labelling must comply with the European Union's regulation on the provision of food information to consumers⁷. This regulation defines nutrition labelling, origin labelling, allergen labelling and a minimum font size of 1.2 mm. Retail packs must be labelled in a language that can easily be understood by consumers in the European target country, so generally in the country's official language. This explains why European products often carry multiple languages on the label.</p> <p>In addition to this regulation, since 1 April 2020, all food in retail packs in Europe must be labelled with an indication of origin⁸. For example, if cumin seeds are imported from India but packed in France, the packaging still needs to indicate the origin of the cumin seeds. This is usually done in the way that package indicates "Packed in France" but next to the lot number, there is simple mark of origin such as 'Produce of India'/'Origine de l'Inde'/'Prodotti del India', etc.</p>

What conditions do buyers often have?

In addition to the mandatory requirements, many other specific buyer requests have become equally important. These include compliance with other food safety, quality and sustainability standards. Several factors determine the quality of cumin seeds, some as subjective as taste or flavour. Other quality criteria related to the cumin cultivar

¹ <https://fisce.eu/wp-content/uploads/2020/05/FISCE-Leaflet-spices.pdf>

² <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:32011R0540>

³ https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en

⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01999L0002-20081211>

⁵ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31987R3954:EN:HTML>

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R2040>

⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02011R1169-20180101>

⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018R0775>

include the size, shape or colour. However, the same cultivars can have different qualities, even when produced in the same country, as quality is influenced by implemented agricultural practices, climatic conditions during the production season and post-harvest operations. The Codex Alimentarius Standard sets several quality parameters for cumin⁹.

Cleanliness or purity	Cumin seeds should be intact when traded as a whole, and they must be free from diseases, foreign matters, foreign odours, and any other disorders. The European Spice Association (ESA) proposes that the maximum presence of external matter should be below 1% of the weight for all spices.
Ash content	Ash refers to the inorganic residue remaining after burning the organic matter in a cumin seeds sample. Determining the ash content is an important quality attribute and the Codex Standard uses maximum ash content to classify cumin seeds in three quality grades. According to the Quality Minima Document of the European Spice Association, the maximum content of total ash for cumin seeds is set at 14% and acid-insoluble ash at 3%.
Moisture content	The maximum moisture content for cumin seeds and powder set by the Quality Minima Document of the European Spice Association is 13%, but according to the Codex Standard it is 10%. Still, buyers may request a lower moisture content such as 7-9%.
Mesh or particle size	When cumin seeds are exported in powdered form, they are ground to pass through a sieve of a specific diameter. Sieves are often specified in micron sizes and typical requirements demand that 95% to 99.5% of ground cumin seeds pass through the specific size of the sieve, usually 500-600 microns
Odour and flavour	Cumin seeds must have a characteristic odour and flavour. The flavour profile of cumin seeds mostly depends on the chemical components of the essential oil. The most important essential oil in contributing to the specific flavour is cuminaldehyde (4-isopropylbenzaldehyde). The flavour profile varies depending on the variety, cultivar, geographic, climatic, and growth conditions.
Volatile (essential) oils	As described above, the content of essential oils is important for the sensorial characteristic of cumin seeds. Cumin seed quality is higher when the percentage of ash is low, and the content of essential oils is high. The minimum content of essential oil in cumin seeds should be 1.5 ml/100 g, but the oil content in first grade quality should be above 2 ml/100 g.
Food safety certification	Although food safety certification is not obligatory under European legislation. Most European buyers will ask for a Global Food Safety Initiative (GFSI) recognised certification. For cumin seeds, the most popular certification programmes recognized by GFSI are: <ul style="list-style-type: none"> - International Featured Standards¹⁰ (IFS) - British Retail Consortium Global Standards¹¹ (BRCGS) - Food Safety System Certification¹² (FSSC 22000)

EU requirements for Organic Cumin Seeds

Organic certification schemes are becoming increasingly popular in Europe. According to European legislation, to market cumin seeds as organic in Europe, they must be grown using organic production methods. An accredited certifier must audit growing and processing facilities before you may put the European Union's organic logo on your products and the logo of the standard's holder, for example, Soil Association in the United Kingdom, Naturland in Germany or Agriculture Biologique in France. Importing organic products into Europe is only possible with an electronic inspection certificate (e-COI). Each batch of organic products imported into the European Union has to be accompanied by an electronic inspection certificate as defined in Annex V of the Regulation restricting the imports of organic products from third countries. This electronic certificate of inspection must be generated via the Trade.

