

FarmLens Ltd

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Crop details

Carnations (cut flower)

Dianthus caryophyllus

Family: Caryophyllaceae

Categories

Oil & Industrial

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Quick stats

Family	Caryophyllaceae
Typical harvest	10.0 t/ha
Varieties	3
Pests and diseases	9
Seasons	3

Crop profile

Growth habit	perennial
Days to harvest	365
Main uses	Cut flowers for bouquets and arrangements (standard and spray types) and for florist trade.
Pollination	insect
Origin and where it grows	Cool-season floriculture crop grown in highland and temperate regions, often in greenhouses or net houses.

Weather, soil and spacing

Best temperature	10 - 20 °C
Rainfall	700 - 1100 mm/yr
Altitude	1200 - 2600 m
Best pH	6.2 - 6.8
Soil type	Light to medium-textured, fertile, well-drained loam or sandy loam rich in organic matter, with low salinity.
Row spacing	40 cm
Plant spacing	20 cm
Planting depth	2 cm
Seed rate	kg/ha (check local recommendation)
Nursery days	45

Simple notes for farmers

About the crop: This crop is perennial; once planted it can keep producing for many years. Harvest typically starts about 365 days after planting.

Main use: Farmers mostly grow this crop for cut flowers for bouquets and arrangements (standard and spray types) and for florist trade..

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

Where it grows: Cool-season floriculture crop grown in highland and temperate regions, often in greenhouses or net houses..
Grouped under: Oil & Industrial.

Best climate: 10 - 20 °C; 700 - 1100 mm/yr; up to about 2600 m a.s.l.

Soil: Best at pH 6.2 - 6.8; light to medium-textured, fertile, well-drained loam or sandy loam rich in organic matter, with low salinity..

Farmer guide (Mwongozo wa Mkulima)

<u>Planting</u>	Plant healthy, virus-free rooted cuttings or young plants on raised, well-drained beds. Space plants to allow good air circulation and light penetration.
<u>Transplanting</u>	Transplant in cool parts of the day, water plants before and after transplanting, and avoid burying stems too deep to prevent collar rots.
<u>Irrigation</u>	Maintain even moisture but avoid saturation. Drip irrigation is preferred to keep foliage dry and reduce foliar diseases.
<u>Fertigation</u>	Use split applications of balanced NPK via fertigation. Carnations respond well to regular, small doses; maintain adequate Ca/Mg for stem strength.
<u>Pest scouting</u>	Scout frequently for aphids, thrips, spider mites, leaf miners and caterpillars, especially on buds and young shoots. Check for fusarium wilt, rust and other rots.
<u>Pruning and training</u>	Pinch young plants to encourage branching and multiple flowering stems. Remove side shoots where single long stems are desired and stake or support stems.
<u>Harvest</u>	Harvest in the “paint brush” to half-open stage depending on market. Cut in the cool hours, using sharp tools, and avoid damaging remaining buds on the plant.
<u>Postharvest</u>	Hydrate stems immediately in clean water or preservative solution, pre-cool, grade by stem length and flower stage, bunch and sleeve for cold-chain transport.

Nutrient schedule (Mbolea kwa Hatua)

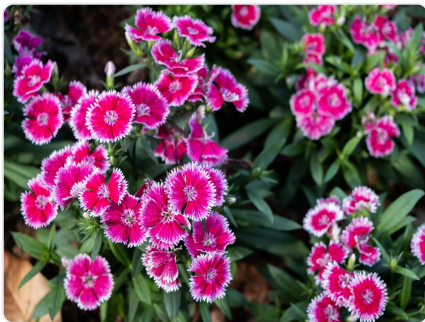
#	<u>Stage</u>	<u>DAP</u>	<u>Product</u>	<u>Rate</u>	<u>Targets (kg/ha)</u>	<u>Notes</u>
1	Basal at planting	0	NPK 17-17-17 + compost	180 kg/ha (plus 6–8 t/ha compost)	N: 30, P?O?: 30, K?O: 30	Broadcast and incorporate into raised beds before transplanting rooted cuttings.
2	Early growth topdress	35	CAN 26% N	100 kg/ha	N: 26, P?O?: 0, K?O: 0	Apply along rows on moist soil; can also be delivered via fertigation in split doses.
3	Flowering K boost	75	Sulfate of potash (SOP)	80 kg/ha	N: 0, P?O?: 0, K?O: 40	Apply as plants approach main flowering flushes, preferably via fertigation or banding; avoid chloride-rich K sources.

