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PRODUCTION GUIDELINES / SOUTH AFRICA

Capsicums



SWEET PEPPERS / CHILLIES / PAPRIKA

Match the crop to the market. Establish healthy plants, protect fruit quality and plan fresh or dried products from the start.

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01 / CROP PLANNING

Choose the product first

Scope: sweet peppers, fresh chillies and paprika. Field production is the baseline; protected and soilless systems require their own climate and feeding plans.

Market	Decisions before planting
Sweet peppers	Agree green or fully coloured fruit, shape, size, wall quality, pack and picking frequency. Allow additional time on the plant for coloured fruit. [2]
Fresh chillies	Specify cultivar, fruit size, colour stage and pungency. Heat level depends on genetics, maturity and environment; visual appearance alone is not a specification. [9]
Paprika / dried chilli	Confirm the processor before planting. Agree variety, colour, pungency, delivery form and quality tests. Paprika and chilli contracts are not interchangeable. [1, 11]
Production system	Record field, net house or greenhouse; soil or substrate; available labour, support system, irrigation and cooling capacity.

Fit the season to the crop

Capsicums are warm-season crops sensitive to frost. Legacy South African guidance places favourable growth around 20-27°C. Treat this as context, not a guarantee of fruit set: temperature extremes, hot winds and cultivar response influence performance. Use district records and current forecasts. [1]

Check claims against the local problem

Ask for documented cultivar resistance or tolerance, including the relevant pathogen or race. Resistance does not mean immunity. Select the intended final fruit colour at seed ordering, and trial unfamiliar material before expanding acreage. [2]

Budget accepted kilograms: separate first-grade fruit, lower grades and rejects. Include repeated picking, packaging, support, water, energy and transport. For dried products, use the processor's realistic fresh-to-dry conversion and acceptance criteria.

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02 / ESTABLISHMENT

Start with healthy plants

Choose a well-drained field and review disease history before ordering seedlings. Healthy nursery plants and a reliable irrigation system are the starting point.

Prepare the root zone and access

Avoid compacted or poorly drained areas. Raised beds can help drainage, but the field still needs a safe outlet for excess water. Plan picking lanes that let workers reach fruit without breaking branches. [1, 4]

Checkpoint	Practical planning guidance
Seed and transplants	Retain cultivar and lot records. Inspect leaves, stems and roots before accepting trays. Request seed-health information and confirm existing treatments. [2, 5]
Sweet-pepper layout	A legacy KZN guide uses 350-500 mm within rows and between paired rows, with 800-1,000 mm picking paths. These are starting examples; agree geometry for the cultivar and system. [1]
Chilli / paprika layout	The same guide gives 300-500 mm in-row and 600-750 mm between rows. Mechanised or direct-seeded processor crops may require a different layout. [1]
Transplanting check	Record survival, root-zone wetting and uneven growth after planting. Investigate clusters of weak plants before replacing them.

Plan support before fruit load builds

Where needed, install support early enough to avoid injury. Retain healthy leaf cover to protect fruit. Protected-crop stem selection and pruning depend on cultivar and system; use a crop-specific protocol rather than applying field rules unchanged. [2, 3]

Population example: two rows per 1.50 m bed centre, with plants 0.40 m apart, give about 33,330 positions/ha before headlands. Count the full bed-and-path width. This is a calculation, not a recommended planting density.

03 / WATER & NUTRITION

Support steady fruit growth

Use soil and water analysis, crop demand and a realistic harvest plan. A long picking season needs regular reassessment, not a fixed recipe copied from another farm.

Keep moisture consistent

Check the active root zone, rainfall and irrigation delivery. Moisture stress can reduce flower and young-fruit retention and contribute to poor fruit quality. Avoid cycles of dry soil followed by excessive watering. Drip can reduce leaf wetting, but blocked emitters can create stressed patches. [3]

Separate water stress from root disease

Wilting can result from dry soil or damaged roots in wet soil. Inspect the root zone and drainage before adding more water. In suspected Phytophthora areas, keep runoff and contaminated soil away from clean blocks and obtain a diagnosis. [4]

Calculate nutrition from measurements

Set nutrient amounts using the soil report and crop plan. Credit previous fertiliser and organic inputs. Review the crop at establishment, fruit set and harvest; use correctly timed tissue sampling if a deficiency or toxicity is suspected. Record nutrient mass separately from product mass. [2]

Understand blossom-end rot

A dark, sunken lesion near the fruit end can reflect inadequate calcium reaching developing fruit. Irregular moisture, root stress, low calcium availability and excessive nitrogen may contribute. Test and correct the cause; adding calcium without checking water and roots can miss the problem. [10]

Weekly record: rainfall and irrigation (mm) / root-zone reading / emitter checks / fertiliser and nutrient totals / flowering and fruit load / observed defects / action and follow-up. In substrate systems also use an adviser-approved drainage, pH and EC monitoring plan.

