FarmLens Ltd

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

Crop details

Sweet Orange

Citrus sinensis

Family: Rutaceae

Categories

Fruits & Nuts

Generated: 2026-04-11 06:48

Quick stats

Family	Rutaceae
Typical harvest	19.3 t/ha
Varieties	48
Pests and diseases	96
Seasons	48

Crop profile

Growth habit	tree
Days to harvest	365
Main uses	Fresh fruit, juice, flavouring for drinks and desserts; peel used for candied peel and animal feed in some cases.
Pollination	insect
Origin and where it grows	Orange (sweet orange) is grown in warm, moderately humid parts of East Africa, especially mid-altitude zones with good rainfall or irrigation.

Weather, soil and spacing

Best temperature	18 - 30 °C
Rainfall	900 - 1400 mm/yr
Altitude	0 - 1800 m
Best pH	6 - 7
Soil type	Deep, well-drained loam or sandy loam, rich in organic matter. Avoid very shallow, compacted or salty soils.
Row spacing	600 cm
Plant spacing	600 cm
Seed rate	kg/ha (check local recommendation)
Nursery days	270

Simple notes for farmers

About the crop: This crop has a growth habit described as "tree". Harvest typically starts about 365 days after planting.

Main use: Farmers mostly grow this crop for fresh fruit, juice, flavouring for drinks and desserts; peel used for candied peel and animal feed in some cases..

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

Where it grows: Orange (sweet orange) is grown in warm, moderately humid parts of East Africa, especially mid-altitude zones with good rainfall or irrigation.. Grouped under: Fruits & Nuts.

Best climate: 18 - 30 °C; 900 - 1400 mm/yr; up to about 1800 m a.s.l.

Soil: Best at pH 6 - 7; deep, well-drained loam or sandy loam, rich in organic matter. avoid very shallow, compacted or salty soils..

Farmer guide (Mwongozo wa Mkulima)

Planting	Use healthy, grafted seedlings of Orange (sweet orange). Dig wide, deep holes and mix topsoil with manure and a little phosphorus fertilizer. Plant at the start of the rains or irrigate well after planting.
Transplanting	Keep the graft union above the soil. Water immediately after planting and stake young trees where wind is strong.
Irrigation	Ensure regular moisture during establishment, flowering, fruit set and fruit filling. Avoid long dry spells and also avoid waterlogging around the trunk.
Fertigation	Under drip, apply nitrogen and potassium in small, frequent doses through the season. Adjust rates using leaf analysis or growth and crop load.
Pest scouting	Inspect trees every 1–2 weeks for aphids, scales, mealybugs, leafminers, fruit flies and leaf spots. Check young shoots, underside of leaves and fruit surface.
Pruning and training	Form a strong framework with 3–4 main branches. Remove suckers from the rootstock, dead or crossing branches, and keep the canopy open for light and air movement.
Harvest	Harvest when fruits have full colour and good sweetness. The skin may still be slightly green in some warm areas; taste a few fruits to confirm sweetness before starting harvest.
Postharvest	Pick by hand, avoid dropping fruits and use clean crates. Keep oranges in shade and avoid rough handling to reduce bruising and rots.

Nutrient schedule (Mbolea kwa Hatua)