Sustainability Certification

To improve sustainable production and sourcing of spices and herbs, mainly European companies and organisations formed the *Sustainable Spice Initiative in 2012*. The primary objective of this initiative is to strive for fully sustainable spice production and trade in the sector. The most famous sustainability certification schemes are Fairtrade, which focuses on ethical practices, and Rainforest Alliance, which focuses on environmental impacts. Fairtrade International developed a specific standard for herbs, herbal teas and spices for small-scale producing organisations. This standard defines issues related to traceability, management and production practices and labour conditions. According to this standard, a premium price of 15% over and above the negotiated price between producer and seller must be established. There are currently (as of September 2021) four Fairtrade certified cumin seed producers in Egypt, three in Sri Lanka, two in Uzbekistan, one in Thailand and one in India.

⁹ <https://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/>

¹⁰ <https://www.ifs-certification.com/index.php/en/>

¹¹ <https://www.brcgs.com>

¹² <https://www.fssc22000.com/?lang=en>

Cumin production in India

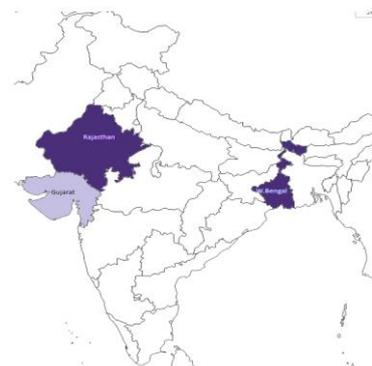
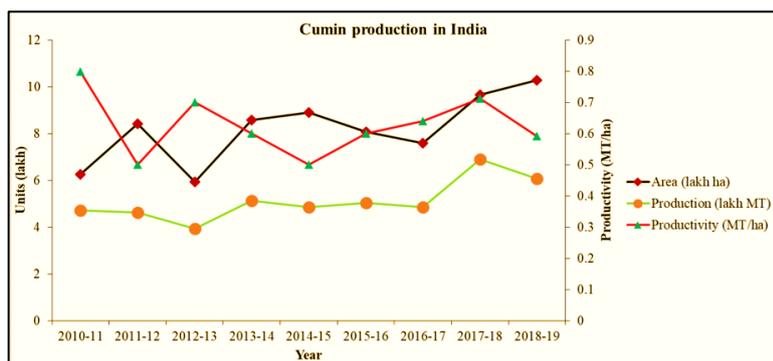
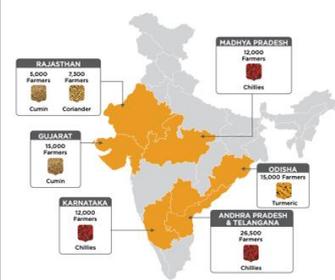


Figure 8. Cumin cultivation states in India

Figure 9. Cumin production in India

- India accounts for almost 70 % of the world’s cumin production, whereby 80-85% of production is consumed domestically and around 15-20 % is exported.
- In 2021, the estimated total production of cumin was 856 thousand metric tons over an area of 1.2 million hectares (Statista 2021).
- Cumin accounts for 5.81% of total spices produced in India. 99% of cumin is grown in Gujarat and Rajasthan and a small portion in West Bengal. The primary growing areas in Rajasthan are Barmer, Jalore, Nagaur, Pali, Ajmer, Bhilwara, Tonk, Jodhpur, Jaisalmer, Sirohi, Sikar and Bikaner. The major areas in Gujarat are Banaskantha, Sabarkantha, Mehsana, Patan, Junagarh, Jamnagar, Rajkot, Bhavnagar, Amreli and Surendra Nagar.
- During the last ten years, cumin cultivation area increased by 60 % and production by 28%.
- The Indian cumin industry is facing many challenges despite continuous export growth. In the last ten years, productivity dropped significantly by 0.2 metric tonnes/ha. In 2010, productivity was 0.8 metric tonnes/ha compared with 2019 was 0.6 metric tonnes/ha.