Scout with a purpose

Walk a repeatable route through representative plants and field edges. Inspect growing points, flowers, leaf undersides and fruit; record both pests and beneficial organisms.

Priority	What to look for and do
Thrips and virus risk	Thrips can scar growth and transmit tomato spotted wilt virus. Inspect flowers and young growth with magnification. Healthy transplants and management of host weeds are part of prevention. [6]
Bacterial spot	Leaf and fruit spots may start water-soaked and become brown or rough. Use seed with appropriate health testing, clean seedlings and hygiene; reduce splash spread. A leaf spot alone is not a diagnosis. [5]
Phytophthora	Watch for collapsed plants, dark wet crowns and rotting fruit, especially in low or wet patches. Drainage, clean equipment and avoiding contaminated water are central. [4]
Other pests / diseases	Inspect for mites, aphids, whiteflies, chewing larvae and fruit rots. Identify locally present organisms and assess crop damage before selecting a response. Overseas pest lists do not prove local occurrence.

Rotate against the diagnosed pathogen

Phytophthora capsici has a broad host range, including several cucurbits and solanaceous crops. A simple change from peppers to squash is not an effective non-host rotation. Persistence means rotation alone may not remove the risk. [4]

Before using a remedy: confirm current South African registration for the exact crop and target. Follow the approved label, protective equipment, re-entry and preharvest intervals. Keep treatment records and check buyer or export residue requirements. Agree resistance-management choices with an adviser. [7]

05 / QUALITY & FIELD REVIEW

Read the fruit and the plant

Symptoms help direct investigation; several causes can look alike. Record the affected cultivar, block, fruit age and pattern before choosing a corrective action.

Observation	First investigation
Dark lesion near fruit end	Consider blossom-end rot; review moisture consistency, roots and nutrient balance. It is a physiological disorder, although secondary decay can follow. [10]
Pale, damaged exposed side	Consider sunscald. Check loss of leaf cover, broken branches and exposure after harvesting or pruning. Maintain a healthy canopy. [3]
Flowers dropping	Review heat, cold, moisture and recent crop stress. Do not infer a pest problem or nutritional shortage from flower drop alone. [3]
Twisted growth / distorted fruit	Check for pests, virus symptoms and recent spray exposure. Submit representative samples when the cause remains uncertain; virus-infected plants cannot be cured by feeding. [3]
Pitting after storage	Review the temperature history. Bell peppers are chilling-sensitive; very cold storage can lead to pitting, softening and decay. [8]

Use a short investigation record

Photograph a whole plant, affected fruit and nearby unaffected plants. Note how many plants were checked and how many were affected. Include dates, irrigation changes and recent treatments. Compare shaded and exposed fruit and wetter and drier parts of the block.

For protected crops: keep a separate record of ventilation, temperature, humidity, pruning and irrigation. Ask the crop adviser to set system-specific targets. This guide does not supply a universal greenhouse nutrient solution or pruning schedule.

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06 / FRESH HARVEST & COOLING

Harvest to the agreed grade

Use fruit size, firmness and colour stage together. Check buyer specifications before each picking round and keep cultivars and lots identifiable.

Protect fruit from field to packhouse

Clip or pick carefully without breaking branches. Avoid stem punctures, compression and dropping fruit. Move harvested peppers into shade and cool promptly. Sort out damaged and rotting fruit before packing. [8, 9]

Product	Cold-chain reference
Fresh bell peppers	UC Davis gives 7.5°C and relative humidity above 95% as an optimum reference. Potential life is 3-5 weeks under good conditions; confirm a shorter commercial window for the lot. [8]
Fresh chillies	A 7.5°C reference and humidity above 95% are also given for fresh chillies. Chilling sensitivity varies with type and colour stage. Dried chillies need a different storage plan. [9]
Chilling risk	At 5°C, bell peppers may show injury after about two weeks. Do not use the near-zero cold-room settings suitable for carrots or cabbage. [8]
Water and packaging	Use clean containers and a managed hygienic wash system if washing is required. Avoid punctures and trapped decay; verify ventilation and product temperature. [8, 13]

Keep the promise realistic

Storage potential is not a shelf-life guarantee. Cultivar, maturity, injuries, field infection and temperature breaks all affect saleable life. Inspect retained samples and adjust dispatch timing using real lot performance.

