



PROCESSING OF ISABGOL



AATMANIRBHAR BHARAT

**PM Formalisation of Micro Food Processing
Enterprises Scheme (PM FME Scheme)**

INTRODUCTION

- ✓ Isabgol (*Plantago ovata*) is an important annual, short stemmed commercial medicinal herb belonging to the family Plantaginaceae.
- ✓ The name is originated from two Sanskrit words, 'asp' and 'ghol' referring horse ear as the seed resembles to horse ear, also refers to the boat shaped seeds.
- ✓ It is known by several names such as ispaghula, sheetabeeja, aspaghol, isofgolu, ashwagolam, aspagol, ashwakarna, bazarqutuna.
- ✓ Isabgol is mainly known for its medicinal properties such as promotes digestive health, relieves constipation, treats diarrhea, lowers cholesterol and blood sugar levels, boots satiety and aids in weight loss.

ISABGOL INDUSTRY IN INDIA

- ✓ India lead the world market in terms of production and export of isabgol seed and husk to the world market. India's average annual production is 120,000 tonnes, and in 2020-21 there's likely to be negligible carry-forward stock.
- ✓ India produces about 80% of isabgol husk powder in the world market and about 90-95% of India's isabgol production is exported.
- ✓ The major importer of isabgol end products are United Kingdom, USA, China, France and Norway.
- ✓ The total farm area under this wonder herb is 55,000 acres promoting its large scale farming.

Health Benefits Of Psyllium Husk (Isabgol)

