Towards Self-sufficiency in Spices:
Status, vision and strategies

ICAR-IISR
Policy Brief
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Spices are a diverse and distinct crop group spanning annuals and perennials belonging to several botanical families. They yield high value low volume commodities with significant export orientation and form a distinct sector within agriculture. The spice exports from the country have been growing steadily over the years, doing well both in terms of production and productivity. Despite the strong performance in spice exports, India continues to import a significant quantity of spices. The country imported spices valued at 724 million USD (₹4,99,549 Lakhs) during 2018-19 (Fig. 1). The spice import value is 26 per cent of value of spice sector exports from the country.

It is important to take a closer look at the import profile to design strategies aimed at enhancing self-sufficiency in spices and to sever the dependence on imports. A few salient features of the spice import of the country needs to be noted. It can be seen that clove is the single major constituent of imports in value terms (16.4 %). Even though India is known as a traditional grower of black pepper, the country has become a major importer of black pepper in the recent years. A confluence of several factors like yield stagnation in the crop, limited geographic spread, increased domestic demand from households and industry, robust re-export opportunities etc. have led to the increase in imports of the commodity. The tree spices together (clove, cinnamon, nutmeg & mace and cassia) constitute nearly 30 per cent of the total value of spice imports. When we consider the share of oils and oleoresins derived from these tree spices in our imports, the self-sufficiency in tree spices shall deteriorate further. For example, nearly 30 per cent of the import value of oils and oleoresins (₹14,410 lakhs) comes from imports of clove oils (leaf, bud and stem oils) alone. Another significant contributor to the spice import bill with a share of 15.6 per cent (Import worth ₹78,044 Lakhs) is asafoetida, which is not commercially produced in the country at present.

Though spice commodities are aggregated under a common denomination, they vary widely in terms of their bulkiness, value and nature of consumption. These specificities need to be considered while designing policies for strengthening import self-sufficiency in the sector. Among spices, commodities like cardamom, clove, mace, black pepper command a higher price compared to more common spices like turmeric, ginger and chillies. The spices like ginger and turmeric are also bulky in nature. Therefore, though they together constitute nearly 30 per cent of the import quantity, their share in value terms is relatively low (3.2 and 6.0 per cent, respectively).

Spice imports need a close scrutiny

Some quantum of imports, even in commodities where India is a leading producer and exporter, may happen. Therefore it is important that the

