FPI Online Academy | Species yield analysis | 2026

Moringa stenopetala

Yield evidence, production logic and field validation

SPECIES BRIEF 02 / SITE-CONDITIONAL FIELD EVIDENCE



Moringa stenopetala: living plant photograph. Trees ForTheFuture / CC BY 2.0. Full credit and source: page 5.

The production decision

A distinct East African species that deserves its own production plan. Its local food use and agronomic research support investigation, but M. oleifera planting densities, harvest frequency and commercial yield figures cannot simply be copied.

Identity	Assessment basis
Native range	Southern Ethiopia to northern Kenya
Life form	Dryland tree with a leaf-food tradition
Product route	Locally validated leaf-food or dried-leaf ingredients

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What the evidence supports

Botanical identity comes before yield

Moringa stenopetala (Baker f.) Cufod. is treated as an accepted species in the Kew record. This is a species profile, not proof of a named commercial cultivar or a uniform genetic line. The native-range description is an ecological starting point, not a site recommendation. [S1]

Evidence interpretation

Reshad, Beyene and Yusuf compared 30 x 30, 50 x 50 and 75 x 75 cm spacings with 60, 90 and 120 day harvest intervals in southeast Ethiopia. Wider spacing favoured individual growth and survival; closer spacing favoured output per hectare. The paper discusses dry-leaf biomass of 1.58-2.57 t/ha, but these values are not adopted here as a repeated annual production promise. Its methods contain inconsistencies in interval descriptions and its data-availability statement warrants checking with the authors before financial reliance. [S2]

Yield question	Evidence position
Annual saleable output	A local, product-specific time series is still required.
Density and cutting	Test the interaction with survival, recovery and resource use.
Processing recovery	Measure fresh input, dried mass and accepted output separately.
Financial use	Use measured accepted batches; do not treat a hypothetical case as a forecast.

The question this species must answer

Does a locally suitable stand retain enough productive plants and regrowth to deliver repeated accepted leaf harvests?

How to read a yield claim

A useful figure identifies species or accession, plant age, location, net planted area, product organ, moisture basis, observation period and harvest count. If one of these is missing, keep the number as a research lead rather than a commitment to a buyer. A seed-oil percentage and a nutrient concentration are product attributes; neither is a field-yield measure.

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Turn measurements into usable yield

State the product and time basis

Dry leaf mass by harvest and by original planted area, alongside survival and recovery time.

Accepted dried leaf = weighed fresh leaf x measured dry recovery x accepted fraction

This is a mass-balance sensitivity, not measured species performance. The assumed recovery and acceptance rates are teaching inputs only. For exploratory species, the calculation illustrates research sampling; it does not approve a food use or recommend harvesting.

Illustrative input	Low recovery	Middle	High recovery
Fresh leaf / sample or batch	100 kg	100 kg	100 kg
Dry recovery fraction	15%	20%	25%
Accepted fraction	95%	95%	95%
Accepted dried material	14.25 kg	19.00 kg	23.75 kg



Do not annualise an unobserved cycle

Add the accepted output from each completed harvest in the observation year. Do not multiply the best cut by an assumed number of cuts. If trial results are extrapolated from a plot, show the measured plot area and the calculation; report production roads, buffers and buildings separately from net planted land.

Keep these units separate	Why it matters
Per plant vs per hectare	Stand density, missing plants and non-producing plants change the area result.
Fresh vs dry vs saleable	Water removal, trimming and quality rejection change the quantity that can be sold.
One batch vs one year	Seasonality, establishment and recovery determine completed production cycles.

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Design a field test that answers the question

Recommended validation approach

Use a side-by-side species comparison only with a common site, plant age and product definition. Test a manageable range of stand densities and harvest recovery periods. Track cumulative survival rather than only the biomass of the healthiest remaining trees.

Three decisions to make from the records

1. Weigh fresh and dried leaf separately from stem material.
2. Record stand losses and the reason for every missed harvest.
3. Compare buyer acceptance and drying behaviour with the intended product specification.

Record in every trial	Minimum useful detail
Identity and layout	Accession or seed lot; propagation method; planted and measured area; original plant count.
Inputs and conditions	Water delivered; soil test; weather and stress events; labour; actual management changes.
Harvest and recovery	Date; plant age; organ collected; fresh mass; dry mass; rejection and reason.
Output and use	Accepted product mass; intended customer or research endpoint; batch identity; cost per accepted unit.

Species-specific risk controls

1. Treating a larger individual leaf as proof of higher hectare output.
2. Calling a trial harvest range an annual yield without its time basis.
3. Ignoring mortality and slow recovery when planning frequent cuts.

Decision gate

Suitable for a species-specific leaf pilot. Use local survival and cumulative dry-leaf records to choose the stand and cutting system.

FPI application: connect the production trial with the ABC cluster's actual water, handling, processing, logistics and customer capacity. A productive plant trial is only one part of a viable value chain.

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Evidence, image credit and next decision

Assessment conclusion
Suitable for a species-specific leaf pilot. Use local survival and cumulative dry-leaf records to choose the stand and cutting system.

Sources and scope

[S1] Royal Botanic Gardens, Kew. Plants of the World Online: Moringa stenopetala. Taxonomy, range and life form. Open source
[S2] Reshad, Beyene & Yusuf (2026). Spacing and harvesting intervals in M. stenopetala, southeast Ethiopia. Open source
Research method. Targeted review of accepted taxonomy, primary yield studies where available, and image provenance, checked 22 October 2026. An evidence gap means no transferable commercial benchmark was identified in this review; it is not proof that no unpublished or local trial exists. Proposed trials, decision gates and arithmetic examples are FPI analytical guidance, not observations by the cited researchers.

Photograph provenance

Ethiopia - Mature Moringa stenopetala tree - March 2011.jpg. Trees ForTheFuture. CC BY 2.0. Source record | Licence
The image is a real photograph identified as this species in its source record; it is not evidence of an FPI field trial. Image resized proportionally for layout; no botanical features generated or replaced. Any adaptation of a share-alike image retains the stated image licence. Image owners and source institutions do not endorse this publication.

Before using the analysis commercially

Replace illustrative inputs with the site's measured results. Confirm the exact botanical species, intended product use, buyer specification and applicable local requirements. Separate field output from accepted saleable product and separate a financial scenario from a verified trading result.

FPI MORINGA YIELD INTELLIGENCE
For farmers, cooperatives, technical teams, buyers and investors assessing production before scale. This brief combines species identity, yield-evidence limits and a practical route to local validation.

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