



# Nurturing India's asafoetida economy:

## status, prospects and the path forward

*Asafoetida, commonly known as 'Hing' is a pungent spice with deep roots in Indian cuisine and traditional medicine. India relies heavily on imports to satisfy its demand for the commodity. The domestic asafoetida sector faces numerous challenges, hindering its growth and sustainability. In this policy brief, we explore the various dimensions of the asafoetida industry in India including its availability, production, processing, consumption and trade. Drawing on field survey in Hathras district (UP), focus group discussion and secondary data we highlight the issues shaping the trajectory of this sector and provide a precise roadmap for the asafoetida economy in India.*

### Introduction

Raw asafoetida is the oleo-gum-resin extracted from the rhizome and roots of various species of *Ferula*, primarily *Ferula assa-foetida*. It is a perennial herb belonging to Apiaceae family (Umbelliferae) and is a well-known condiment. It has a strong, pungent, unique aroma and is used as a flavoring agent in many Indian dishes. Presently, majority of the households consume the product in the form of compounded asafoetida (*Bandhani Hing*), made through a process termed compounding. In this process, the raw asafoetida resin is mixed with cereal flour (usually wheat), gum arabic and water, made into a dough, dried and powdered. During 2022-23, India imported 1442 tonnes of asafoetida valued at 188 million USD (Rs. 1504 crores), constituting 15.6 per cent of the total spice imports in value terms. As the largest contributor to the spice imports, this commodity warrants a close study to explore possibilities for enhancing domestic production and efficiency of the processing sector. The quantity of asafoetida imports witnessed strong growth during the last two decades (Fig 1). Since 2000-01, the quantity of imports grew at compound annual growth rate of 4.4 per cent.



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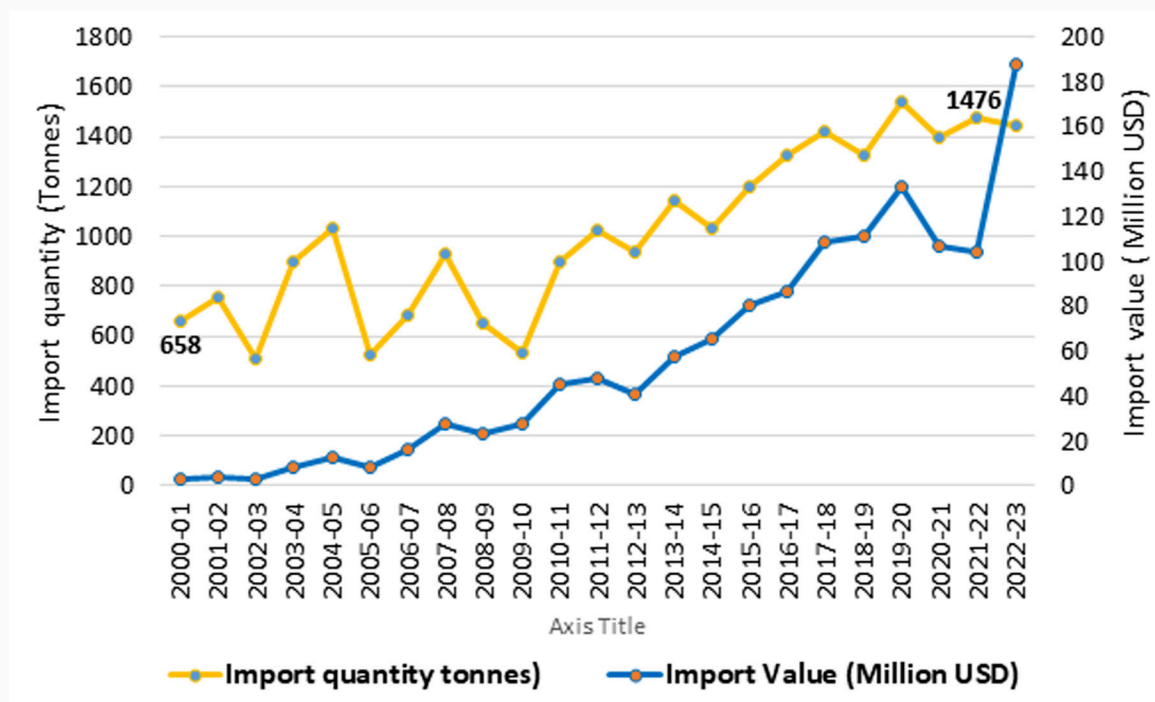


Fig 1: Trends in imports of asafoetida

### Asafoetida trade

India is the world's largest importer, consumer and exporter of asafoetida. Global asafoetida production is concentrated in a limited geographic region, comprising mostly of central Asia. This has led to high concentration in import sources. For the biennium ending 2021-22, more than 95 per cent of India's asafoetida imports of 1438 tonnes came from just four countries, viz., Afghanistan, Uzbekistan, Kazakhstan and Iran (Fig 2). Among these, Afghanistan has been the major source of imports historically and the present share of the country is about 76 per cent. Given the high concentration of imports, the political instability in the source countries has implications for sustainable access to the raw material required for the asafoetida processing sector in India.