Nutrient requirements

<u>Nutrient</u>	<u>Stage</u>	<u>Amount</u>	<u>Unit</u>
N	Basal	50	kg/ha
P?O?	Basal	40	kg/ha

<u>Nutrient</u>	<u>Stage</u>	<u>Amount</u>	<u>Unit</u>
K ₂ O	Basal	60	kg/ha
N	Early_growth	40	kg/ha
P ₂ O ₅	Early_growth	10	kg/ha
K ₂ O	Early_growth	40	kg/ha
N	Production_flush	30	kg/ha
P ₂ O ₅	Production_flush	0	kg/ha
K ₂ O	Production_flush	60	kg/ha

Field images



Varieties

<u>Name</u>	<u>Country</u>	<u>Maturity (days)</u>	<u>Traits</u>
Standard carnation selection (red/pink)	KE	365	Long stems, single large flower per stem, suited to export markets.
Spray carnation mix	TZ	365	Multiple smaller flowers per stem, ideal for bouquets and local florists.
Fragrant carnation type	UG	365	Good fragrance and colour range for niche/local floriculture.

Fertilizer recommendations

<u>Stage</u>	<u>Product</u>	<u>Rate</u>	<u>Notes</u>
Basal	NPK 17-17-17 + compost	180	Apply and incorporate into the bed before planting rooted cuttings.
Vegetative/early flowering	CAN 26% N	100	Apply in 1–2 splits after establishment or via fertigation to support vegetative growth.
Flowering and stem quality	Sulfate of potash (SOP)	80	Apply during heavy flowering periods to enhance stem strength and flower quality.

Pests and diseases

<u>Name</u>	<u>Type</u>	<u>Symptoms</u>	<u>Management</u>
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Aphids	pest	Colonies on young shoots and buds, sticky honeydew, distorted growth and reduced bud quality.	Use biological control agents where possible, maintain weed control, and apply selective treatments based on scouting.
Thrips	pest	Scarring and streaks on petals and buds, distorted blooms, bronzed foliage in heavy infestations.	Monitor with sticky traps, maintain hygiene and use IPM-based controls targeting buds and flowers.
Spider mites	pest	Speckled leaves, fine webbing and bronzing; leaves may dry and fall in severe cases.	Avoid water stress, maintain correct humidity, and introduce predatory mites where feasible.
Leaf miners	pest	Winding mines in leaves, reduced photosynthetic area and cosmetic damage.	Remove and destroy mined leaves, use traps and appropriate IPM tools when thresholds are reached.
Cutworms/caterpillars	pest	Chewed leaves, buds and stems near the base; cut plants or damaged buds.	Good field sanitation, removal of weeds and debris, and targeted control early in infestation.
Fusarium wilt	disease	Yellowing, wilting, one-sided dieback and brown discolouration of vascular tissue.	Use clean planting material, well-drained beds, avoid replanting in infected soils and rotate if wilt is severe.
Rust	disease	Small orange-brown pustules on undersides of leaves, yellowing and premature leaf drop.	Maintain airflow, avoid overcrowding and prolonged leaf wetness, and remove infected foliage.
Botrytis (grey mould)	disease	Brown lesions on petals and buds, grey mould in cool, humid conditions, postharvest flower decay.	Avoid overhead watering late in the day, harvest dry flowers, improve ventilation and maintain hygiene in houses and pack sheds.
Bacterial stem/collar rots	disease	Soft rots at soil line and stem base, lodging plants, foul smell.	Use well-drained media, avoid over-irrigation and injury at stem base, and remove affected plants promptly.

Yields

<u>System</u>	<u>Typical</u>	<u>Min</u>	<u>Max</u>	<u>Notes</u>
Open-field / low-input carnations	5	3	7	Represents modest stem production; actual monitoring often in stems/ha (~150–250k stems).
Greenhouse/net house managed	10	6	14	Well-managed cut flower system, often 200–350k marketable stems/ha/year.
Intensive export floriculture	15	10	20	High plant density, good fertigation and climate management, with rigorous grading for export.

Season calendars

<u>Country</u>	<u>Region</u>	<u>Planting</u>
KE	High-altitude floriculture zones	New carnation beds can be established most of the year where irrigation is available; cooler months favoured for establishment.

<u>Country</u>	<u>Region</u>	<u>Planting</u>
TZ	Northern and southern highlands suited to floriculture	Establish with adequate irrigation in cooler seasons or at onset of reliable rains in open or netted systems.
UG	Highland and mid-altitude regions with cool nights	Plant when temperatures are moderate and irrigation is assured, or at onset of rainy season in open systems.

Region suitability

<u>Country</u>	<u>Region</u>	<u>Suitability</u>
KE	Highland floriculture belts with cool nights and good irrigation	High
TZ	Northern/southern highlands and selected irrigated valleys suited to cool floriculture	High
UG	Highland and cooler mid-altitude zones with reliable water for floriculture	High

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