Aids Digestion

Reduce Blood Sugar

Helps Weight Loss

Reduces Blood Pressure

Anti-inflammatory

Detoxifying the Body

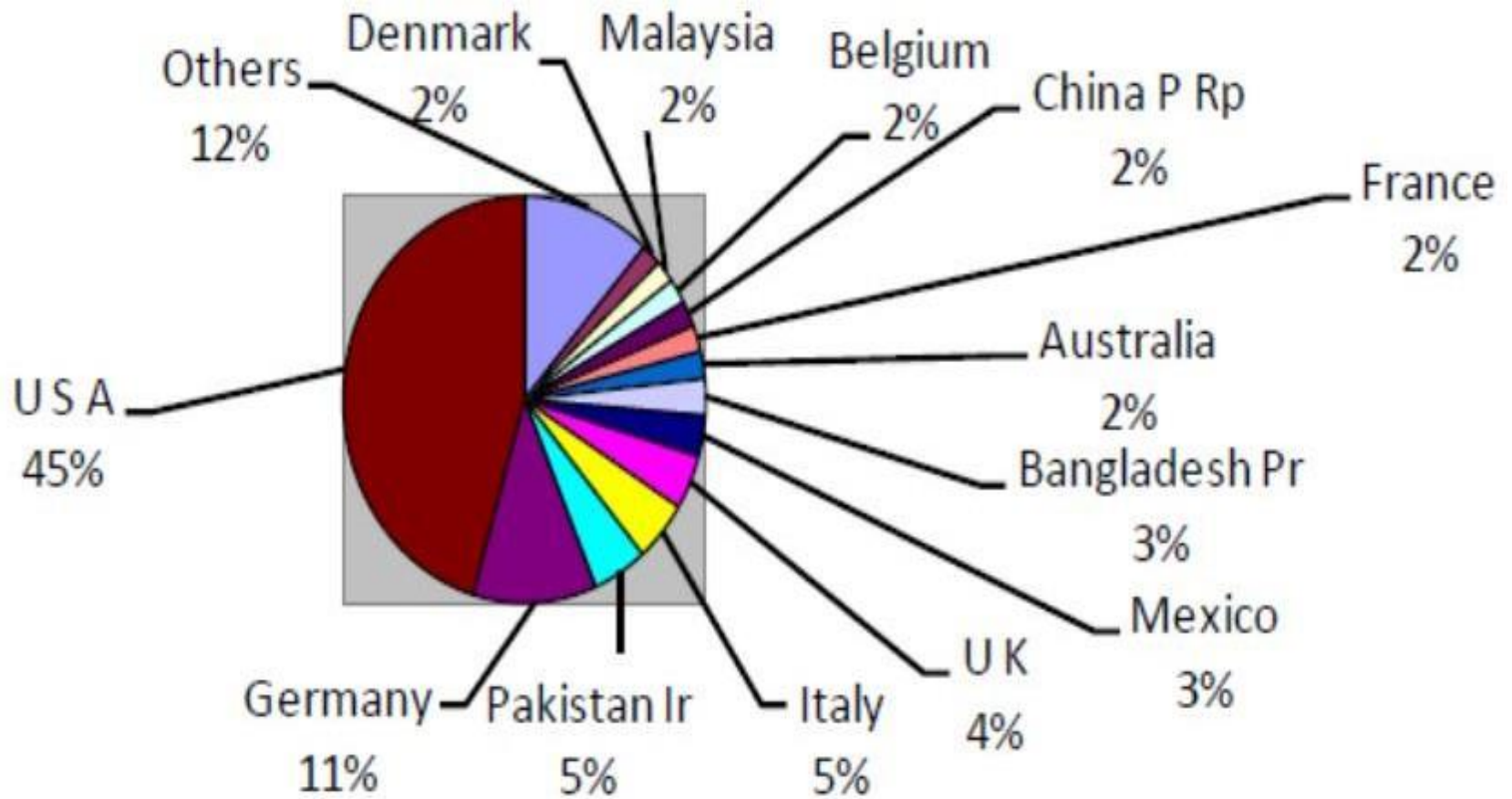
Cholesterol Reduction



VALUE ADDITION OF ISABGOL

- ✓ Isabgol value added products include Instant vegetable soup mixes (tomato soup and tomato-mushroom soup), composite flour (biscuit and noodles), cookies, cake mixes (chocolate and plain cake), ice-cream stabilizer and dessert mixes isabgol husk, isabgol husk powder and isabgol kha-kha powder.
- ✓ These value added products are cost effective, safe for human consumption and rich in total dietary fiber. The main by-product of isabgol husk is,
 - Lali: Used as cattle feed.
 - Chito: Used as Pig feed.
 - Khakho: It is used to prevent ice slipping
 - Golaisab: Used as cattle feed

