Vegetable production

in a nutshell

Compiled by
L. Allemann and B.W. Young
KwaZulu-Natal Department of Agriculture

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Fertilisation

Ideally, fertiliser recommendations should be based on the results of recent soil analysis done on representative soil samples.

Where vegetable crops are to be grown for the first time, or only sporadically, or on virgin soil, the importance of submitting representative soil samples for analysis and recommendations, has to be emphasised. Analysing the soil before planting each crop, or at least annually, is recommended. Obvious or serious nutrient deficiencies or imbalances may then be corrected before planting, and any lime required could be applied.

Where vegetables have been grown intensively for some time with heavy fertiliser dressings, the soil nutrient status is likely to be more satisfactory. While annual soil analysis would still be beneficial, submitting soil samples for analysis every 2 or 3 years may be adequate. The objectives of such analyses are to correct imbalances of the major nutrients and to economise on fertiliser costs by applying only what is required for the following crop.

Notwithstanding the above, many crops are grown without the soil being analysed. A general fertiliser recommendation is then necessary.

In the high rainfall areas, the soils tend to be inherently infertile and more acid. Liming should be considered in these areas. Because of leaching or non-availability of fixed elements, fertiliser requirements are also likely to be high, unless intensive cropping with adequate fertilisation has been practised for some time.

In drier areas, lime and potassium are less likely to be needed in large quantities, if at all, but phosphorus will probably be deficient in virgin soils. Where this inherent phosphorus deficiency has been corrected by high phosphate dressings, the fertiliser requirements are expected to be relatively low.

Taking the above factors into account, an attempt has been made to give general fertiliser recommendations which cover the expected nitrogen, phosphorus and potassium requirements of the crops dealt with in the following pages.

One recommendation is made for the situation where soil fertility is likely to be high—for example, a history of intensive cropping with good fertiliser practices—and the other where the soil fertility is expected to be inadequate. Obviously, on very poor soils, crop results would be improved by even higher fertiliser application rates.

Beetroot

Climate

Cool-season crop, but growth is slow under cold conditions and plants tend to bolt in spring. Optimum temperatures for growth are 15 to 18 °C. Growth is poor at temperatures below 5 °C or above 24 °C

Soil

Sandy to loamy soils are best. Soils should not be acid. Fairly tolerant to brack or saline conditions

Cultivars

Detroit Dark Red, Crimson Globe, Early Wonder

Growth period

Two to 3 months under warmer conditions. About 4 months when cooler

Sowing time

Area	Ideal time	Possible time
Cool	Aug–Feb	Aug–Apr
Warm	Jul–Dec, Feb–Apr	All year round
Hot	Apr–Sept	Feb–Oct

Spacing

Plant seeds 20 to 40 mm apart, later thinned to 50 to 70 mm, in rows 200 to 300 mm apart

Population

60 to 80 plants/m^2

Seeding rate

About 10 kg/ha

Planting

Direct drilled. Thinnings are sometimes transplanted to fill gaps

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	400	800
LAN	At 4 and 8 weeks	100 + 100	50 + 50

Pests

Nematodes, cutworm

Diseases

Mainly Cercospora leaf spot

Yield (t/ha)

Conservative: 14
Average: 18
Good: 25

Brinjal (eggplant)

Climate

Warm-season crop, very sensitive to frost and cold. Optimum mean temperatures are 21 to 29 °C. Flowers may be shed at temperatures above 35 °C. Temperatures below 18 °C may be harmful

Soil

Well-drained loamy soils with high organic matter and at least 400 mm deep are ideal, but the crop is fairly adaptable. pH (KCl) of 5,5 to 6,5

Cultivars

Black King, Black Beauty, Florida Market, Long Purple, Imperial and Little Fingers

Growth period

Cropping may start 65 to 90 days after transplanting under favourable warm conditions. Harvesting may extend for many months, but the bulk of the crop matures over 2 or 3 months

