FarmLens Ltd

Website: farmlens.africa | App: app.farmlens.africa | Headquarters: Nairobi, Kenya

Crop details

Pearl millet

Pennisetum glaucum

Family: Poaceae

Categories

Cereals & Pseudocereals

Generated: 2026-04-11 08:28

Quick stats

Family	Poaceae
Typical harvest	2.2 t/ha
Varieties	48
Pests and diseases	96
Seasons	48

Crop profile

Growth habit	annual
Days to harvest	85
Main uses	Grain for ugali and porridge, animal feed, cut-and-carry fodder, and dry stover for animals.
Pollination	wind
Origin and where it grows	Pearl millet (mawele) is widely grown in hot, dry and sandy areas of East Africa where maize often fails.

Weather, soil and spacing

Best temperature	25 - 35 °C
Rainfall	300 - 600 mm/yr
Altitude	0 - 1500 m
Best pH	5.5 - 7
Soil type	Light, sandy or sandy loam soils; Pearl millet (mawele) grows well where soils are poor and dry, as long as they are not waterlogged.
Row spacing	60 cm
Plant spacing	25 cm
Planting depth	3 cm
Seed rate	4 kg/ha

Simple notes for farmers

About the crop: This crop is annual; it grows and is harvested in one season. Harvest typically starts about 85 days after planting.

Main use: Farmers mostly grow this crop for grain for ugali and porridge, animal feed, cut-and-carry fodder, and dry stover for animals..

Pollination: Mainly wind; healthy flowers and pollinators improve fruit set.

Where it grows: Pearl millet (mawele) is widely grown in hot, dry and sandy areas of East Africa where maize often fails.. Grouped under: Cereals & Pseudocereals.

Best climate: 25 - 35 °C; 300 - 600 mm/yr; up to about 1500 m a.s.l.

Soil: Best at pH 5.5 - 7; light, sandy or sandy loam soils; pearl millet (mawele) grows well where soils are poor and dry, as long as they are not waterlogged..

Farmer guide (Mwongozo wa Mkulima)

Planting	Plant Pearl millet (mawele) at the start of the rains. Put 2–3 seeds per hole about a short finger deep, then thin to 1–2 strong plants per hill.
Transplanting	Usually direct seeded. Where nurseries are used, transplant 3–4 week old seedlings and water well after transplanting.
Irrigation	Mawele tolerates drought well, but still needs moisture at germination, tillering and when heads are filling grain.
Fertigation	With drip, apply small doses of nitrogen and phosphorus several times rather than one big dose.
Pest scouting	Check fields weekly. Look for shoot damage, stem tunneling, head worms and bird feeding on heads.
Pruning and training	Weed early in the first 4–5 weeks. Remove very weak extra tillers where plants are too crowded.
Harvest	Harvest when most heads of Pearl millet (mawele) are straw-coloured and grains are hard when bitten.
Postharvest	Cut heads, dry on raised, clean surfaces, thresh when dry and store grain in dry, airtight bags or traditional bins.

Nutrient schedule (Mbolea kwa Hatua)

#	Stage	DAP	Product	Rate	Targets (kg/ha)	Notes
1	Basal at planting	0	DAP 18-46-0 or NPK with phosphorus	50 kg/ha	N: 9, P?O?: 23, K?O: 0	Place fertilizer near mawele seed but not touching it.
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2	Early topdress (tillering)	20	CAN 26% N or urea	40 kg/ha	N: 10, P?O?: 0, K?O: 0	Apply around plants when soil is moist and lightly cover.
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3	Late topdress (pre-heading)	35	Urea 46% N (if rainfall is reliable)	30 kg/ha	N: 14, P?O?: 0, K?O: 0	Apply before Pearl millet (mawele) heads appear and when soil is moist.
3	Late topdress (pre-heading)	35	Urea 46% N (if rainfall is reliable)	30 kg/ha	N: 14, P?O?: 0, K?O: 0	Apply before Pearl millet (mawele) heads appear and when soil is moist.
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Nutrient requirements

Nutrient	Stage	Amount	Unit
N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha

Nutrient	Stage	Amount	Unit
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
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N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
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N	Topdress_early	20	kg/ha
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K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha

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P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
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N	Topdress_early	20	kg/ha
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K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha
P?O?	Basal	20	kg/ha
K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha

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P?O?	Basal	20	kg/ha
K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha
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K?O	Basal	10	kg/ha
N	Topdress_early	20	kg/ha

