FarmLens Ltd

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Crop details

Foxtail millet

Setaria italica

Family: Poaceae

Categories

Cereals & Pseudocereals

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Quick stats

Family	Poaceae
Typical harvest	5.3 t/ha
Varieties	7
Pests and diseases	16
Seasons	8

Crop profile

Growth habit	annual
Days to harvest	80-110
Main uses	Cereal grain
Pollination	wind
Origin and where it grows	Asia; grown in drylands

Weather, soil and spacing

Best temperature	22 - 32 °C
Rainfall	350 - 600 mm/yr
Altitude	0 - 2200 m
Best pH	5.5 - 7
Soil type	Light to medium soils
Row spacing	45 cm
Plant spacing	15 cm
Planting depth	2 cm
Seed rate	8 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 80-110 days after planting.

Main use: Farmers mostly grow this crop for cereal grain.

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

Where it grows: Asia; grown in drylands. Grouped under: Cereals & Pseudocereals.

Best climate: 22 - 32 °C; 350 - 600 mm/yr; up to about 2200 m a.s.l.

Soil: Best at pH 5.5 - 7; light to medium soils.

Farmer guide (Mwongozo wa Mkulima)

Planting	Direct seed; firm seedbed; thin to spacing.
Transplanting	Direct seeding is standard; transplanting is rarely used except for seedlings in stress-prone sites.
Irrigation	Most critical at establishment, tasseling/silking, and grain fill. Avoid severe stress at flowering.
Fertigation	Split N into 3–4 applications; combine with K and secondary nutrients based on soil tests.
Pest scouting	Scout weekly for fall armyworm, stem borers, cutworms, and leaf diseases; check whorls and lower leaves.
Pruning and training	Desucker only where excessive tillering competes with main stems; manage lodging via balanced nutrition.
Harvest	Harvest when panicles turn straw-colored.
Postharvest	Dry cobs on raised platforms, shell cleanly, dry grain to safe moisture, and store in insect- and rodent-proof containers.

Nutrient schedule (Mbolea kwa Hatua)

#	Stage	DAP	Product	Rate	Targets (kg/ha)	Notes
1	Basal	0	NPK 17-17-17	80 kg/ha	N: 18, P?O?: 40, K?O: N/A	Band 5 cm beside and 5 cm below seed; avoid direct contact with seed.
2	Topdress	30	Urea	40 kg/ha	N: 21, P?O?: N/A, K?O: N/A	Apply when plants are 4–6 leaves; side-dress and cover lightly.
3	Late topdress	35	Urea 46% N	70 kg/ha	N: 32, P?O?: N/A, K?O: N/A	Apply before tasseling; avoid application on very dry soil.
4	K and secondary nutrients	30	NPK or MOP (KCl) as per soil test	40 kg/ha K2O equiv.	N: N/A, P?O?: N/A, K?O: 40	Adjust based on soil test; avoid chloride-sensitive rotations where needed.
5	Micronutrient correction	25	Zn / B foliar mix	0 —	N: N/A, P?O?: N/A, K?O: N/A	Apply as foliar spray under cool conditions where deficiencies confirmed.

Nutrient requirements

Nutrient	Stage	Amount	Unit
N	Basal	30	kg/ha
P?O?	Basal	20	kg/ha
K?O	Basal	20	kg/ha
N	Topdress	20	kg/ha
N	Early_growth	40	kg/ha
K?O	Early_growth	20	kg/ha

Nutrient	Stage	Amount	Unit
N	Pre_tassel	50	kg/ha
K?O	Pre_tassel	20	kg/ha
N	Topdress_early	40	kg/ha
P?O?	Topdress_early	0	kg/ha
K?O	Topdress_early	20	kg/ha
N	Topdress_late	30	kg/ha
P?O?	Topdress_late	0	kg/ha
K?O	Topdress_late	20	kg/ha

Field images

Varieties

Name	Country	Maturity (days)	Traits
Local Foxtail	KE	95	Drought tolerant
H614D	KE	150	High-yielding hybrid for high potential zones; good standability.
SC Duma 43	KE	95	Early; short rains
DK 8031	KE	115	Medium maturity hybrid
KH 500-21A	KE	110	OPV; stable performance
Katumani composite	KE	90	Early-maturing OPV; suited to low-rainfall and short-season areas.
Local white maize	KE	120	Traditional variety; preferred taste but lower and less stable yields.

Fertilizer recommendations

Stage	Product	Rate	Notes
Basal	NPK 17-17-17	80	
Topdress	Urea 46% N	40	
Basal	DAP 18-46-0	100	Adjust rate to soil P; can be substituted with other P sources.

Stage	Product	Rate	Notes
Topdress 1	CAN 26% N	150	V3–V4
Topdress 2	Urea 46% N	100	Pre-tassel
Supplement	MOP (KCl, 60% K2O)	60	Apply where K is low
Soil health	Well-decomposed manure	2000	Pre-plant incorporation
Topdress (early)	CAN 26% N	80	Less volatilization risk than urea; good on acidic soils.
Topdress (late)	Urea 46% N	70	Incorporate where possible; avoid application on very hot dry days.
K supplement	Muriate of potash (MOP)	60	Apply where K is deficient; avoid overuse on saline-sensitive systems.