#	Stage	DAP	Product	Rate	Targets (kg/ha)	Notes
1	Basal at planting	0	Well-rotted manure + P fertilizer (e.g., TSP or DAP)	10 kg/hole manure + 100 g P fertilizer	N: 0, P?O?: 0, K?O: 0	Mix thoroughly with topsoil in each planting hole for Orange (sweet orange).
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2	Early growth topdress	90	CAN 26% N	150 g/tree	N: 0, P?O?: 0, K?O: 0	Apply in a ring under the canopy but away from the trunk and water in.
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2	Early growth topdress	90	CAN 26% N	150 g/tree	N: 0, P?O?: 0, K?O: 0	Apply in a ring under the canopy but away from the trunk and water in.
3	Pre-bloom NPK	270	NPK 17-17-17	250 g/tree	N: 0, P?O?: 0, K?O: 0	Applied before flowering to support bloom and early fruit set.
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3	Pre-bloom NPK	270	NPK 17-17-17	250 g/tree	N: 0, P?O?: 0, K?O: 0	Applied before flowering to support bloom and early fruit set.
4	Fruit filling high K	360	Sulfate of potash (SOP) or high-K blend	300 g/tree	N: 0, P?O?: 0, K?O: 0	Split into 1–2 applications during main fruit enlargement.
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4	Fruit filling high K	360	Sulfate of potash (SOP) or high-K blend	300 g/tree	N: 0, P?O?: 0, K?O: 0	Split into 1–2 applications during main fruit enlargement.
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Nutrient requirements

Nutrient	Stage	Amount	Unit
N	Establishment	30	kg/ha
P?O?	Establishment	25	kg/ha
K?O	Establishment	25	kg/ha
N	Vegetative	50	kg/ha
P?O?	Vegetative	10	kg/ha
K?O	Vegetative	40	kg/ha
N	Flowering_fruit_set	20	kg/ha
P?O?	Flowering_fruit_set	20	kg/ha
K?O	Flowering_fruit_set	50	kg/ha
N	Fruit_fill	10	kg/ha
P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha

Nutrient	Stage	Amount	Unit
N	Establishment	30	kg/ha
P?O?	Establishment	25	kg/ha
K?O	Establishment	25	kg/ha
N	Vegetative	50	kg/ha
P?O?	Vegetative	10	kg/ha
K?O	Vegetative	40	kg/ha
N	Flowering_fruit_set	20	kg/ha
P?O?	Flowering_fruit_set	20	kg/ha
K?O	Flowering_fruit_set	50	kg/ha
N	Fruit_fill	10	kg/ha
P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha
N	Establishment	30	kg/ha
P?O?	Establishment	25	kg/ha
K?O	Establishment	25	kg/ha
N	Vegetative	50	kg/ha
P?O?	Vegetative	10	kg/ha
K?O	Vegetative	40	kg/ha
N	Flowering_fruit_set	20	kg/ha
P?O?	Flowering_fruit_set	20	kg/ha
K?O	Flowering_fruit_set	50	kg/ha
N	Fruit_fill	10	kg/ha
P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha
N	Establishment	30	kg/ha
P?O?	Establishment	25	kg/ha
K?O	Establishment	25	kg/ha
N	Vegetative	50	kg/ha
P?O?	Vegetative	10	kg/ha
K?O	Vegetative	40	kg/ha

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N	Flowering_fruit_set	20	kg/ha
P?O?	Flowering_fruit_set	20	kg/ha
K?O	Flowering_fruit_set	50	kg/ha
N	Fruit_fill	10	kg/ha
P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha
N	Establishment	30	kg/ha
P?O?	Establishment	25	kg/ha
K?O	Establishment	25	kg/ha
N	Vegetative	50	kg/ha
P?O?	Vegetative	10	kg/ha
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P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha
N	Establishment	30	kg/ha
P?O?	Establishment	25	kg/ha
K?O	Establishment	25	kg/ha
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P?O?	Vegetative	10	kg/ha
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N	Fruit_fill	10	kg/ha
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K?O	Fruit_fill	60	kg/ha

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P?O?	Vegetative	10	kg/ha
K?O	Vegetative	40	kg/ha
N	Flowering_fruit_set	20	kg/ha
P?O?	Flowering_fruit_set	20	kg/ha
K?O	Flowering_fruit_set	50	kg/ha
N	Fruit_fill	10	kg/ha
P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha
N	Establishment	30	kg/ha
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P?O?	Fruit_fill	0	kg/ha
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K?O	Flowering_fruit_set	50	kg/ha
N	Fruit_fill	10	kg/ha
P?O?	Fruit_fill	0	kg/ha
K?O	Fruit_fill	60	kg/ha