Sowing time

Area	Ideal time	Possible time
Cool	Sept–Oct	Sept–Dec
Warm	Aug–Oct	July–Jan
Hot	Aug–Sept, Jan–Apr	Jan–Sept

Spacing

400 to 500 mm x 700 to 1 500 mm, often planted in tram-lines

Population

20 000 to 30 000 plants/ha

Seeding rate

140 to 200 g for seedlings, 500 g for seedbeds and 2,0 kg for direct sowing

Planting

Usually transplanted

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	400	800
LAN	At 6 weeks (or split, 4 and 8 weeks)	250	150

Pests

Red spider mite, cutworm, American bollworm, nematodes (tip-wilters, aphids and leaf-eating beetles)

Diseases

Bacterial wilt, Cercospora or Alternaria leaf spot, botrytis rot

Yield (t/ha)

Conservative: 10 to 15
Average: 20
Good: 25

Cabbage

Climate

Frost hardy. Cool, moist conditions are ideal. Optimum temperatures for growth are 15 to 18 °C, with monthly means between 5 and 24 °C. Can withstand temperatures as low as –3 °C. Great variation in tolerance to temperature extremes between cultivars

Soil

Deep, well-drained, moisture-retentive loamy soils are preferred. Lighter soils are less satisfactory than heavier ones (fertility and moisture requirements are high). Effective rooting depth is 600 mm. Optimum pH 5,3 to 5,8. Acid saturation preferably less than 2

Cultivars

Heat tolerant: Green Star, Hercules, Star 3001 and others
Cold tolerant: Conquistador, Green Coronet and many others

Growth period

Varies, usually 90 to 130 days from transplanting

Sowing time

Area	Ideal time	Possible time
Cool	Dec–Feb, Sept–Oct	Aug–Feb
Warm	Jan–Mar, Aug–Sept	All year round
Hot	Feb–Apr, Jul–Aug	Feb–Aug

Spacing

350 to 500 mm x 500 to 700 mm

Population

40 000 to 45 000 plants/ha

Seeding rate

120 to 200 g for seed trays, 300 g for seedbeds and 500 to 2 000 g for direct seeding

Planting

Usually transplanted

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	500	1 000
LAN	At 6 weeks (or split, 3 and 6 weeks)	600	480

Pests

American bollworm, aphids, diamond-back moth, cabbage webworm

Diseases

Blackleg, black rot, downy mildew, cubroot, soft rot, Sclerotinia rot

Yield (t/ha)

Conservative:	30
Average:	50 to 60
Good:	80+

Carrot

Climate

Cool-season crop which can withstand moderate frost and is fairly adaptable to high temperatures of 30 °C and higher. Liable to bolt to seed in spring if subjected to prolonged exposure to temperatures below 5 °C. Optimum temperatures for growth are 15 to 18 °C with monthly means between 7 and 24 °C

Soil

Deep, loose, well-drained, sandy to loamy soils, not subject to capping. Heavy soils, more than 35 % clay, are less suitable. Depth 600 mm, although 400 mm is acceptable, particularly if planted on ridges. Optimum pH 5,0 to 6,0. Free of root-knot nematodes

Cultivars

Cape Market, Fancy, Ideal Red, Kuroda and others

Growth period

Usually 90 to 120 days

Sowing time

Area	Ideal time	Possible time
Cool	Jan–Mar, Sept–Nov	Sept–Mar
Warm	Feb–May, Aug–Oct	Jan–Nov
Hot	Mar–Aug	Feb–Sept

Spacing

20 to 50 mm x 200 to 400 mm

Population

80 to 150 plants/m^2

Seeding rate

2 to 4 kg/ha

Planting

Direct drilled, possibly thinned

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	500	1 000
LAN	At 6 weeks	150	50

Pests

Nematodes, American bollworm, plusia looper, aphids, cutworm, wireworm

Diseases

Leaf spot, soft rot, Sclerotinia rot

Yield (t/ha)