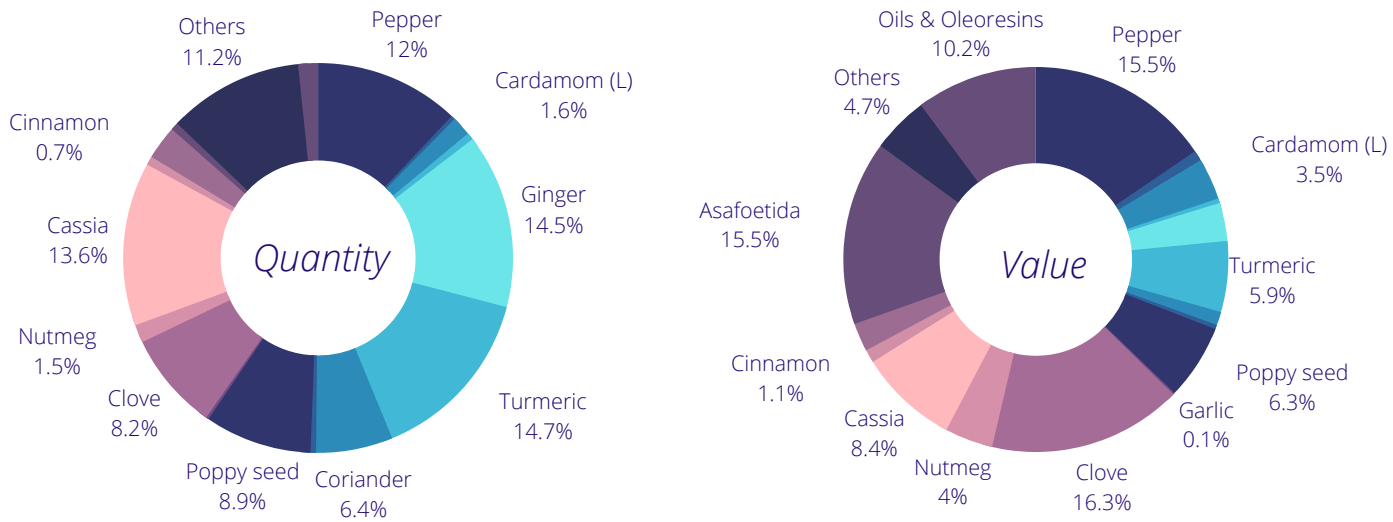

Fig. 1: Import profile of spices during 2018-19

imports to the country should be contextualised in terms of domestic output of these imported commodities. For example, even though India imports over 30,000 tonnes of ginger, it is insignificant (Less than 2 per cent) compared to the domestic output of ginger. In case of pepper, clove, and large cardamom the share of imports is significant when compared to the domestic output (Table 1). In case of cinnamon also, the domestic production is meager. Asafoetida and cassia are not commercially produced in the country. The specific crop economies needs to be studied to identify reasons for domestic shortfall, indicate opportunities for enhancing domestic output and thereby address the reasons for high import dependence. It should also be noted that the import volumes are much higher than exports in ginger, pepper, large cardamom and clove. Indicators like imports as a share of domestic production and share in total import of spices in value terms can be used to identify target crops for directing policy efforts aimed at import substitution and self-sufficiency.

When we talk of enhancing self-sufficiency in spices, we should clearly understand that the issue is not spread evenly across the spice crop economy, which includes crops of wide diversity, in terms of their domestic output, import dependence and export orientation. A starting point for self-sufficiency efforts would be to focus on crops which are major contributors of spice import bill. Considering the indicators discussed herein, the spice economy of the country should focus on specific reasons for high imports in four commodities viz, pepper, clove, asafoetida, cinnamon & cassia which together would account for 57 per cent of spice imports in value terms.

Reasons for imports

Apart from the obvious need for meeting shortfall in domestic production of specific spices, there could be other motives for import of spice commodities. It is pertinent to note that all spice imports need not be actively discouraged. India has emerged as a global hub of spice extraction industry. A significant share of spices imported in several spice commodities is destined for extraction industry. As a centre of spice extraction, some degree of inflow of raw materials (spices, in this case) would be unavoidable and even necessary to meet seasonal variations in availability and to take advantage of price global relative price movements.

Another motive for spice import is linked to the fact that India is also an active re-exporter of spices. Spices from India often command a better price in global markets, many spice exporters take advantage of this fact and re-export imported spices after minimal processing and value addition. The crude estimate of unit value of imports and exports at the aggregate level is given in Fig 2. In case of most of the commodities where both export and import flows are active, it can be seen that the unit value of exports are substantially higher. For example, in case of black pepper, which is one of the major item of import, the export unit value is higher by 34 per cent than the import unit value. Even though the unit export values are significantly higher in small cardamom,

Table 1: Context of import of selected spice commodities 2018-19

Commodity	Production (Qty - Tonnes)	Imports (Qty - Tonnes)	Exports (Qty - Tonnes)	Imports as a share of production (%)
Black pepper	66,000	24,950	13,540	37.8
Cardamom (S)	16,795	685	2,850	4.1
Cardamom (L)	7,287	3,343	860	45.9
Ginger	17,91,765	30,085	18,150	1.7
Turmeric	9,11,629	30,578	1,33,600	3.4
Coriander	6,60,900	13,230	48,900	2.0
Cumin	6,94,479	950	1,80,300	0.1
Garlic	30,05,990	445	29,500	Negligible
Chilli	16,61,680	1,230	4,68,500	0.1
Clove	2,760	16,940	892	613.8
Nutmeg	15,290	1,195	3,300	7.8
Oils & oleoresins	-	3,410	12,750	-