COUNTRYWISE EXPORT OF ISABGOL

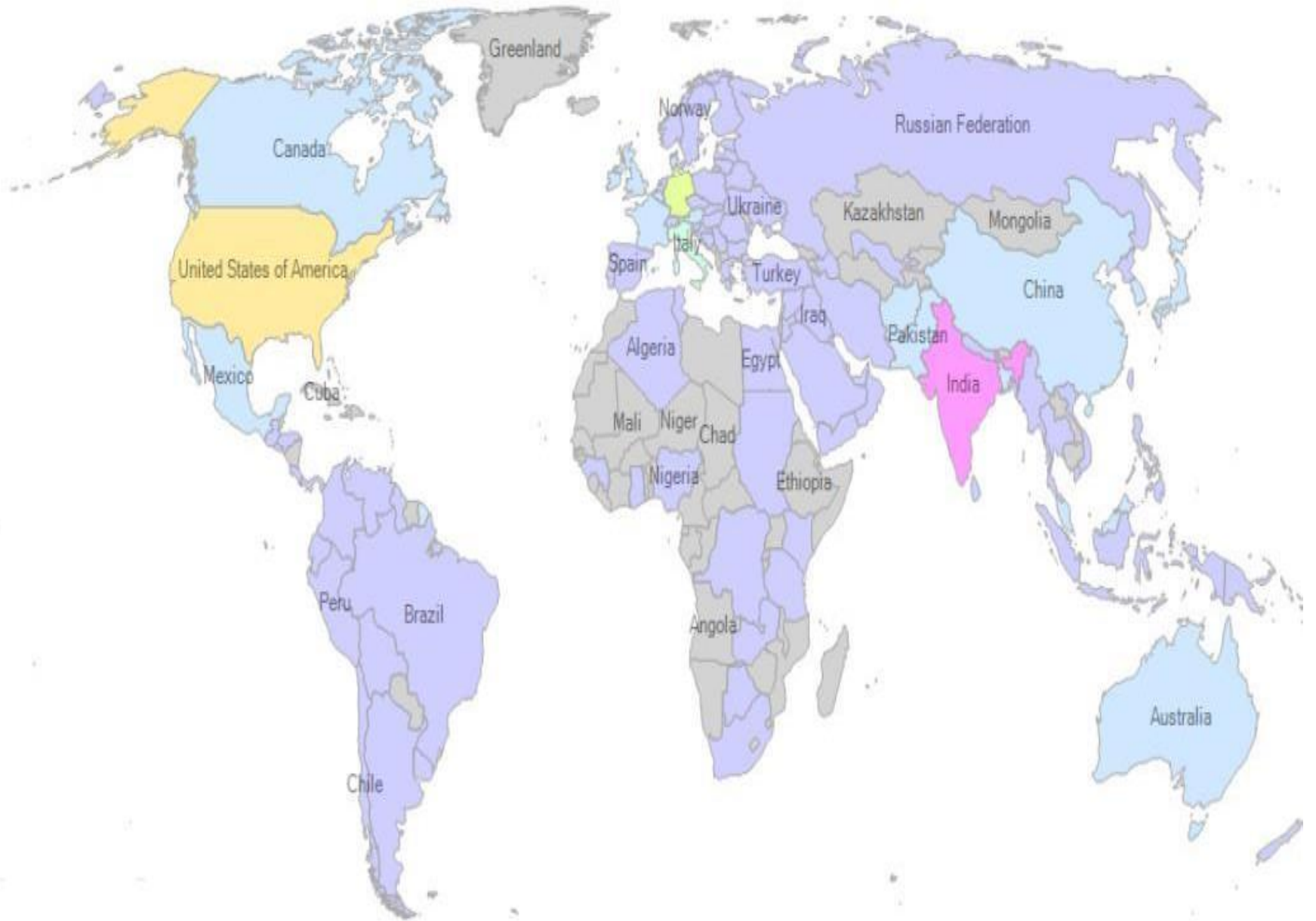


KEY DETERRENTS TO THE GROWTH OF THE MARKET

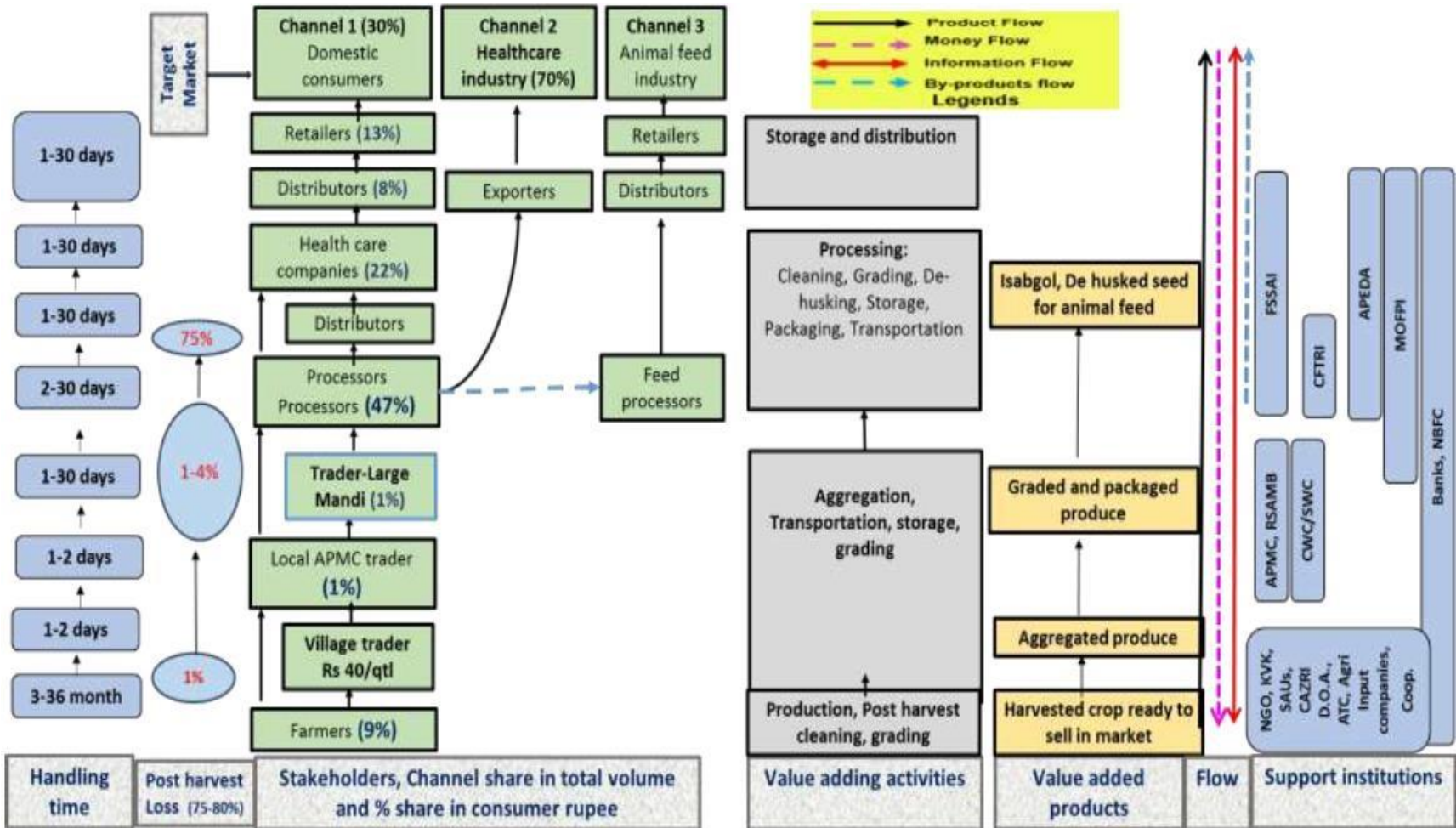
- ✓ Highly weather sensitive crop so, unseasonal rains in winter causes damage to the crop and loss to the farmer.
- ✓ Non-availability of mandis and processing hub in Rajasthan.
- ✓ Price is highly volatile and depends upon previous years stock.
- ✓ Lack of research and development facilities.
- ✓ Shattering of seeds under climatic adversity.
- ✓ Prolonged monsoon results in delay in sowing.
- ✓ Unavailability of quality, non-shattering seeds to withstand climatic anomalies.
- ✓ Lack of incentives from the government to take up research and trials for value addition in the crop.