Conservative:	20
Average:	30
Good:	40+

Chilli (hot pepper)

Climate

Warm-season crop damaged by cold. Optimum mean temperatures are 20 to 30 °C

Soil

Fairly adaptable. Loamy soils, well-drained to at least 400 mm, are ideal

Cultivars

Long Red Cayenne, Long Slim Cayenne, Thai Chilli, Serrano, Spitfire, Super Chilli, Skyline

Growth period

The first green fruits may be picked about 70 days after transplanting. Harvesting may continue for several months, but the bulk matures over 2 or 3 months

Sowing time

Area	Ideal time	Possible time
Cool	Sept–Oct	Sept–Dec
Warm	Aug–Oct	Aug–Feb
Hot	Jul–Oct, Jan–Feb	July–Mar

Spacing

300 to 500 mm x 500 to 750 mm

Population

30 000 to 45 000 plants/ha

Seeding rate

150 to 200 g for seed trays; 200 to 300 g for seedbeds

Planting

Transplanted

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	400	800
LAN	At 6 weeks (or split, 4 and 8 weeks)	250	150

Pests

Mainly nematodes and red spider mite. Also American bollworm, cutworm, aphids, beetles, thrips

Diseases

Virus and bacterial wilt. Also other wilt diseases, powdery mildew and various fruit spots

Yield (t/ha)

Green		*Dry*	
Conservative:	5 to 7	Conservative:	1,5
Average:	10	Average:	3
Good:	15	Good:	5

Trailing cucurbits (butternuts, gems, hubbards, pumpkins)

Climate

Warm-season crops, very sensitive to frost and low temperatures. Optimum temperatures for growth are 18 to 30 °C, with monthly means between 10 and 32 °C. At very high temperatures (above 35 °C) male flowers sometimes predominate, resulting in fewer fruit for that period

Soil

Well-drained loamy soils. Ideally deeper than 1 000 mm, but 450 mm is acceptable. Optimum pH 6,0 to 7,0

Growth period

Gems	85 to 95 days
Butternuts	90 to 100 days
Hubbards	100 to 115 days
Pumpkins	120 to 130 days

Storing

One to 3 months when mature

Sowing time

Area	Ideal time	Possible time
Cool	Oct	Sept–Dec
Warm	Sept–Nov	Aug–Jan
Hot	Aug–Dec	Jul–Mar

Late plantings may be infected with virus, through insect vectors, at early growth stage, and crop will be affected adversely

Spacing

Gems and butternuts: 300 to 500 mm x 1 200 to 1 800 mm
Hubbards and pumpkins: 500 x 2 000 to 2 700 mm

Seeding rate

Gems and butternuts: 2 to 3 kg
Hubbards and pumpkins: 4 to 6 kg

Planting

Direct seeded; usually 2 to 3 seeds per site, thinned to 1 plant.
Occasionally grown in seed trays

Fertiliser (kg/ha)

Ferliliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	400	800
LAN	At 6 weeks	250	150

Pests

American bollworm, pumpkin fly, ladybird, aphids, nematodes

Diseases

Powdery mildew, leaf spot, fruit rot, mosaic

Yield (t/ha)

Conservative: 12 to 15
Average: 17 to 20
Good: 25+

Green bean (bush type)

Climate

Warm-season crop, susceptible to cold and light frost. Optimum temperatures for growth are 15 to 21 °C, with monthly means between 10 and 27 °C. Temperatures below 12 °C or above 3 °C affect fruit set and quality. Cultivars differ slightly

Soil

Well-drained sandy to loamy soils, not subject to capping (crusting). Depth 400 mm. Optimum pH 5,3 to 6,0. Very sensitive to brack conditions. Soil must be free of root-knot nematodes

Cultivars

Contender, Espada, Provider, Wintergreen (latter tolerates cooler conditions)

