AgriCart

PRODUCTION GUIDELINES / SOUTH AFRICA

Onions



MATCH THE DAY LENGTH. CURE WELL. STORE DRY.

A practical guide to dry-bulb onions: choose the right seasonal cultivar, build a uniform stand and protect bulb quality through curing and storage.

01 Market & day length >

02 Establishment >

03 Water & nutrition >

04 Bulbing & crop health >

05 Curing & storage >

06 Planner & references >

DIGITAL EDITION / REVIEWED 17 SEPTEMBER 2026

AgriCart

MARKET & DAY LENGTH

Choose the right seasonal fit

Scope: mature dry bulbs of Allium cepa. Green bunching onions, shallots and seed production need separate crop and handling plans.

Match cultivar to location and date

Bulbing is triggered when day length reaches the cultivar's requirement; temperature and crop development also matter. South African production uses locally adapted short- and intermediate-day types. Obtain the supplier's district-specific sowing window instead of choosing by colour or a foreign catalogue alone. [1]

Decision / crop	Practical guidance
Market	Specify yellow, red or white; diameter bands; shape; skin quality; pungency; fresh sale or storage.
Seasonal fit	Record district, latitude, altitude, sowing date and expected maturity. Confirm local trial performance.
Storage class	Sweet or mild onions may keep very differently from pungent storage cultivars. Ask for evidence from the planned storage conditions. [7]
Production method	Select direct seed, transplants or sets with a locally proven cultivar and establishment system.
Economics	Obtain current quotes for seed, labour, inputs, bags, curing, storage and transport. Budget by accepted grade after losses.

Plan a suitable finish

Dry conditions around maturity and curing help preserve bulb quality. Assess rainfall risk and drying capacity when choosing the planting window. Good leaf growth before bulbing supports the crop, but late planting can leave too little time to build it. [1]

Before ordering: cultivar day-length class / local sowing window / grade / storage purpose / harvest and curing capacity.

AgriCart

ESTABLISHMENT

Make each row count

Small onion seedlings compete poorly and need an even seedbed. Test the planting system before committing the full area.

Decision / crop	Practical guidance
Direct sowing	Use the actual seed lot for calibration. Set depth for the soil and seed treatment, then check placement and emergence in a trial strip.
Transplants	Use healthy, uniform plants with a known nursery history. Avoid planting damaged or diseased material into a clean field.
Sets	Use only locally suitable, healthy sets with a known size and storage history. Sets are not automatically equivalent to seed-grown crops.
Population	Choose the target stand for bulb grade, cultivar and bed system. Higher density generally changes the size distribution; validate it locally.
Weed control	Begin with a clean seedbed and control weeds while small. Avoid root injury and check the crop stage on any herbicide label. [2]

Calculate seed requirements

Example only: 500,000 required plants / (0.90 germination x 0.85 survival of germinable seed) = about 653,595 seeds. This is a calculation example, not a recommended population. Convert to seed mass using the lot count.

Verify the achieved stand

Count seedlings over measured lengths at several positions and compare with the target. Record gaps, doubles, crusting and uneven moisture. Keep gross field area separate from planted bed area.

Establishment log: lot / sowing depth / spacing / planned stand / emergence date / counted stand / cause of gaps / corrective action.

AgriCart

WATER & NUTRITION

Feed the crop you measure

Prepare the programme from soil and water analysis, field history, cultivar and intended storage use.

Maintain a reliable root-zone supply

Check soil moisture and irrigation uniformity through establishment and bulb enlargement. Include rain in the water balance. Avoid persistent saturation and repeated cycles of drought followed by excessive irrigation.

Decision / crop	Practical guidance
Soil report	Set phosphorus, potassium and other nutrients from testing. The commercial guide gives farm-specific recommendations priority over its generic tables. [2]
Nitrogen	Split applications to match growth and the local programme. Review late nitrogen with the adviser because maturity and curing are part of the production goal.
Sulphur and flavour	Treat sulphur nutrition and pungency as crop- and market-specific questions. Do not copy a foreign sweet-onion recipe into every onion crop.
Trace elements	Confirm deficiency with suitable analysis before correction; avoid routine boron applications.
Water quality	Review EC, alkalinity, sodium and chloride with the laboratory. Check salt accumulation and drainage where plant growth is uneven.