EXPORT-IMPORT OPPORTUNITIES

- ✓ Isabgol has huge export potential due to its numerous health benefits and use in Unani and Ayurvedic medicines.
- ✓ India holds a monopoly in production and export of isabgol seed and husk in the international market.
- ✓ Isabgol end products are exported to United Kingdom, USA, China, France, Norway, Korea, Japan, Italy and Australia.
- ✓ USA is the chief importer of Isabgol seeds and husk followed by Western Europe, and about 90% of its production is exported to these countries.
- ✓ Last buyer of isabgol is Procter & Gamble from Gujarat, along with other buyers like Dr Morepan, Dabur, Lupin and Glaxo.



PRE-INTERVENTION VALUE CHAIN CHART OF ISABGOL



NEED FOR PROCESSING ISABGOL

- ✓ Increase the storage life and produce wide range of products.
- ✓ Value added products include isabgol husk, isabgol husk powder and isabgol kha-kha powder etc. obtain higher returns. Real return in isabgol comes from processed products.
- ✓ Enhance the fibre content of the food.
- ✓ Increase the bulk of the food.
- ✓ Provide consumers with an incentive to make purchase.
- ✓ Essential for uplifting the economy because of its high value and increased market demand.

NEED FOR PROCESSING ISABGOL

- ✓ Isabgol is economically important medicinal herb used in pharmaceutical industries because of its nutritional and nutraceuticals properties. It has to be processed to; Increase the storage life and produce wide range of products.
- ✓ Value added products include isabgol husk, isabgol husk powder and isabgol kha-kha powder etc. obtain higher returns. Real return in isabgol comes from processed products.
- ✓ Enhance the fibre content of the food.
- ✓ Increase the bulk of the food.
- ✓ Provide consumers with an incentive to make purchase.
- ✓ Essential for uplifting the economy because of its high value and increased market demand.