Pests and diseases

Name	Type	Symptoms	Management
Bird damage	pest	Panicle feeding	Scaring; netting near harvest
Fall armyworm (Spodoptera frugiperda)	pest	Whorl feeding, window-paned leaves, frass in whorl, dead hearts in severe cases	Early scouting; conserve natural enemies; use pheromone traps, biopesticides and selective insecticides where thresholds are exceeded.
African maize stalk borer (Busseola fusca)	pest	Shot-holes in young leaves; dead-heart; tunneling	Timely planting; destroy residues; selective insecticides if threshold exceeded
Maize weevil (Sitophilus zeamais)	pest	Storage grain damage; weight loss	Dry to ?13% moisture; hermetic bags; clean stores
Striga (Striga hermonthica)	weed	Stunted plants; purple parasitic flowers near base	Push-pull (Desmodium + Napier/Brachiaria); rotation; resistant/tolerant varieties
Gray leaf spot	disease	Rectangular lesions between veins; leaf blight and yield loss in humid areas	Resistant hybrids, rotation, residue management, and fungicide where high risk.
Northern leaf blight	disease	Long, cigar-shaped grayish lesions on leaves; premature drying	Use resistant varieties; practice crop rotation and residue management; apply fungicides where economic.
Maize lethal necrosis (MLN)	disease	Severe mosaic, chlorosis, plant death	Use MLN-tolerant seed where available; control vectors; hygiene
Fall armyworm	pest	Whorl damage; frass	Early scouting; Bt/biocontrol; rotate actives
Maize stalk borer	pest	Shot-holes; dead-heart	Timely planting; destroy residues
Maize weevil	pest	Storage grain loss	Dry to ?13%; hermetic bags
Striga	weed	Stunting; purple flowers	Push–pull; rotation; tolerant varieties
MLN	disease	Severe mosaic/chlorosis	MLN-tolerant seed; hygiene; vector control
Maize stem borers	pest	Shot holes, frass at leaf axils, tunneling in stems, lodging and reduced ears	Plant on time; destroy crop residues; use push–pull systems and resistant varieties.

Name	Type	Symptoms	Management
Cutworms	pest	Cut seedlings at or near ground level, missing plants in rows	Prepare fine seedbeds; avoid excessive weeds; targeted spot treatments when damage is localized.
Maize streak virus	disease	Fine yellow streaks on leaves, stunting, poor ear formation	Use tolerant varieties; control vector leafhoppers; avoid very late planting and volunteer maize.

Yields

System	Typical	Min	Max	Notes
rainfed smallholder	1.5	0.8	2.5	
smallholder rainfed	2	0.8	4.5	Depends on rain, fertility, FAW control
improved rainfed hybrid	5	3	8	Good seed, spacing, weed and FAW control
irrigated high-input	9	6	12	Fertigation and tight crop protection
improved rainfed	5	3	8	Good hybrid, spacing, weeding, N splits
irrigated/high-input	9	6	12	Tight water & nutrients
smallholder rainfed (low input)	2.5	1	4	Local seed, minimal fertilizer and weed control
smallholder rainfed (improved)	5	3	7	Hybrid seed, recommended NPK and timely weeding
irrigated/high input	9	7	12	Good hybrids, irrigation and precision nutrient management

Season calendars

Country	Region	Planting	Harvest
KE	Drylands	Mar–Apr	Jun–Aug
KE	High/medium potential (long rains)	Mar–Apr	Jul–Sep
KE	High/medium potential (short rains)	Oct–Nov	Feb–Mar
UG	Central & Western	Mar–Apr / Aug–Sep	Jul–Aug / Dec–Jan
TZ	Northern & Southern Highlands	Nov–Dec / Mar	Apr–Jun / Aug–Sep
KE	High potential maize zone (long rains)	Mar–Apr	Aug–Sep
KE	Medium altitude (short rains)	Oct–Nov	Feb–Mar
TZ	Southern highlands	Nov–Dec	May–Jun

Region suitability

Country	Region	Suitability
KE	>2500 m (frost risk)	Low
KE	Arid zones (low rainfall)	Low
KE	Arid zones with poor rainfall	Low

Country	Region	Suitability
KE	Central Highlands	High
KE	Central highlands (Murang’a, Nyeri)	High
KE	Coastal hinterland	Moderate
KE	Coastal hinterland (Kilifi, Kwale)	Moderate
KE	Drylands	High
KE	Eastern lower mid-altitudes (Makueni, Kitui)	Moderate
KE	High potential maize zone (Rift Valley)	High
KE	Lower Eastern (Makueni, Kitui)	Moderate
KE	Medium altitude transitional zones	High
KE	Rift Valley (Uasin Gishu, Trans Nzoia)	High
KE	Semi-arid lowlands	Medium
KE	Very high altitude >2500 m (frost risk)	Low
KE	Western & Nyanza	High
TZ	Southern Highlands & Lake Zone	High
TZ	Southern highlands maize belt	High
UG	Eastern & Central	High
UG	Lake Victoria crescent	High