Growth period

Usually 50 to 60 days to first pick. Pick over 10 to 15 days

Sowing time

Area	Ideal time	Possible time
Cool	Oct–Nov, Jan	Sept–Feb
Warm	Sept–Oct, Jan–Feb	Aug–Mar
Hot	Mar–Aug	Feb–Sept

Spacing

40 to 70 mm x 450 to 600 mm

Seeding rate

60 to 100 kg

Planting

Direct drilled

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	250	500
LAN	At 3 weeks	250	200

Pests

Nematodes, American bollworm, aphids, CMR and chafer beetles, plusia looper, red spider mite, bean flies, snails

Diseases

Rust, common and halo blights, Sclerotinia rot, root rot

Yield (t/ha)

Conservative: 5
Average: 7 to 8
Good: 11+

Green pea

Climate

Cool-season crop. Plants can withstand moderate frost, but flowers and young pods are sensitive. Optimum monthly mean temperatures are 15 to 18 °C. Growth ceases below 5 °C. Prolonged moist spells favour foliage diseases

Soil

Cool, well-drained, medium to heavy loams are preferred, but will grow successfully on a wide range of soil types

Cultivars

Garden peas: Cape Freezer, Dark Skinned Perfection, Greenfeast, Kelvedon Wonder and Onward

Edible podded peas: Oregon Sugar Pod II is grown for its edible pods, picked before the seeds swell. Sugar Daddy is grown for its edible pods, picked after the seeds have swollen

Growth period

Growing period is mainly determined by prevailing temperatures. Generally 100 to 120 days, picked at about 3 weeks

Sowing time

In most areas from May to June

In areas which experience late frost or where summers are cool, plant in July

In cool frost-free areas plantings may start in March

Spacing

For the fresh market, plant seeds 20 to 40 mm deep, and about 50 mm apart, in rows 600 mm apart. Planting in twin rows, spaced 200 mm apart, instead of single rows, is recommended

Seeding rate

50 to 100 kg/ha

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	250	500
LAN	At 4 weeks	75	25

Irrigation

Critical times for irrigation are at very early flowering stage and again at pod swell. Avoid any drought stress from flowering onwards

Pests

Various caterpillars are the major pests

Diseases

Ascochyta leaf, stem and pod rot under moist conditions, downy mildew, mainly on young plants, powdery mildew, mainly on bearing plants

Yield (t/ha)

Conservative:	3
Average:	5 to 6
Good:	8+

Lettuce

Climate

Cool-season crop. Optimum temperatures for growth are 15 to 18 °C, with monthly means between 7 and 24 °C. Can withstand only light frost, especially at heading stage, when lettuce is also susceptible to sun-scald. Hot, moist conditions favour head rots. Temperatures above about 30 °C tend to induce seeding. Cultivars differ greatly in tolerance to high temperatures

Soil

Well-drained soils, from light sandy to heavy clay. Depth ideally 600 mm, but 400 mm is acceptable. Optimum pH 5,0 to 6,0

Cultivars

Commander, Summer Gold, Emperor (tolerates higher temperatures), Victory, Greenway, Frosty, Winter Crisp, and many more

Growth period

Usually 55 to 90 days from transplant

Sowing time

Area	Ideal time	Possible time
Cool	Jan–Feb, Sept–Oct	Aug–Mar
Warm	Feb–Apr, Jul–Sept	Jan–Oct
Hot	Apr–May	Mar–Jul

Spacing

300 to 400 mm x 400 to 600 mm

Population

60 000 to 80 000 plants/ha

Seeding rate

300 to 500 g for seed trays, 500 g for seedbeds and 1 500 to 3 000 g for direct sowing

Planting

Usually transplanted, sometimes direct seeded and then thinned

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	500	1 000
LAN	At 4 weeks	250	150

Pests

American bollworm, nematodes, snails, cutworm, aphids

Diseases

Downy mildew, leaf spot, soft rot, mosaic, spotted wilt

Yield (t/ha)