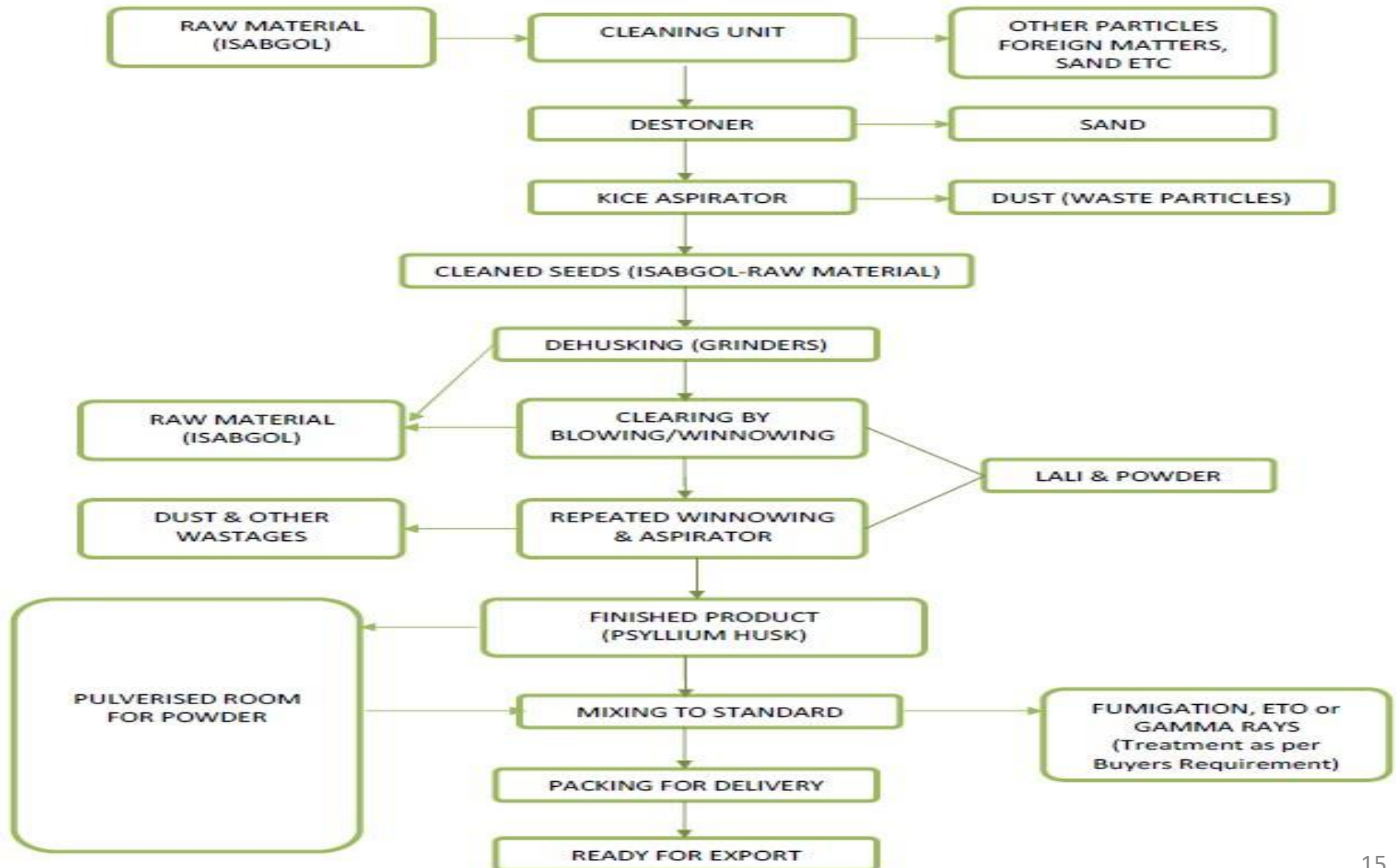
NUTRITIONAL QUALITY OF ISABGOLSEED

Parameters	Amount
Energy	4.75 kcal/g
Protein	17.40%
Fat	6.70%
Linoleic acid (LA)	40%
Total dietary fibre	24.60%
Insoluble fibre	19.60%
Soluble fibre	5%
Triglycerides	10-20%

DIFFERENT DEPARTMENTS IN A UNIQUE ISABGOL PROCESSING PLANT

- ✓ 1. Production and Operation: Production planning, Scheduling, managing daily production
- ✓ 2. Quality Assurance and Regulatory: Assure quality of the product, Establish food safety, organizing internal audits, Certifications (FSSAI, FSSC 22000, Agmark, BRC etc.) and updating of food safety manual
- ✓ Research and Development: New Product development
- ✓ 4. Engineering
- 5. Procurement: Engaged in procurement of raw material, packing material, engineering items, vendor development etc.
- 6. Store: Maintaining the inventory and alarm procurement, maintaining FIFO, LIFO etc.
- 7. Logistic and Supply Chain: Deliver products to the consumer at right time