Dispatch record: harvest block and time / colour grade / accepted and rejected mass / cooling start / measured product temperature / pack / vehicle / customer. Record the reason for rejects so field and packhouse teams can act on it.

Plan drying with the buyer

Dried paprika, dried chilli, sauces and pickled products have different quality and food-safety requirements. Confirm the processing route before planting.

Agree measurable acceptance criteria

Record the cultivar and product form, colour or extractable-colour test, pungency, moisture, foreign matter and defect limits. Confirm laboratory methods and sampling arrangements. Codex CXS 353-2022, amended in 2025, provides an international reference for dried chilli pepper and paprika. [11]

Stage	Control to confirm
Harvest and sorting	Agree the required maturity with the processor. Keep diseased, mouldy or contaminated pods out of the drying batch. Retain block and harvest-lot identity. [11, 12]
Drying surface / equipment	Use clean, protected drying facilities. Prevent contact with soil, animals, dust and rain; control loading and airflow to avoid uneven drying. [12]
Dryness and release	Measure the finished product against the applicable product form and buyer specification. Do not release a batch solely because pods feel dry. Record the measured result. [11]
Storage and transport	Protect dried product from moisture pickup and infestation. Use suitable clean packaging and keep lots separate; inspect before dispatch. [12]

Processing needs its own validated method

This production guide is not a canning, pickling or sauce recipe. Agree the processor's validated process, hygiene controls and testing requirements. Do not transfer a field guideline's salt percentage or drying temperature into a food-processing operation.

Processor checklist: signed specification / sample approval / harvest and delivery plan / drying capacity / testing laboratory / packaging / rejection process / payment basis. Keep fresh-fruit and dried-product weights separate in yield and cost records.

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FILLABLE CROP PLANNER

Your next planting

Save a copy before filling it in. Use a PDF reader that supports forms and keep the completed record with your field documents.

Farm / block / previous crop

Type / cultivar / seed or seedling lot

Planting date / expected harvest window

Bed and row layout / plant population / area

Buyer / fruit colour / fresh or dried / grade

Soil and water results / nutrient plan

Next action / responsible person / due date

Ready-to-plant checks

- [ ] Buyer specification confirmed
- [ ] Seed and planting plan checked
- [ ] Rotation and crop health checked
- [ ] Soil and water reviewed
- [ ] Irrigation delivery checked
- [ ] Cooling / processing arranged

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REFERENCES & EDITION NOTES

Sources you can follow

Independent sources reviewed on 17 September 2026. Links are clickable. Older sources support established principles; overseas dates and product approvals are not transferred to South Africa.

01. KZN Department of Agriculture - Capsicums (legacy bulletin)
Local climate, soil and spacing context; old input schedules not adopted.

02. Mid-Atlantic Commercial Recommendations - Peppers (2026/27)
Cultivar selection, establishment and soil-test principles.

03. UMN Extension - Growing peppers (reviewed 2026)
Moisture consistency, canopy protection and quality disorders.

04. UMN Extension - Managing phytophthora on farms
Drainage, pathogen persistence, host range and sanitation.

05. UC IPM - Bacterial Spot of Peppers
Symptoms, seed health and splash-spread prevention.

06. UC IPM - Thrips in Peppers
Pest recognition and tomato spotted wilt transmission.

07. SA Department of Agriculture - Maximum Residue Limits
Crop-specific registration, records and destination requirements.

08. UC Davis Postharvest - Bell Pepper
Maturity, handling, humidity and chilling sensitivity.

09. UC Davis Postharvest - Chile Pepper
Pungency variation and fresh-chilli cold-chain reference.

10. University of Maryland - Blossom End Rot (2024)
Calcium supply to fruit, moisture and nutritional risk factors.

11. FAO/WHO Codex - Dried Chilli and Paprika (amended 2025)
CXS 353-2022: product forms, quality, sampling and testing.

12. FAO - Quality assurance: herb and spice products
Hygienic drying, storage protection and contamination prevention.

13. Penn State Extension - Keeping Produce Fresh
Hygienic handling, washing and cooling principles.

About this edition. Original AgriCart editorial synthesis for planning and education. Obtain farm-specific advice before setting inputs and crop-protection programmes. No yield or shelf-life guarantee is implied. Cover image is AI-generated illustration, not a documented farm or named cultivar. Source organisations do not endorse AgriCart.