Nutrient	**Stage**	**Amount**	**Unit**
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha
N	Basal	20	kg/ha
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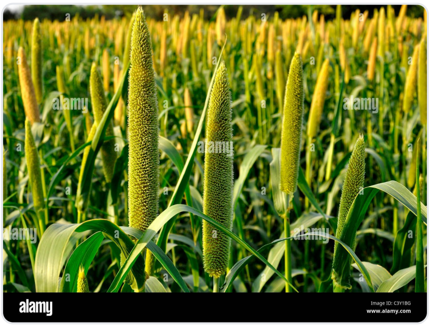
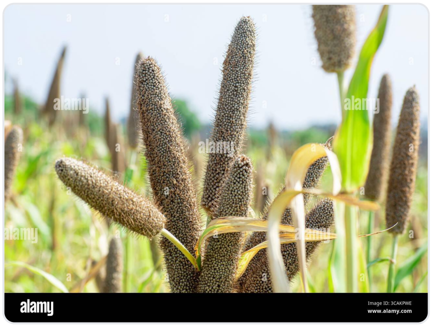
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	10	kg/ha
N	Topdress_late	10	kg/ha

Nutrient	Stage	Amount	Unit
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	10	kg/ha

Field images





Varieties

Name	Country	Maturity (days)	Traits
Improved mawele hybrid A	TZ	80	Early maturing Pearl millet (mawele), good grain and fodder yield, suited to low rainfall.
Open-pollinated mawele variety B	KE	90	Stable yield, good for grain and stover in semi-arid areas.
Local mawele landrace	KE	95	Well adapted to local conditions, preferred taste, lower yield than improved varieties.
Improved mawele hybrid A	TZ	80	Early maturing Pearl millet (mawele), good grain and fodder yield, suited to low rainfall.
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Fertilizer recommendations

Stage	Product	Rate	Notes
Basal	DAP 18-46-0	50	Provides phosphorus and some nitrogen for early Pearl millet (mawele) growth.
Topdress (tillering)	CAN 26% N	40	Supports tillering and early stem growth.
Topdress (pre-heading)	Urea 46% N	30	Apply with expected rainfall so nitrogen moves into the soil.
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Topdress (pre-heading)	Urea 46% N	30	Apply with expected rainfall so nitrogen moves into the soil.
Basal	DAP 18-46-0	50	Provides phosphorus and some nitrogen for early Pearl millet (mawele) growth.
Topdress (tillering)	CAN 26% N	40	Supports tillering and early stem growth.
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Pests and diseases

Name	Type	Symptoms	Management
Shoot fly	pest	Central shoot of young Pearl millet (mawele) dries up (“dead heart”) and many non-productive tillers appear.	Plant early with the rains, avoid very late planting and use seed treatment where recommended.
Stem borers	pest	Shot holes on leaves, dead hearts and tunneling in stems; weak or broken stems.	Destroy stover after harvest, rotate with non-cereal crops and plant on time.
Head worms and ear caterpillars	pest	Feeding in the ear, webbing, damaged and shriveled grains.	Plant Pearl millet (mawele) in a block with neighbours, monitor at heading and harvest promptly.
Birds	pest	Grains pecked from heads, exposed panicles and fallen grain under plants.	Use bird scaring, synchronized planting and early-maturing varieties where birds are a serious problem.
Downy mildew	disease	Chlorotic streaks on leaves, stunted plants, malformed “green ear” instead of normal heads.	Use resistant Pearl millet (mawele) varieties, clean seed and crop rotation.

Name	Type	Symptoms	Management
Smut disease	disease	Black powdery masses replacing individual grains or parts of the head.	Use clean, treated seed and remove and destroy affected heads.
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Yields

System	Typical	Min	Max	Notes
Smallholder rainfed (low input)	1	0.5	1.5	Local mawele seed, little or no fertilizer, basic weeding.
Smallholder rainfed (improved management)	2	1.2	3	Improved Pearl millet (mawele) varieties with recommended fertilizer and timely weed control.
High input / irrigated	3.5	2.5	4.5	Good varieties, irrigation and full fertilizer and pest management.
Smallholder rainfed (low input)	1	0.5	1.5	Local mawele seed, little or no fertilizer, basic weeding.
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Season calendars

Country	Region	Planting	Harvest
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
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KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
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KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug

Country	**Region**	**Planting**	**Harvest**
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun
KE	Semi-arid lowlands (long rains)	Mar–Apr	Jul–Aug
KE	Semi-arid lowlands (short rains)	Oct–Nov	Feb–Mar
TZ	Central and northern dry zones	Dec–Jan	May–Jun

Region suitability

Country	**Region**	**Suitability**
KE	ASAL (arid and semi-arid lands)	High
KE	Coastal drylands	High
KE	High rainfall highlands	Low
TZ	Central semi-arid plateau	High
UG	Drier cattle corridor areas	Medium

Source: **FarmLens Ltd** - farmlens.africa and app.farmlens.africa. Headquarters: Nairobi, Kenya. This guide was generated from the FarmLens database.