ISABGOL MANUFACTURING PROCESS FLOW HUSK



ISABGOL PROCESSING PLANT

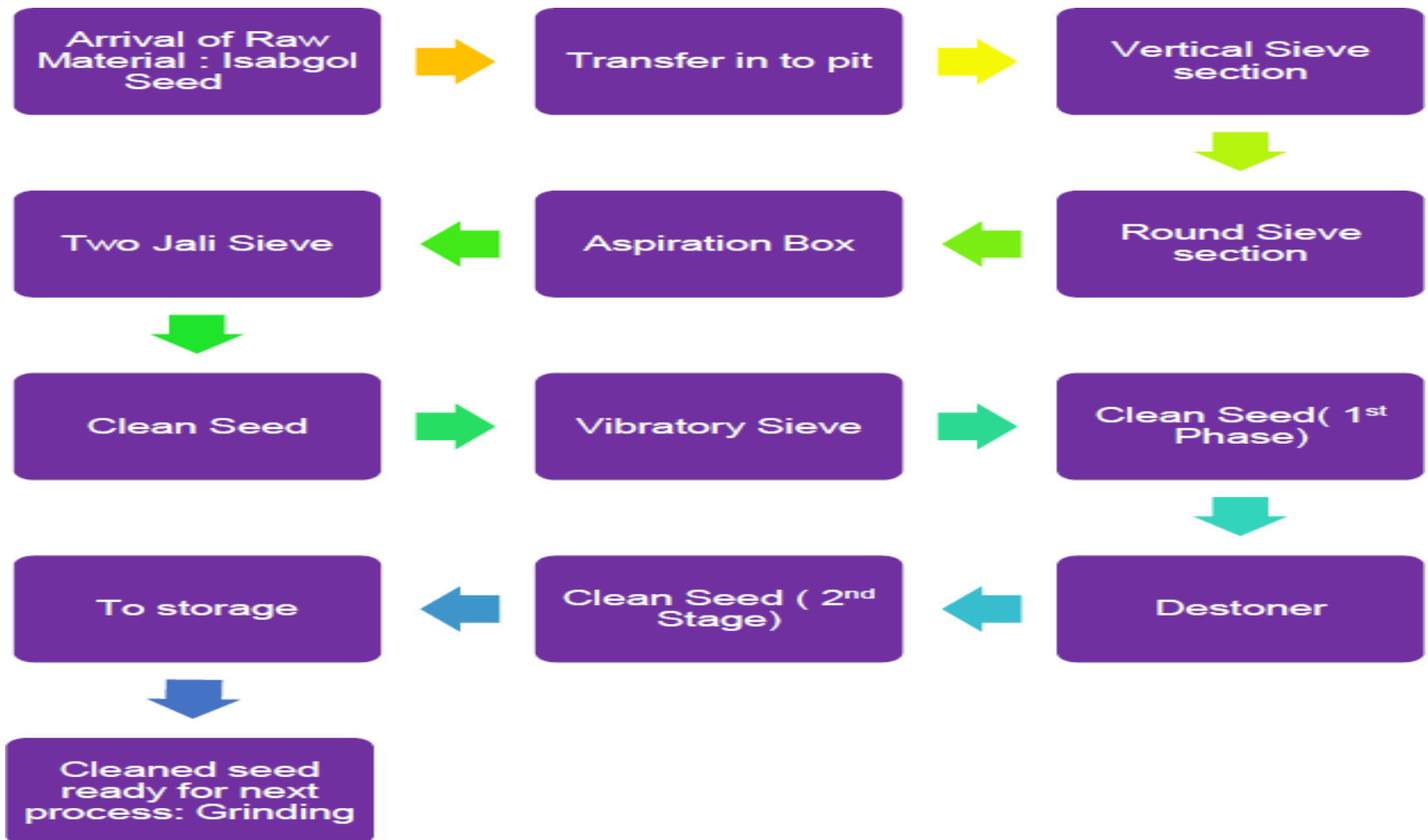


ISABGOL SEED CLEANING PLANT

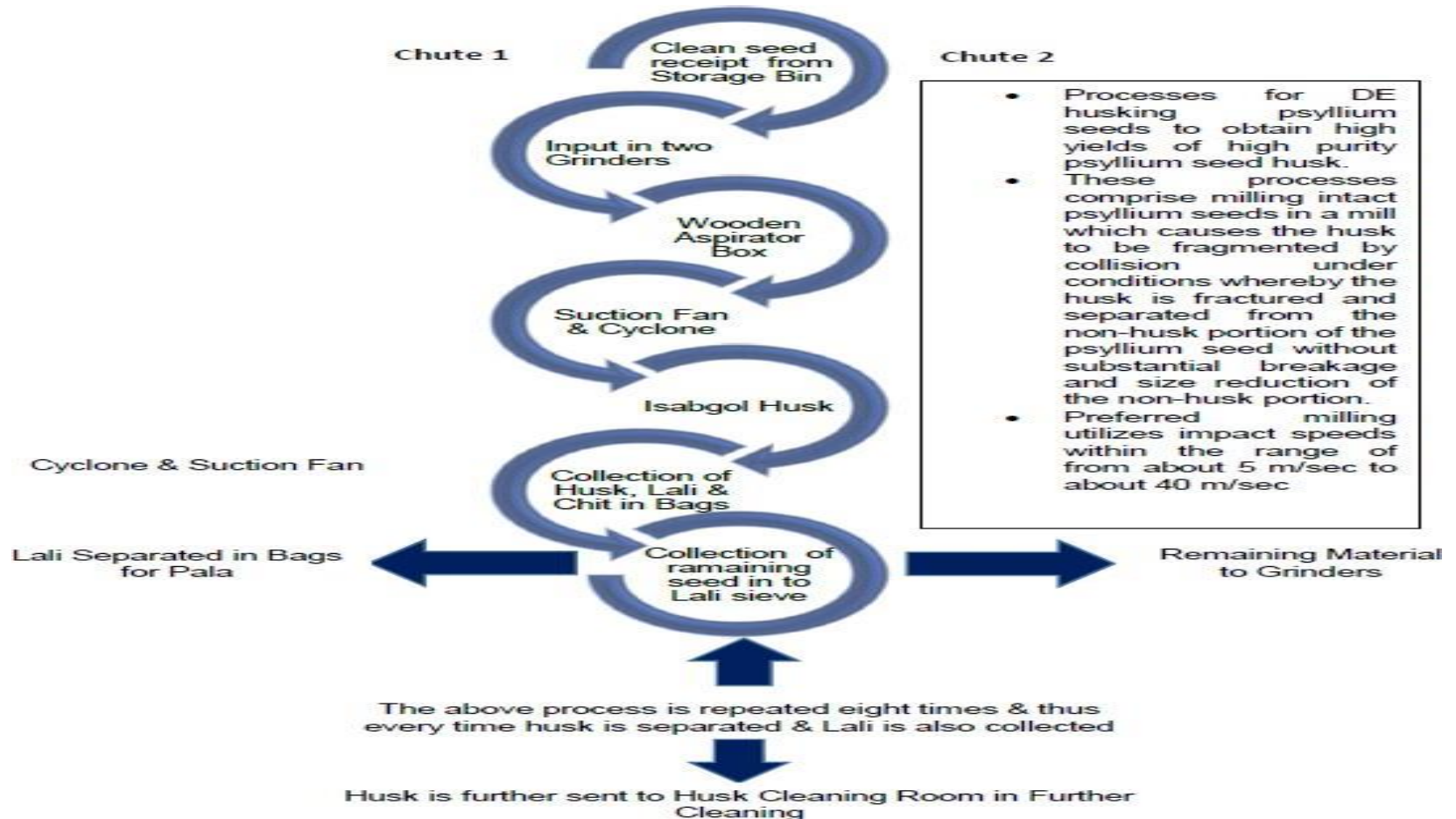


- ✓ The initial step associated with the cycle is cleaning of isabgol seeds.
- ✓ When the isabgol seed is gotten at Raw Material Reception deck it is weighted and then the crude isabgol seeds are cleaned by mechanical cycle through different strides of preparing.
- ✓ The crude isabgol seeds are cleaned by mechanical cycle through different steps of handling where no synthetics are utilized.
- ✓ There is a thorough ten phase in cleaning process of the seeds, which is trailed by de-husking of the seeds.
- ✓ 500 kg of isabgol seeds/hour can be cleaned at all stages.