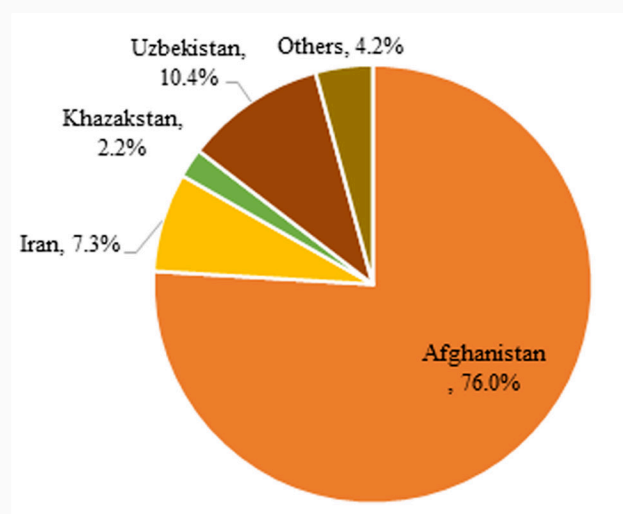


Fig 2: Import sources of Asafoetida (BE 2021-22)

The export destinations for asafoetida are more diverse. India exported more than one tonne of the commodity to 39 countries during 2022-23. More than 50 per cent of the export demand for asafoetida comes from North America (more specifically USA and Canada) and Middle East countries (Fig 3). These are also the regions where the presence of Indian diaspora is significant. This seems to have driven the demand for this unique spice commodity. South East Asian countries and SAARC countries are the other major export destinations. Presently, United Arab Emirates (17.7%) and the United States (16.0%) are the two major export destinations for asafoetida.

India does not have substantial domestic sources for raw asafoetida. However during the TE 2022-23, India exported 1287 tonnes of asafoetida annually. This would imply that India re-exports about 90 per cent of its import quantity. Given the strong domestic demand for asafoetida, this scenario is practically improbable. This is due to the fact that the reporting of trade flows for both raw asafoetida and compounded asafoetida is done using the same HS code, though they differ in terms of value. The imported raw asafoetida is processed into

compounded asafoetida, which involves bulking of asafoetida using other ingredients into a more consumer friendly ready to use product. Bulk of the exports is in the form of compounded asafoetida. This is also evident from the unit value of exports and imports. Since 2012-13, the average unit export value of asafoetida was only 10.3 per cent of the average unit import value of the same commodity.

The export quantity has increased more than three times from 388 tonnes in 2000-01 to 1287 tonnes in 2022-23 (fig 4), while the export value of the commodity has increased from 0.99 to 10.7 million USD during this period (45.2 to 811 million Rs)

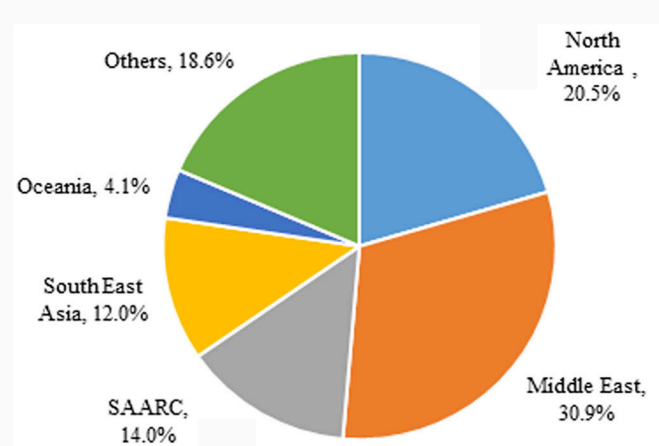


Fig 3: Export destinations of Asafoetida (BE 2021-22)

Note: Myanmar is included along with SAARC nations and excluded from South East Asian countries. Indonesia and Vietnam are included in South East Asia but excluded from Oceania.

