

Mechanized Makhana Processing Plant (Semi-Automatic)

Euryale ferox (fox nut)



Agrofarm Solutions Private Limited

(Khalil Mansion, Saharsa Basti, Ward No. 31/28, Saharsa Bihar – 852201)

License and Technical Support by:

**Central Institute of Post-Harvesting Engineering and
Technology (CIPHET), Ludhiana, Punjab**

Our valued customer/Plant Purchaser

1. Shayra Foods Private Limited, Chandigarh	2. Farmley Dry Fruits, Purnea
3. Sporos Foods International LLP, Pune	4. Koshi Nutri Nuts Private Limited, Hyderabad
5. Mrittika Greens LLP, Kolkata	6. Seemanchal Manufacturing Technology, Forbisganj

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The need for Mechanization in makhana industry

Makhana is considered to be the one of the most important horticultural crop of the Bihar after Mango and Litchi. It is also a vital source of livelihood for the farmers and skilled farm labourers of Northern Bihar and adjoining areas of West Bengal and Assam. Annually more than 15,000 MT of Makhana pop is traded with thousands of crores of transaction value.

Farmers loose major share in consumers' rupee due to lengthy value chain, direct marketing without processing at farm gate, bulkiness of the end product, complex process of makhana processing, lack mechanized makhana processing machine, poor resource and capital base etc.

Hence, mechanized processing can bring revolution in makhana production. The **Agrofarm Solutions Private Limited** provide One stop Solution for Production, Processing and Marketing of Makhana in Bihar and other Potential states.

The Innovations and interventions of Agrofarm Solutions Private Limited

- ICAR-CIPHET Ludhiana has granted the license to **Agrofarm Solutions Private Limited** of Manufacturing and Technology entitled "*Mechanized system for popping and decortications of makhana seeds (Patent Application No. -674/DEL/2013)*"
- ICAR-CIPHET Ludhiana has granted the license to **Agrofarm Solutions Private Limited** of Manufacturing and Technology entitled "*Mechanized system for Primary Roasting of Raw Makhana seeds and Process thereof (Patent Application No. - 202011037651)*"
- State Investment Promotion Board Secretariat (Government of Bihar) has given clearance of SIPBS to **Agrofarm Solutions Private Limited** against application no: SIPB2303000248, dated 21.05.2023 for manufacturing the Makhana Processing Plant.
- **Agrofarm Solutions Private Limited** worked on the processing chain and developed the whole assembly line of makhana processing by developing its own *Seed Washer, Seed Grader, Seed Dryer and Lawa Grader*.
- In collaboration with Shayra Foods Private limited, Chandigarh a Mechanized Makhana Processing Plant (Semi-automatic) has installed at Patuaha opposite Delhi Mart, Saharsa with a Makhana Seed processing capacity of 1000 kg/day.
- **The above facility is also used for demonstration and training purpose.**

Assembly Line of Semi-Automatic Makhana Processing Plant

Makhana raw Seed Washing System → Sun/ Air Drying of washed seeds → Grading of dried raw makhana seeds → Primary roasting of raw seeds → Conditioning of raw seeds (jute bag for 48 hours) → Secondary Roasting and Popping → Grading of Makhana pop (Lawa)



Makhana raw Seed washer
Step 1



Makhana raw seed dryer
Step 2



Makhana raw seed grader
Step 3



Makhana raw seed primary roaster
Step 4



Makhana Popping Machine
Step 5



Makhana Lawa grader (Food grade SS304)
Step 6

A brief about machines in Makhana Processing Assembling Line:

S. N.	Name of Machine with capacity	What the machine does?
1	Makhana Seed Washer (400 kg/h)	Soil, Sofi, Hollow and Rotten Seeds are washed and drained out from cleaned Raw Makhana Seeds
2	Makhana Seed Drier (150 kg/set)	It is optional, are used in rainy season or winter season, when sunlight is very low. The washed Makhana seeds are surface dried by airflow through high speed fan.
3	Raw makhana Seed Grader (300 kg/h)	Graders the raw Makhana Seeds from 7 mm to 14 mm in 8 grades.
4	Primary Roasting Machine (50 kg/h)	First roasting of Makhana seeds is done by this Machine in different grades
5	Makhana Roasted seed vacuum packing machine	Primary roasted and conditioned Seed can be packed and kept for more than 6 months for popping (optional)
6	Makhana popping machine (30 kg/h)	Popping of Makhana Seeds is done by this Automatic Machine after 48 hour of Roasting and Conditioning of Makhana seeds.
7	Popped makhana grader (100 kg/h)	Makhana pop is graded as per size from 10-20 mm in four size grades

Specific support extended by Agrofarm Solutions Private Limited

1. Manufacture and supply of Makhana Processing machines.
2. Technical support for repair and maintenance of Makhana Processing machines.
3. Procurement of raw Makhana seeds.
4. Marketing support of popped makhana.
5. Training of supporting staffs and supply of trained staffs and labourer to run the processing unit.
6. Networking with Makhana Industry, trader and Farmer.
7. DPR formulation of bankable project on Makhana.
8. Consultancy services for all Makhana related production, processing and marketing problems.
9. Cultivation and production of Makhana in field.
10. Expansion of Makhana Production in non-traditional area of other Potential states,
11. Establishment and running of Makhana Processing Plants at different level of agreement.