ISABGOL SEED CLEANING PROCESS FLOW CHART



ISABGOL DE-HUSKING/GRINDING PROCESS FLOW CHART

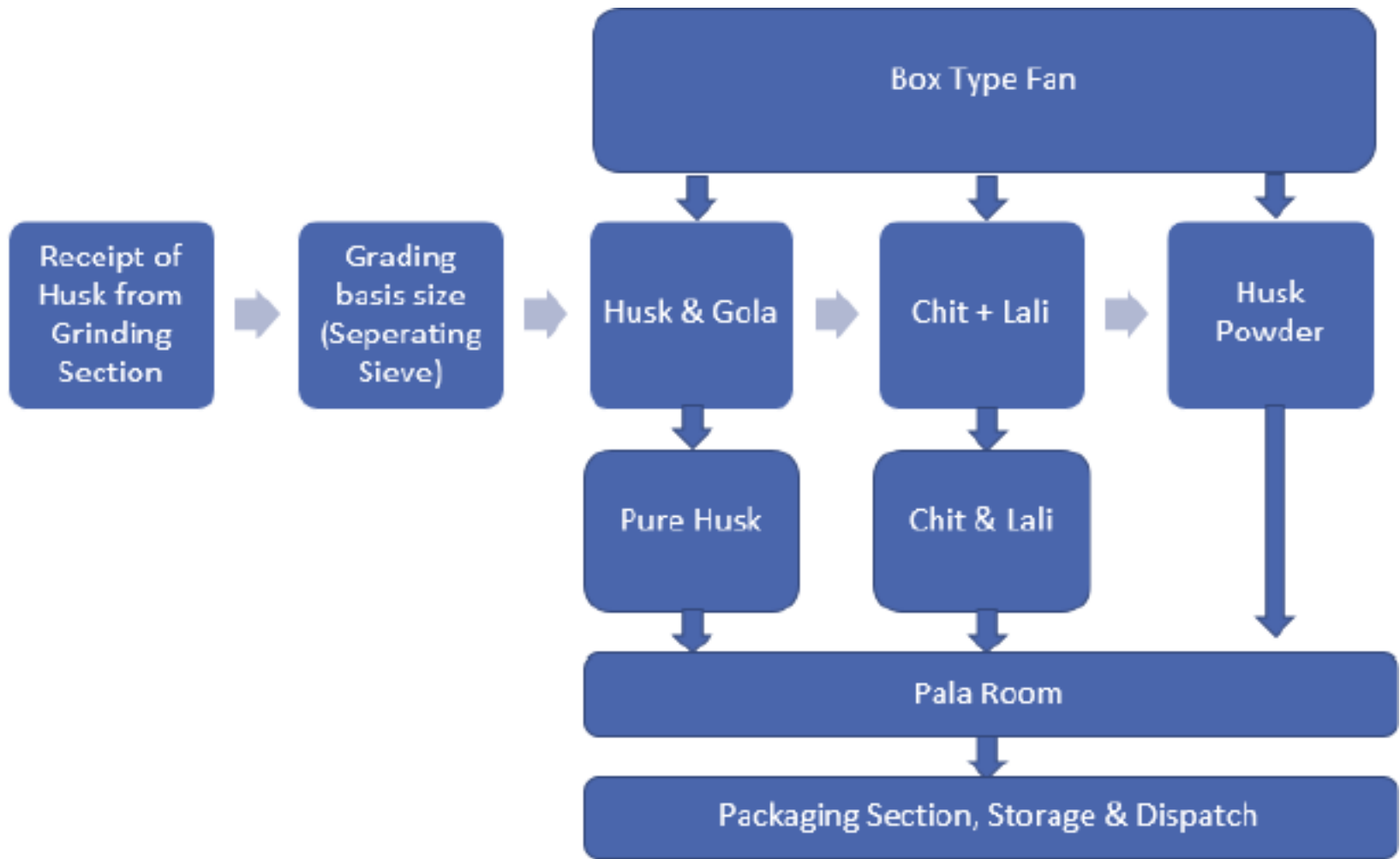


- ✓ Interaction of de-husking isabgol obtains critical return of unadulterated and quality isabgol seed husk.
- ✓ The interaction join preparing flawless/perfect isabgol seeds in a plant which makes the husk to be partitioned by crash under conditions whereby the husk is broken and separated from the non-husk part of the isabgol seed without impressive breakage and size decline of the non-husk divide.
- ✓ De-Husking framework with automatic feeding having organized two plants in corresponding with seventy two grinders during which grinders are at 36" distance across.
- ✓ Magnets are organized in important spots. This unit can create 200 kg of mixture of de-husked materials every hour.

ISABGOL HUSK POWDER, GRINDING PLANT



ISABGOL HUSK CLEANING UNIT AND PACKING PROCESS FLOW CHART



FUMIGATION

- The plant is equipped with a fumigation chamber, which works as per specific guide guidelines from specialists.
- The dose of the fumigant and treatment is done according to guidelines of the importing country and prerequisites of customers.
- Both crude isabgol seeds and the final isabgol items are treated according to the necessity of customers.

STERILIZATION

- ✓ Treatment of the completed item is done with Methyl Bromide Ethylene Oxide and Gamma Rays.
- ✓ Irradiation are given through agreement offices upon explicit solicit from the customer.



National Institute of Food Technology and Entrepreneurship and Management

Ministry of Food Processing Industries

Plot No. 97, Sector-56, HSIIDC, Industrial Estate, Kundli, Sonipat, Haryana-
131028

🌐 Website: <http://www.niftem.ac.in>

✉ Email: pmfmecell@niftem.ac.in

☎ Call: 0130-2281089