Record nutrient and water units

Keep both fertiliser product mass and nutrient mass. For irrigation, 1 mm over 1 ha equals 10,000 litres. Use measured output to confirm delivery rather than relying on pump runtime alone.

Weekly review: leaf growth / bulb development / moisture / irrigation and rain / nutrient totals / weather / next adjustment.

AgriCart

BULB DEVELOPMENT

Separate bulbing from bolting

Bulb enlargement and flowering are different processes. Correct diagnosis prevents an unhelpful change in feeding or irrigation.

Decision / crop	Practical guidance
Bulbing	Day length initiates bulb formation in a suitably developed, adapted cultivar. Planting time controls how much vegetative growth occurs beforehand. [1]
Bolting	A flower stalk reduces dry-bulb market quality. Cold exposure and plant development interact with cultivar susceptibility; review nursery and field history. [1]
Small bulbs	Check planting date, day-length fit, density, leaf area, water and pest pressure before adding more fertiliser.
Thick necks / uneven maturity	Compare cultivar, sowing spread, nutrition and growth conditions. Segregate poor-curing bulbs rather than mixing them into long storage.
Premature leaf collapse	Inspect roots, pests, disease and water stress. Top fall caused by damage is not the same as normal crop maturity.

Use representative measurements

Track bulb diameter and leaf condition in several parts of the field. Record the fraction reaching each market size and maturity class. Review the whole distribution rather than judging from the largest bulbs.

Prepare the harvest transition

Agree the maturity trigger, irrigation finish, lifting method and curing route with the crop adviser. Timing depends on cultivar, soil and weather; a fixed number of dry days does not suit every field.

Preharvest sample: size distribution / normal top fall / neck condition / skin development / bolting / disease / intended storage class.

AgriCart

PESTS & FOLIAR DISEASE

Look inside the leaf folds

Inspect a consistent sample across the field and add checks in hot spots. Identify the cause before selecting an intervention.

Decision / crop	Practical guidance
Thrips	Look for small insects within leaf folds and silvery feeding injury. Count consistently and use a locally appropriate decision threshold. Onion thrips can transmit iris yellow spot virus. [4]
Downy mildew	Pale elongated leaf areas and grey-purple growth can develop during favourable humid conditions. Obtain diagnosis and review leaf wetness and crop history. [6]
Purple blotch / leaf blight	Leaf lesions and tip dieback may have several causes. Use a diagnostic sample where symptoms overlap. [3]
Seedling or root feeding	Inspect affected plants and soil. Do not assume an overseas pest species is present without identification.
Virus-like symptoms	Record streaks, lesions and patch pattern along with vector activity; diagnosis informs the next planting plan.

Protect useful leaf area

Choose suitable resistance where available, manage volunteers and crop residues, and limit avoidable plant injury. Scouting should continue through bulb enlargement, when leaf loss can reduce marketable output.

Keep treatments traceable

Verify current South African onion and target registration, label rates and intervals. Check buyer or export residue requirements and mark the earliest permitted harvest. Imported spray tables are not local authorisation. [9]

Scout record: pest or symptom / plant sample / leaf stage / location / weather / threshold or diagnosis / action / result.

AgriCart

SOILBORNE & BULB DISEASE

Protect clean fields

Review the allium history before planting. Some soilborne problems persist much longer than a normal crop rotation.

Decision / crop	Practical guidance
White rot	White fungal growth and small dark survival structures near the bulb base warrant prompt diagnosis. The pathogen can persist in soil for many years. Avoid moving contaminated soil or planting material. [5]
Fusarium basal rot	Investigate decay beginning around the basal plate and damaged roots. Use diagnosis, field history and cultivar information to plan prevention. [3]
Pink root	Discoloured, declining roots can limit growth. Sample affected and healthy plants and assess soil stress as well as disease. [3]
Bacterial rots	Soft, watery or foul-smelling tissue must be kept out of storage. Minimise injury and review wet conditions and handling. [7]
Nematodes	Use laboratory sampling where symptoms and field history suggest a problem. Choose the rotation for the identified species.

Keep disease maps with the land record

Mark affected patches, sample numbers and previous controls. Clean equipment before entering clean ground and separate suspect lots at harvest. A short non-allium rotation alone does not establish that white-rot-infested land is safe. [5]

Do not store away a field problem

Cold storage slows some deterioration but does not turn infected or badly injured bulbs into sound product. Grade out defects before loading and monitor suspect lots separately.