Field images



Varieties

Name	Country	Maturity (days)	Traits
Washington Navel	KE	1095	Seedless, easy-peeling, good for fresh fruit.
Valencia	KE	1095	Juice type, holds well on the tree and fruits over a long period.
Local sweet orange selections	TZ	1095	Mixed local selections for fresh fruit and juice, variable size and sweetness.
Washington Navel	KE	1095	Seedless, easy-peeling, good for fresh fruit.
Valencia	KE	1095	Juice type, holds well on the tree and fruits over a long period.
Local sweet orange selections	TZ	1095	Mixed local selections for fresh fruit and juice, variable size and sweetness.
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Fertilizer recommendations

Stage	Product	Rate	Notes
Basal	Well-rotted farmyard manure	8000	Applied in rings around Orange (sweet orange) trees once a year or every two years.
Vegetative	CAN 26% N	60	Split in 2–3 applications to avoid leaching and scorching.
Flowering and fruiting	NPK 17-17-17 or high-K blend	120	Applied in small doses around peak flowering and early fruit set.
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Pests and diseases

Name	Type	Symptoms	Management
Citrus aphids	pest	Curling young leaves, sticky honeydew and black sooty mould; may spread viruses.	Encourage ladybirds and other predators, avoid unnecessary broad-spectrum sprays and use selective products when infestations are high.
Scales and mealybugs	pest	Sticky honeydew, sooty mould, yellowing and reduced vigour on twigs and leaves.	Prune overcrowded branches, control ants and use horticultural oils or selective insecticides when needed.
Citrus leafminer	pest	Silvery winding mines on young leaves; leaves may curl and distort.	Avoid unnecessary flushes from heavy nitrogen; use selective insecticides or biocontrols on serious infestations.
Fruit flies	pest	Stings on fruit, internal rotting and fruit drop.	Use field sanitation, bait traps and recommended fruit fly management products.
Citrus canker and other leaf/fruit spots	disease	Raised corky spots on leaves and fruits, leaf drop and blemished fruits.	Use clean planting material, prune and destroy infected twigs, and apply copper-based protectants where disease pressure is high.

Name	Type	Symptoms	Management
Root and collar rots (Phytophthora)	disease	Gum exudation on trunk, rotting at the collar and general decline.	Improve drainage, avoid piling soil against the trunk and keep irrigation water off the tree base.
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Yields

System	Typical	Min	Max	Notes
Low-input homestead Orange (sweet orange)	10	5	15	Few trees around homesteads; limited fertilizer and pruning.
Managed smallholder citrus orchard	18	12	25	Grafted trees with manuring/fertilizer, weeding and some pest control.
Intensive irrigated citrus orchard	30	20	40	High-density or well-managed orchards with irrigation and full nutrition and pest control.
Low-input homestead Orange (sweet orange)	10	5	15	Few trees around homesteads; limited fertilizer and pruning.
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Managed smallholder citrus orchard	18	12	25	Grafted trees with manuring/fertilizer, weeding and some pest control.
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Season calendars

Country	Region	Planting	Harvest
KE	Citrus-growing mid-altitude zones	Onset of main rains so young Orange (sweet orange) trees establish well.	Fruiting once or twice a year depending on variety

Country	Region	Planting	Harvest
TZ	Coastal and high-rainfall inland citrus zones	Start of rainy season on well-drained soils.	Main harvests in the drier months following rains.
UG	Warm mid-altitude citrus areas	Onset of rains to reduce irrigation needs for young trees.	Varies with rainfall pattern; often one main and one
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Region suitability

Country	Region	Suitability
KE	Central, Eastern and some Rift Valley mid-altitude belts	High
TZ	Coastal and southern high-rainfall citrus areas	High

Country	Region	Suitability
UG	Warm mid-altitude citrus-growing zones	High