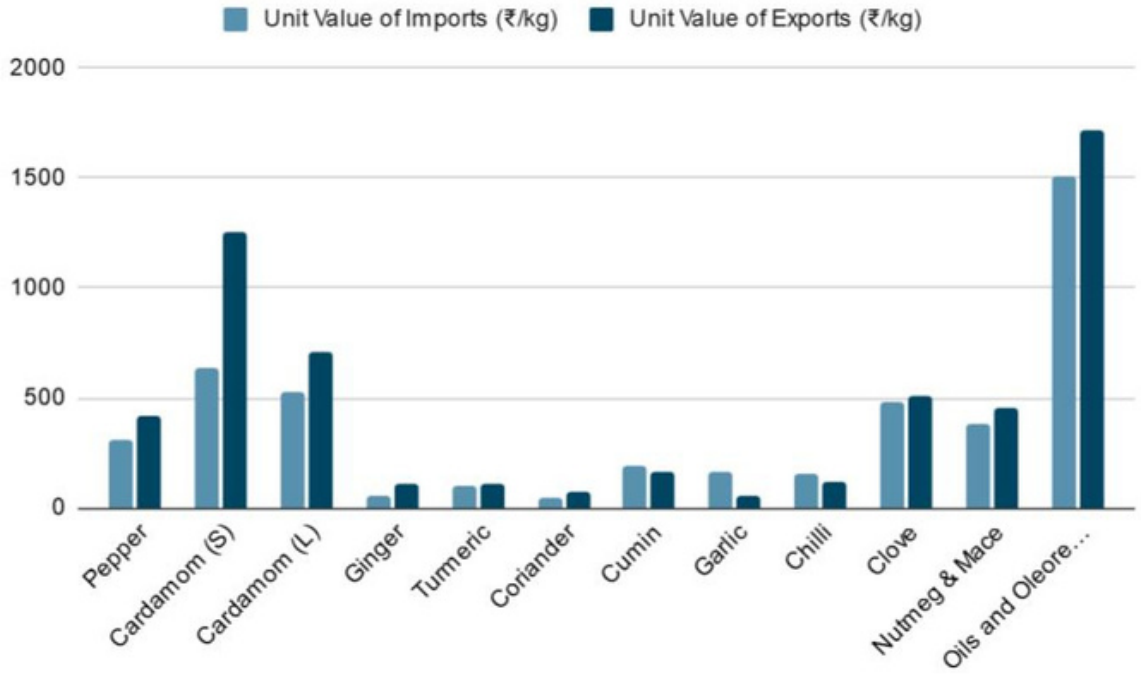

Fig. 2: Comparison of unit value of imports and exports of selected spices 2018-19

ginger and cumin, their import quantities are very low relative to domestic output. For chillies, cumin and garlic, where our imports are negligible, the export unit values are lower. The imports in these commodities might be limited to meet specific and esoteric quality requirements, which are usually sourced at higher prices. These commodities are exported in bulk in various quality categories, which could further lead to lower average unit value of exports. These two factors could explain the adverse export unit value in these commodities. Even in case of spice oils and oleoresins, there could be limited re-exports.

The pure economic efficiency and profit motive also accounts for spice imports. Due to a host of factors, India does not have relative advantage in production of all the spices. In some cases, the commercial cultivation is almost absent (For example, asafoetida and cassia). Production of some spice crops like large cardamom and black pepper is limited to specific agro-ecologies and there are significant limitations for expanding their cultivation in non-traditional agro-ecological locations.

The role of spice extracts

The fact that spice extraction is a significant factor in understanding trade scenario is exemplified by the case of black pepper and nutmeg. If you look at the commodity trade in isolation for black pepper for the year 2018-19, you will see that Indian exports were valued at ₹56,868 Lakh and imports were valued at ₹77,991 Lakhs making it a net importer of black pepper. But this narrative fails to account for the thriving pepper oil and oleoresin exports from the country valued at ₹43,103 Lakhs. Pepper essential oil and oleoresin accounts for 16 per cent of total export value of spice oils and oleoresins. If we include pepper oil and oleoresin along with black pepper, the scenario reverses and India would become a net exporter of the commodity. A similar case can be made for nutmeg also. The major components of export trade of spice oils and oleoresins in given in Fig. 3.

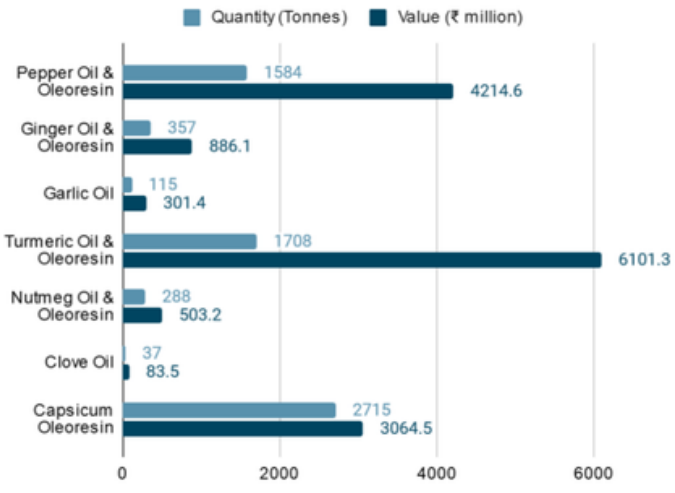

Fig. 3: Major components of spice oils and oleoresin exports 2018-19

Need for crop specific strategies

The discussion on the structural composition of spice imports and their underlying features warrants that crop specific strategies would be required to be deployed along with generic measures to reduce import dependency in spices sector. Key elements of crop specific strategies are outlined for four crops/commodities which constitute nearly 60 per cent of spice import in value terms.