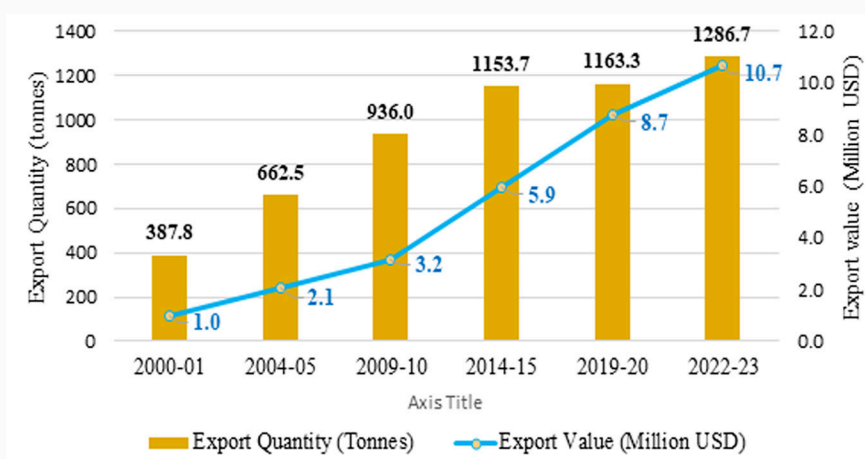


Fig 4: Rising trend in asafoetida exports from India

## Asafoetida as a spice

Asafoetida is included in the list of 52 spices under the purview of the Spices Board of India. In terms of value, it is the single largest item of the country's spice import basket with a share of 15.6 per cent. This commodity would be a critical cog in India's quest for attaining self-sufficiency in spices. Unlike other major import items in the spice

basket (cinnamon/cassia, clove, pepper and spice essential oils & oleoresins) domestic production of asafoetida is virtually nill. Also in case of other major imported spices, there is significant volume of extant domestic production. Therefore, the interventions at technical and policy level required for enhancing domestic availability of these spices are less challenging in nature. However, this is not the case with asafoetida, where intensive and focused efforts are required to initiate and sustain commercial production of the commodity.

## The processing sector

Asafoetida used to be sold in the form of lumps through unorganized marketing channels before the emergence of the processing sector. The demand for processed asafoetida first shot up during 1920's in the

southern parts of India (NIFTEM, 2021). The introduction of compounded asafoetida in powder form during the 1970's was another major change in the marketing scenario of the commodity. The Indian asafoetida market size is estimated to be INR 6000 crores in 2022-23.

The asafoetida processing industry is primarily concentrated in certain regions. Hathras, Kanpur, Delhi, Ahmedabad, Vadodara, Indore, Mumbai and Chennai are some of the major processing centres in the country. These processing centres together account for more than 60 per cent of the domestic output of compounded asafoetida in the country. Most of the units involved in processing asafoetida function in the unorganized sector, have limited production capacity and often function with inadequate facilities for stringent quality control. The structure of the processing sector is dominated by small scale units with production capacity of less than 12 tonnes. More than 70 per cent of the processing units fall in this category. It is estimated that a small-scale asafoetida processing unit with an output of 12 tonnes compounded asafoetida per annum would require an investment of Rs 18 lakhs including working capital, plant and machinery. During the field survey, it was found that several processing units practiced open sun drying of the semi-finished product, which poses serious implications for food safety and hygiene.

The major constraints identified by the traditional processing units include the absence mechanized drying protocols, lack of access to analytical services, high cost of quality control, low capacity for hedging input price risk, lack of product diversification, inability to access new generation marketing platforms, lack of technology advancement in product packing and increased competition from new entrants in the industry.

## Hathras

The Hathras district in Uttar Pradesh has been a large-scale producer of processed asafoetida for several decades. It is estimated that there are more than 200 asafoetida processing units in the district. Among them, only a third of the units remain operational throughout the year. The asafoetida processed in Hathras has been conferred with the Geographical Indication (GI) Status in 2023 under the name 'Hathras Hing'. The Uttar Pradesh government has also identified asafoetida as the product for Hathras district under the One District One Product (ODOP) scheme. This is the first and only instance where asafoetida has been considered under the ODOP scheme. The increased competition from other processing regions, the prevalence of vintage machinery, lack of mechanization in processing, and low adoption of modern business strategies have led to a decline in the share of Hathras in asafoetida processing. However, the industry association is planning to leverage the GI status of the commodity and the support under ODOP to usher in pan industry changes to modernize the industry.