Organic Cumin Promotional schemes in India

<p>Promotional Programs for Spice Organic Farming</p>	<p>Financial support and capacity building Mission Development of Horticulture, National Mission on Sustainable Agriculture and Spices Board are supporting organic farming initiatives. The following types of financial support are available:</p> <ul style="list-style-type: none"> - For horticulture crops 10000 INR per ha up to 4 ha is given to a farmer for 4 years - Permanent vermicompost subsidy up to 50000 per farmer - Marketing support and certification - APEDA approves and facilitates organic certification to farmers and FPOs <p>Training facility</p> <ul style="list-style-type: none"> - A certified model organic farm at Central Arid Zone Research Institute, Jodhpur has been available to train FPOs. The aim is train production technology of organic spices.
<p>Strengthening Spice Value Chain in India and Improving Market Access through Capacity Building</p>	<p>The project is being supported by the Standards and Trade Development Facility (STDF) of World Trade Organization and implemented by FAO of the United Nations; and Spices Board, Ministry of Commerce & Industry, Govt of India.</p> <ul style="list-style-type: none"> - The project focuses on the production of an exportable surplus of spices such as Cumin, Fennel, Coriander and Black Pepper, by addressing Sanitary & Phytosanitary Issues (SPS) in selected production hubs of Gujarat, Andhra Pradesh, Madhya Pradesh and Rajasthan. Further, the project will introduce a system of linking farmers to exporters, thereby improving traceability through a system of certification to ensure the credibility of the products. The project will contribute towards the national goal of Doubling Farmers’ incomes and support efforts to reduce poverty (SDG1) and hunger (SDG 2) in the selected project areas.
<p>Sustainable Spices Initiative -India</p>	<p>The Initiative, a sector-wide consortium founded in 2012, brings together an international group of companies active within the spices and herbs sector, and NGOs. After the platform was established by IDH, The Sustainable Trade Initiative, many companies made a commitment to source their products sustainably and to make a positive impact on their value chains.</p> <p>https://www.idhsustainabletrade.com/initiative/sustainable-spices-initiative/</p> 

What are significant challenges in the Cumin supply chain?

Cumin production constraints

Low productivity	<ul style="list-style-type: none"> - Insufficient availability of quality seed - Existing varieties are low yield and susceptible to biotic and abiotic stress. Cumin is still a minor crop, the study of genetic traits is very limited - Farmers are still following traditional agronomical measures.
Cultivation constrains	<ul style="list-style-type: none"> - Increased input cost (seed, fertilizer and pesticides) - Increased labour wages - High electric charges and inadequate supply
Post-harvest loses	<ul style="list-style-type: none"> - Lack of threshing technologies - Threshing of the crop is done manually having low efficiency - Lack of storage facilities (India loses about one-third of its produce, roughly an estimated \$10 billion worth each year to spoilage because there is a lack of proper storage facilities) - Lack of the processing unit for grading

Cumin market constrains

Marketing constraints	<ul style="list-style-type: none"> - Distance to spice specific markets such as Onjha in Gujarat, Kota, Ramganj mandi in Rajasthan and Neemach and Mansour in Madhya Pradesh are significant constraints. Therefore, most small and medium scale farmers depend on local traders or intermediaries. - High price fluctuation - No minimum support prices - Unfair auction, poor weighing, grading and sorting facilities at APMCs
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Challenges of food safety and quality

Package and Marketing Bureau of Indian Standards (BIS 2447: 2010)	<ul style="list-style-type: none"> - The spice market is highly unorganized, dominated by 85 % regional players. Only 15% are branded players such as MDH, Badshah, MTR, Priya and Everest. These branded players follow BIS norms for cumin marketing.
EU regulations	<ul style="list-style-type: none"> - Majority of regional players are not having adequate knowledge on EU regulations. - The market segment is highly unorganized, regional exporters do not have knowledge on sanitary and phytosanitary issues, maximum residue limits (MRLs) for pesticides. Border rejection in proportion to notification and destruction of consignment for India during 2005 to 2017 was highest compared to Brazil, China, Turkey and Vietnam (Chaudhary 2019).

Comparative advantages of cumin exports from India

Turkey and Syria are major competitors in cumin exports to Europe. Turkey still dominates the export share of cumin in the German market compared to India.

Seasonality	In India, cumin is cultivated in the Rabi season (October to March). Sowing takes place from October to November and is harvested in February and March. In other major producing countries like Turkey and Syria, it is sown after completion of the season in India.
Market distance	Turkey is closer in terms of mileage and has a well-established agri-commodity market network particularly to Germany.
Export competitiveness	At constant price, the continents like Europe, Asia, Africa and North America are found to be moderately competitive markets for cumin export from India. Australia and South America continents are non-competitive markets at a constant price to export cumin. Whereas, at the current price, Europe was a moderately competitive market and Australia, Asia, Africa, South America, and North America were non-competitive markets for cumin export from India (Kshirsagar et al., 2020)