Asafoetida

Asafoetida is the oleo-gum resin from roots of a perennial plant which prefers cold desert climate. Commercial 'Heeng' is obtained from Ferula asafoetida. The commercial cultivation of the crop is absent in the country. Recently ICAR-NBPGR facilitated Institute of Himalayan Bioresource Technology to introduce six accessions of "Heeng' plant from Iran.

- Constant hand-holding and technical guidance of farmers for taking up cultivation of the crop concurrently supported with facilities for post harvest processing and marketing
- Identification of feasible locations through remote sensing and GIS mapping
- ICAR should initiate active research on asafoetida crop under a suitable institute
- Implement a special package for promoting cultivation of asafoetida in identified geographic regions

Clove

The perennial tree crop is an introduced crop. The shyness in flowering under non-ideal conditions and long gestation period before economic viability are deterrents for the farming community in cultivating clove.

- The tree spice may be given the status of a special plantation crop and incentives may be provided for identified regions to enhance area under the crop.
- Crop prospect map need to be prepared identifying and delineating potential areas for cultivation of clove.
- Crop varietal development research efforts to identify and develop clove varieties which can yield outside traditional clove growing regions need to be accorded priority
- A special project for revival of old clove plantations and targeted area expansion in traditional areas like Kanyakumari (Tamil Nadu) and niche areas like Idukki (Kerala) need to be operationalised.

Black pepper

A significant share of area under black pepper is planted with local cultivars. Being perennial, varietal replacement has been slow in spite of releasing several high yielding varieties. This scenario needs to be addressed with a special focus on genetic improvement.

- Overhaul the planting material production and supply network with a focus on varietal replacement and enhanced access to accredited nurseries.
- Explore opportunities for creating a supply network for light pepper (pepper harvested before full maturity) as it is increasingly imported for extraction purpose. Create special farmer groups or regions for ensuring availability of light pepper.
- Promote INDGAP in spices in coordination with Spices Board for addressing production constraints along with biotic and abiotic challenges.

Cinnamon & cassia

Though India is considered as a secondary centre of origin for cinnamon, its large scale cultivation is negligible mainly due to labour intensive nature of processing and competition from its close substitute, cassia, which is cheaper. The availability of cheaper imported cassia stifles the growth and establishment of cinnamon as a crop with economic prospects.

- Popularize the new cassia variety (Konkan cassia) released under AICRP Spices to initiate cultivation of cassia in the country.
- Adopt advances in mechanization of processing of cinnamon with international cooperation from other producing countries.
- Support a disaggregated household processing system of cinnamon, as practiced in Sri Lanka.
- As a relatively hardy crop which can come up in marginal lands and under limited management, promote cinnamon and cassia as a component of social forestry initiatives in the country.

The recent waning of fortunes of plantation crops like rubber offers a window of opportunity to promote cinnamon as an alternate plantation crop. ICAR should enter into active consultation and collaboration with Rubber Board to promote cinnamon in rubber plantations. The active network of Rubber Producer Societies in the country can be redesigned to cater to cinnamon also. Exclusive cinnamon producer societies can also be promoted, where sufficient potential warrants it. This will help in product aggregation and bring in economies of scale in marketing. The vast infrastructural network and manpower of the Board can be used for exclusive development activities in cinnamon and cassia. The Board can act as a parastatal stakeholder in cinnamon.

Apart from the crop specific strategies, some general strategies can work well in spices sector, where the high potential for value addition and the global nature of value chains make them much more attractive. The contract farming route for production of spices with unique quality traits and organo-leptic profile, targeted for premium consumer segment can be experi-mented in several spice crops. The farmer collectives like FPOs which are fast gaining prominence in the country, can contribute to the self-sufficiency effort in spices sector. Special FPOs for crops of interest like cinnamon, asafoetida and clove need to be promoted aggressively. A judicious mix of crop specific and generic strategies in the sector can significantly enhance the self-sufficiency drive in Indian spices sector.

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