Conservative: 12 to 15
Average: 20 to 25
Good: 30+

Madumbie

Climate

Tropical, subtropical and temperate areas with long frost-free periods. Optimum temperature range for growth is 21 to 27 °C. High humidity preferred, with well-distributed summer rainfall of 1 000 mm and more, or supplemental irrigation

Soil

Fertile sandy to loamy soils, often planted along stream banks, but is tolerant of upland conditions. High organic content preferred, soil pH 5,5 to 6,5

Cultivar

No selections available in South Africa. Most growers store some of their crop for replanting

Seed quality

No seed corm industry presently exists

Growth period

Matures in 200 to 270 days from planting

Sowing time

Area	Ideal time	Possible time
Cool	Sept–Oct	Sept–Nov
Warm	Sept	Aug–Nov
Hot	Jul–Sept	Jul–Oct

Spacing

900 mm rows, 300 to 450 mm within rows, depending on expected growth vigour

Population

25 000 to 37 000 plants/ha

Seeding rate

Sprouted corms or cormels, mass of 25 to 75 g, total 1,5 t/ha

Planting

Plant in furrows to give 50 to 80 mm soil depth after covering. If water-table is high (stream banks), plant on ridges to make harvesting easier. Plant August to October

Special practices

Slightly ridge plants after topdressing

Fertiliser

If no soil analysis: broadcast lime before final soil preparation. At planting apply 1 100 kg 2:3:2(22)/ha in the row, topdress about 14 weeks later with 175 kg 1:0:1(36)/ha

Pests

Usually few obvious insect problems. Aphids, thrips and root-knot nematodes can be troublesome, as can red spider mite under dry conditions

Diseases

Leaf spots, soft rot, Sclerotium tuber rot. Dasheen mosaic virus is likely to be present

Yield (t/ha)

Average: 5 and 10
Good: 15+

Onion

Climate

Frost tolerant. Cool conditions during vegetative growth and hot, dry conditions nearing maturity, in early summer. Optimum temperatures for growth are 12 to 24 °C, with monthly means between 7 and 29 °C. Rainy spells in late spring and early summer reduce quality, especially keeping quality. Bulb formation is influenced by day length—grow short-day cultivars only

Soil

Sandy to clayey soils suitable. Depth 600 mm if direct drilled or 450 mm for transplants. Optimum pH 5,0 to 6,0

Cultivars

Granex types, Hojem, Pyramid, Texas Grano

Growth period

180 to 230 days from sowing

Sowing time

Ideal time	Possible time
Feb–Mar	Jan–Apr

Early sowings tend to produce larger bulbs, but more bolters and split bulbs. Mid-February to mid-March plantings are advised for all areas

Transplant in May (Apr–Jun)

Spacing

50 to 80 mm x 200 to 400 mm

Seeding rate

2 to 2,5 kg for seed trays, 3 to 5 kg for seedbeds, 6 to 8 kg for direct drilling

Planting

Usually transplanted

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	500	1 000
LAN	At 6 to 8 weeks (or split, 4 and 8 weeks)	300	200

Pests

Thrips

Diseases

Downy mildew, purple blotch, leaf mould, black mould, soft rot, bulb rot

Yield (t/ha)

Conservative:	15 to 20
Average:	25 to 30
Good:	40+

Note: Production is best under irrigation in areas where conditions are hot and dry during August to November

Potato

Climate

Sensitive to frost. Optimum temperatures for growth 15 to 18 °C, with monthly means between 7 and 24 °C

Soil

Well drained, well aerated and moisture retentive, with high fertility. Sandy loam to loamy soils are preferred; high clay content causes harvesting problems. Tolerates acid soil, pH 4,3 to 6,1. High pH promotes scab disease. Rooting depth 500 mm

