

Food / Feed Malted-Barley Production Line

Complete Turnkey Business Proposal



Supplier reference: real one-tonne-class stainless germination and kilning vessels for a small malt plant.

0.5-1 t/batch starter green-barley load	6-9 days typical total batch cycle	3-6% typical finished-malt moisture	4-7 entry operators
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Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

Executive Summary

This line produces stable malted barley by allowing viable grain to germinate under controlled moisture, oxygen and temperature, then stopping germination by kilning and removing the dried rootlets. The entry concept serves legal food ingredients such as malt flour, malted cereal mixes and extracts, or validated feed ingredients. It is not a brewery: fermentation and alcoholic-beverage equipment are outside the project scope.

Why this project fits Afghanistan

- Suitable Afghan barley can be upgraded into malt flour, malted cereal ingredients or specialist feed inputs.
- A combined germination-kilning vessel reduces transfers, building area and entry equipment count.
- Small batches allow processors to develop legal food and feed recipes before expanding capacity.
- Rootlets are a protein-rich co-product for approved feed use when hygienically collected.

Sanaatchi delivery scope

- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

Recommended configuration

For the lowest credible entry, select a 0.5-1 tonne/batch system with a cleaner, aerated steep tank, combined germination-kilning vessel, temperature and humidity controls, deculmer and semi-manual packing. Begin only after laboratory germination tests and a buyer-approved malt specification confirm that the available Afghan barley is suitable.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Food-grade base malt	Buyer-approved color, moisture, modification and enzyme activity	Malt flour, cereal mixes, bakery and malt-extract users
Kilned or roasted food malt	Recipe-controlled color and flavor after validated curing	Bakery, beverage and flavor-ingredient users where lawful
Feed-grade malted barley	Validated germination, drying and microbiological safety	Specialist livestock and young-animal feed formulators
Malt rootlets	Dry, clean deculming co-product	Approved feed users

Equipment suppliers offer combined germination and kilning boxes from about one tonne per batch and larger modular systems. Industry process references identify steeping, germination, kilning and deculming as the essential stages and emphasize high germination capacity and tight airflow, moisture and temperature control. Final design must follow the intended food or feed specification, not a generic sprouting-room quotation.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Barley cleaner, grader and magnet	Removes foreign matter and creates uniform germinating lots	Separate thin, broken and nonviable kernels
2	Aerated steep tank	Raises grain moisture through water periods and air rests	Drainable food-grade vessel with air and CO2 removal
3	Combined germination-kilning vessel	Germinates on a ventilated bed, then dries and cures the green malt	0.5-1 tonne/batch entry configuration
4	Turning mechanism	Prevents root matting and equalizes temperature and moisture	Gentle adjustable movement without kernel damage
5	Air-handling and humidity system	Supplies conditioned air through the grain bed	Variable fan, fresh/return air and humidification controls
6	Kiln heater and controls	Applies the validated drying and curing profile	Food-safe indirect heat with staged temperature control
7	Deculmer and grader	Removes dry rootlets and grades finished malt	Dust control and separate co-product outlet
8	Scale and bag closer	Packs released dry malt	Semi-manual 10-50 kg starter range

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

Reference Equipment Gallery



Supplier reference: real one-tonne-class stainless germination and kilning vessels for a small malt plant.



Supplier reference: installed industrial malting system with germination beds, turning equipment and conditioned-air infrastructure.

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

Plant, Raw Materials & Utility Requirements

Raw materials

- Malting-grade barley with high germination energy and capacity
- Potable process water
- Food-grade bags, liners, labels and coding materials
- Approved sanitation and pest-control materials

Utilities & infrastructure

- Stable three-phase electricity for fans, pumps, turning and controls
- Food-safe kiln heat source and exhaust
- Reliable potable water and controlled drainage
- Temperature- and humidity-managed germination room
- Dry, cool barley and finished-malt storage
- Laboratory access for germination, moisture, microbiology and product-specific malt tests

Quality, safety and environmental controls

- Accept barley by variety, protein, moisture, plumpness, germination energy and mycotoxin risk
- Record steep-water temperature, immersion periods, air rests and grain moisture
- Monitor germination-bed temperature, humidity, CO₂, turning and modification uniformity
- Validate kiln time, air temperature, exhaust humidity and final malt moisture
- Check rootlet removal, color, odor, friability and product-specific enzyme activity
- Test microbiological safety and mycotoxins before food or feed release
- Keep food and feed grades separately specified, labeled and traceable

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

Indicative Investment & Implementation Plan

LOW-ENTRY CONFIGURATION

Lowest credible entry combines germination and kilning in one 0.5-1 tonne/batch vessel and uses semi-manual handling and packing. Land, building, laboratory setup, barley inventory and downstream malt-flour or extract equipment are excluded.

Component	Indicative range	Notes
Cleaning, grading and aerated steeping	US\$8k-18k	One small uniform batch stream
Combined germination-kilning system	US\$18k-45k	0.5-1 tonne/batch with airflow and turning
Deculming, grading and semi-manual packing	US\$4k-10k	Separate rootlet collection
Controls, heat, installation and initial spares	US\$5k-14k	Include calibrated temperature and humidity sensors
Freight and clearance	US\$5k-12k	Confirm vessel dimensions and transport frame
Indicative low-entry total	US\$40k-99k	Building, laboratory, barley stock and downstream malt milling excluded

Implementation sequence

Phase 1	3-5 weeks	Test barley viability and confirm legal food or feed product specifications
Phase 2	3-5 weeks	Pilot steeping, germination and kilning recipes and approve the batch design
Phase 3	8-14 weeks	Engineer, manufacture, inspect and ship the malting system
Phase 4	4-7 weeks	Install, commission, train maltster staff and validate consecutive batches

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

Next Steps & Contact Information

Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

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Research and image references

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