Before the next crop: confirmed diagnosis / affected area / movement controls / rotation options / cultivar / testing and follow-up.

AgriCart

HARVEST & CURING

Dry the neck and outer scales

Curing prepares mature bulbs for dry storage. It is different from cooling a leafy crop and must suit the cultivar and weather.

Lift at the agreed maturity

Assess normal top fall, neck condition and bulb quality across the block. Lift and handle gently, limiting cuts and bruises. Avoid leaving exposed bulbs to sunscald or rain while waiting for transport.

Decision / crop	Practical guidance
Curing endpoint	The neck should be dry rather than slippery, with dry protective outer scales. Judge the bulbs and airflow conditions, not only elapsed days. [7]
Field curing	Use only when weather and ground conditions are suitable. Protect from rewetting and excessive solar heating.
Forced-air curing	Use a validated programme for the cultivar, load and equipment. Monitor temperature, humidity and airflow through the load.
Topping and grading	Avoid cutting into succulent neck tissue. Remove damaged, diseased, thick-necked and bolted bulbs from storage grades.
Loading	Use ventilated packs and a layout that allows air to reach the product. Identify every lot and its curing history.

Do not shortcut the drying step

Packing uncured bulbs or allowing condensation around them favours storage losses. Keep curing records with the lot and inspect representative bulbs from different positions before release.

Curing record: lift date / incoming condition / weather or dryer settings / airflow checks / neck dryness / rejected mass / storage destination.

AgriCart

STORAGE & MARKETING

Keep dry bulbs dry

Store only sound, properly cured onions. Storage potential differs greatly among cultivars and must be included in the marketing plan.

Decision / crop	Practical guidance
Long-term reference	UC Davis recommends about 0°C and 65-70% relative humidity with adequate air circulation for dry onions. [7, 8]
Short-term holding	A dry, ventilated ambient store may be more suitable than a humid mixed-produce refrigerator. This is a short-term compromise, not equivalent to controlled long storage. [8]
Condensation	Manage temperature transitions and inspect bulbs for moisture. Avoid loading wet product or placing onions in a high-humidity leaf-crop store.
Lot monitoring	Check sprouting, soft bulbs, mould, odour and hot spots. Record losses and move vulnerable lots first.
Storage life	Mild onions may keep only weeks, while suitable pungent cultivars can keep much longer under controlled conditions. Validate the actual crop. [7]

Sell by accepted grade and evidence

Record size bands, skin finish, soundness, bag mass and customer acceptance. Budget energy, shrinkage and rejection against the expected price difference before extending storage.

Close the crop record

Compare seed and input costs with accepted tonnes and realised prices by grade. Retain the day-length, planting, curing and storage history so the next season’s decisions use farm evidence.

Dispatch check: dry necks / sound bulbs / correct grade / verified pack mass / lot label / temperature history / buyer and delivery date.

AgriCart

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 / allium and disease history

Cultivar / day-length class / seed lot

Sowing / transplant / expected maturity

Bed layout / target stand / planted area

Buyer / bulb grade / storage purpose / pack

Soil and water results / nutrient plan

Next action / responsible person / due date

Ready-to-plant checks

- [ ] Local cultivar window confirmed
- [ ] Irrigation measured
- [ ] Curing capacity arranged
- [ ] Stand plan calibrated
- [ ] Disease history reviewed
- [ ] Dry storage plan confirmed

AgriCart

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 Agriculture - Onion (legacy bulletin)
Local day-length, season and climate principles.

02. Mid-Atlantic Commercial Recommendations - Onions (2026/27)
Establishment and soil-test planning; foreign cultivars are not local recommendations.

03. UC IPM - Onion and Garlic
Crop-specific diagnostic resources.

04. UC IPM - Thrips
Leaf injury, sampling and iris yellow spot virus vectors.

05. UC IPM - White Rot
Persistent soilborne risk and preventing movement between fields.

06. UC IPM - Downy Mildew
Weather-related symptoms and prevention.

07. UC Davis - Dry Onions
Curing, dry storage, handling damage and disorders.

08. UC Davis - Dry Onion Storage Explained
Long-term cold storage versus short-term dry ambient holding.

09. SA Department of Agriculture - Residue requirements
Check crop-specific approvals, records and destination requirements.

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.