Cultivars

BP1, Up-to-Date, Vanderplank, Buffelspoort, Astrid, Hoëvelder, Mnandi

Seed quality

Certified seed potatoes

Growth period

105 to 150 days

Sowing time

Area	Ideal time	Possible time
Cool	Aug–Oct, Jan	Jul–Feb
Warm	Jul–Sept, Feb	Jun–Mar
Hot	Mar–Jun	Feb–Sept

Spacing

200 to 450 mm x 700 to 1 000 mm, depending on seed size and equipment

Population

130 000 to 150 000 stems/ha for table potatoes; 160 000 stems/ha for seed potatoes

Seeding rate

100 to 120 x 30 kg pockets/ha

Planting

Direct

Special practices

Ridging when tuber initiation commences

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	600	1 200
LAN	At 6 to 8 weeks	500	350

Pests

Nematodes, aphids, tuber moth, millipedes, cutworm, wireworm, black maize beetle

Diseases

Early blight, late blight, leaf roll, mosaic, common scab, bacterial wilt, soft rot, Fusarium wilt, dry rot, black dot, silver scurf, black scurf

Yield (t/ha)

Conservative:	16
Average:	28
Good:	45

Sweet pepper

Climate

Sensitive to frost or cold. Optimum mean temperatures are 20 to 27 °C. Temperatures above 32 °C may cause shedding of flowers. Growth becomes progressively poorer at temperatures below 15 °C. Sunscald can be a problem. Prolonged cloudy weather is harmful

Soil

Fairly adaptable, provided drainage is good up to a depth of 400 mm. Humus-rich loams are preferred

Cultivars

California Wonder, Jupiter, Pip, Florida Resistant Giant, Keystone Resistant

Growth period

First fruits attain full size (green) within 70 to 80 days after transplanting. May take 3 to 5 weeks extra to reach mature colour (red or yellow). Harvesting may extend for several months, but is generally discontinued after about 2 months when the bulk of the crop has been picked

Sowing time

Area	Ideal time	Possible time
Cool	Sept–Oct	Sept–Nov
Warm	Aug–Oct	Aug–Jan
Hot	Jul–Sept, Feb	Jul–Mar

Spacing

400 to 500 mm x 500 to 1 000 mm, usually in tram-lines

Population

25 000 to 45 000 plants/ha

Seeding rate

150 to 200 g for seed trays; 200 to 300 g for seedbeds

Planting

Transplanted

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	400	800
LAN	At 4 to 8 weeks	225 + 225	175 + 175

Pests

Mainly nematodes and red spider mite. Also American bollworm, cutworm, aphids, beetles, thrips

Diseases

Virus and bacterial wilt. Bacterial spot, powdery mildew, other wilts and soft rot may occur

Yield (t/ha)

Conservative: 15
Average: 25
Good: 40+

Sweet potato

Climate

Very sensitive to frost and cold. Requires hot days and warm nights for optimum growth, with mean monthly temperatures of 21 to 29 °C

Soil

Sandy to loamy soils are preferred. Good drainage to at least 500 mm is essential. Heavy soils produce misshapen roots and favour root rots

Cultivars

Blesbok, Bosbok, Impala, Brondal, Koedoe, Mafutha and Ribbok

Growth period

Usually 4 to 5 months. May be harvested earlier, when tubers have attained a satisfactory size, but yields will be reduced. Where soil temperatures remain above 0 °C and top growth stays green, the crop may be left in DRY soil, and harvested as required

Sowing time

Area	Ideal time	Possible time
Cool	Nov	Oct–Nov
Warm	Nov–Dec	Oct–Feb
Hot	Jan–Mar, Aug–Oct	Aug–Mar

Spacing

Usually 300 mm apart in rows about 1 000 mm apart

Planting material

300 to 400 mm long, healthy vine cuttings. Use virus-tested material

Population

30 000 to 35 000 plants/ha

Planting

Best on ridges, 300 to 400 mm high. The lower half of the cuttings should be covered by soil

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	400	800
LAN	At 6 weeks	250	150