## A note on production efforts of asafoetida in India

An organized effort for cultivation of asafoetida in India was initiated by CSIR-Institute of Himalayan Bioresource Technology, Palampur (CSIR-IHBT) in 2018. Six accessions of *Hing* were introduced through ICAR-National Bureau of Plant Genetic Resources (ICAR-NBPGR), New Delhi. The seedlings were raised in the controlled conditions at CSIR-IHBT, Palampur. Trials were also conducted at the Centre for High Altitude Biology (CeHAB), Ribling, (Lahaul and Spiti) under the vigil of ICAR-NBPGR. The institute has standardized the production protocols for growing asafoetida crop. An MoU was signed between CSIR-IHBT and Department of Agriculture, Himachal Pradesh in 2020 for a joint collaboration for the cultivation of asafoetida in the State. The collaboration aims to establish a viable seed production chain and bring about 300 ha of land under asafoetida cultivation. The institute has standardized the production protocols for growing asafoetida crop and has also optimized the micro propagation protocol for asafoetida using leaf explant, which can mitigate the problem of seed dormancy in the crop. Among the accessions significant phenotypic variability has been observed which offers scope for crop improvement through systematic plant breeding strategies.

The initial crop growth and response indicated technical viability of the crop and for its commercial cultivation in the country, especially in the cold desert regions of the Indian Himalayas. Presently more than 70,000 plants are in various stages of growth in farmer fields. The first yield realisation of the crop is expected by 2025-26.

### Addressing sectoral challenges: The way forward

**Explore options for enhancing sustainable domestic production of asafoetida:** The exclusive dependence on imports of asafoetida is not rational given the instability in prices and availability. The experimental crop trials undertaken by CSIR-IHBT indicate that asafoetida cultivation is technically feasible. In the interest of attaining self-sufficiency, attractive production-based price incentives should be offered to compensate for the high level of technology risk involved in adopting this crop.

### Mapping of climate analogous regions:

The pace of dissemination of a crop as a viable economic choice will depend on several factors. The availability of agro-ecological conditions for sustainable production of the raw material is a basic requirement. The potential areas for crop spread and site suitability should be mapped for targeted promotion of asafoetida cultivation.

**Intensive investment in crop research:** A significant part of the asafoetida gum is collected from naturally occurring plants in Afghanistan, Iran,

Uzbekistan etc. Organized research on agronomic practices, crop management and harvesting techniques are conspicuous by its absence in these countries. Significant yield improvement and production efficiency can be attained through crop management research. Focused investment should be made to hasten research on developing scientific crop management practices.

**Promoting good manufacturing practices:** The processing industry needs to follow good manufacturing practices to avoid contaminations in the final product and to overcome inconsistency in product quality. In major processing centres, clustering of units into commodity specific industrial areas can ensure access to common facilities like quality testing services. Given the strong network of privately-owned processing industries and policy objectives of promoting asafoetida industry, establishment of state-of-the-art common facilitation centres in public-private partnership need to be considered.

**Technology upgradation initiative in asafoetida processing:** The machinery used in the most of the processing units are obsolete in nature and the practices adopted for the production process are also outdated. There is significant scope for improvement of the production process at various stages like selection of raw material combination, mixing, drying and powdering. For example, open sun drying takes 6-20 days depending on the season. Research intervention are required improving the drying process without compromising on the quality of the final produce. Along with research-based interventions, a technology upgradation initiative with carefully designed incentives is imperative for the modernization of the asafoetida processing sector.

**Strengthening quality control regime:** The lack of easy access to quality testing facilities is a serious constraint, especially for the small processing units. Given the diversity in source of raw material and the incomplete information on the botanical origin of some types of gum used as raw material, the quality testing is of utmost importance. There are no existing standards for microbiological parameters for asafoetida under the Food Safety and Standards (Food Products Standards and Food



*Asafoetida plant and seeds (inset) (Source: CSIR-IHBT)*

Additives) Regulations, 2011. The FSSAI guidelines on asafoetida needs revision especially with respect to permissible microbial load in the final product. FSSAI standards for the gums used during compounding also needs to be specified.

**Opening new avenues for asafoetida:** The diverse chemical constituents, their properties and potential applications of chemical constituents of asafoetida are not well understood. New product development, and innovative applications of extracts across food, nutraceutical, pharmaceutical and wellness industries can enhance the depth of asafoetida markets while providing commercial opportunities through product diversification.

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*The views expressed by the authors in this brief are personal and do not necessarily reflect the official policy or position of the organizations they represent.*

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