Irrigation

Survive dry conditions when well established, but irrigation necessary for good yields

Pests

Nematodes are a major problem. Weevils, hawk moth larvae, leafminers, red spider mite and soil insects can cause damage

Diseases

Virus degeneration is the main problem. Post-harvest tuber rots of uncured tubers can cause great losses

Yield (t/ha)

Conservative: 15 to 20
Average: 30
Good: 40+

Swiss chard (often called spinach)

Climate

Cool-season crop. Does best at temperatures between 7 and 24 °C. Can withstand light frost. Under high temperatures leaves remain small and inferior. Foliage often affected by leaf spots in late summer. Tends to run to seed in spring if subjected to winter cold

Soil

Highly adaptable, provided soils are well drained to about 500 mm

Cultivars

Fordhook Giant, Lucullus

Growing period

First harvest may take place within 2 months. Harvesting can extend for several months, but should last for 2 to 3 months

Sowing time

Area	Ideal time	Possible time
Cool	Aug–Nov, Feb	Aug–Mar
Warm	Jul–Nov, Feb–Mar	Jul–Apr
Hot	Mar–Aug	Feb–Oct

Spacing

200 to 300 mm x 450 to 600 mm

Population

60 000 to 80 000 plants/ha

Seeding rate

7 to 9 kg/ha for direct seeding

Planting

Generally direct seeding and later thinned to stand. Transplant easily, but cropping is delayed. Thinnings often used for transplanting

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	500	1 000
LAN	At 4 and 8 weeks	225 + 225	175 + 175

Pests

Nematodes, cutworm, American bollworm, loopers and aphids

Diseases

Fungal foliar diseases, especially Cercospora leaf spot

Yield (t/ha)

Conservative:	10
Average:	20
Good:	30

Table tomato

Climate

Very sensitive to frost. Optimum temperatures for growth are 20 to 25 °C, with monthly means between 18 and 27 °C. Temperatures below 12 °C and above 35 °C affect fruit set and fruit quality detrimentally, as do prolonged cloudy conditions. Cultivars differ slightly

Soil

Ideally soils should be well drained to a depth of at least 1 200 mm, although 600 mm depth is acceptable. Tomatoes are fairly adaptable to texture, with 15 to 35 % clay being ideal. Moderately tolerant to soil acidity; ideal pH 5,0 to 6,0. Soil should be free of root-knot nematodes

Cultivars

Floradade, Karino, Rodade, Star 9001, Zeal, Zest

Growth period

Usually about 90 days to first pick, with a picking season of about 80 days

Sowing time

Area	Ideal time	Possible time
Cool	Oct	Sept–Nov
Warm	Sept–Nov	Aug–Dec
Hot	Feb–Jul	Jan–Jul

Spacing

300 to 500 mm x 1 500 to 2 500 mm

Population

12 000 to 16 000 plants/ha

Seeding rate

100 to 200 g for seed trays; 200 to 300 g for seedbeds; and 500 to 750 g/ha for direct seeding

Planting

Normally transplanted

Fertiliser (kg/ha)

Fertiliser	Application time	Fertile soil	Infertile soil
2:3:4(30)	At planting	500	1 000
LAN	At 3 and 6 weeks	250 + 250	200 + 200
KNO	At 6, 9 and 12 weeks	100 + 100 + 100	100 + 100 + 100

Ideally, the 2:3:4(30) fertiliser should be replaced with chlorine-free fertilisers

Pests

Nematodes, American bollworm, American leafminer, aphids, red spider mite, plusia looper, mites

Diseases

Early blight, late blight, grey mould, leaf mould, powdery mildew, fruit rot, soft rot, bacterial canker, bacterial spot, bacterial speck, bacterial wilt, Fusarium wilt, anthracnose, Septoria leaf spot, mosaic, spotted wilt

Yield (t/ha)

Conservative:	30
Average:	40 to 50
Good:	80+