

Optimal Fresh

The fruit, vegetable and fresh produce expert system



Detailed Report Printed on Wednesday, 19 December 2001

Crop beetroot

Maturity stage General

Category Vegetable

Plant Part Root

Usage Cooked, Processed/ Canned

Botanical name *Beta vulgaris* subsp. *vulgaris* L.

Botanical family Chenopodiaceae



Picture source: Sydney Postharvest Laboratory, 1999

Alternate names include

- | | | |
|---------------|------------------------|-------------------------|
| (C) tain cai | (F) betterave rouge | (G) Rote Rübe |
| (E) beet, red | (F) betterave sucrière | (S) remolacha amarilla |
| (E) beetroot | (G) Rote Bete | (S) remolacha hortelana |

Refrigerated Container/Coolroom Recommendations

Optimum product storage temperature 0.0 to 1.0°C

Temperature set point 0.0°C

Add a margin for uncertainty in equipment performance if necessary.
For return air control set point add 1°C to delivery set point.

Ventilation (air exchange) settings for containers: 6 m (20') = 10 m³/h = 5 cfm

12 m (40') = 15 m³/h = 10 cfm

Acceptable product temperature at loading into container 0.0 to 5.0°C

Key Properties

Storage time (days)†	Humidity (% RH)	Freezing point (°C)	Storage time at ambient (~20°C)	Ventilation rate
120 - 180	95 - 100	-0.9	7 - 8	Very Low

† at optimum storage temperature

Other Properties

Ref	Maturity stage	Air exchange *	Freezing Point (°C)	Ethylene production **	Ethylene sensitivity	Ice compatibility	Water loss ***	% Water content	Bruising susceptibility
1	General	Very Low	-0.9	Very Low	Low	Yes	M (3.0)	87.6	

* Air exchange rates: Nil = 0%; Very low = 25%; Low = 50%; Medium = 100%; High = 200%; Very high = 400% fresh air/hour.

** Ethylene production rates at 20°C: Nil = 0 nM; Very low = <4 nM; Low = 4 - 40 nM; Medium = 40 - 400 nM; High = 400 - 4000 nM; Very high =>4000 nM ethylene/kg/hour.

*** Where % weight loss/week is given this is converted as: Low <= 1%; Medium = 1.1 - 3.4%; High = >3.5%

Controlled Atmosphere

Ref	Maturity stage	% O2		% CO2		Temp°C		Benefit of controlled atmosphere
		min	max	min	max	min	max	
1	General					0	0	Slight
1	Fresh Cut	5	5	5	5	0	5	Moderate

Reference notes

1 CA storage of beetroot cannot be advised, high %RH is best
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Respiration* and Heat Transfer

Ref	Maturity stage	0°C		5°C		10°C		15°C		20°C		25°C		Specific heat kJ/kg/EC **
		min	max	min	max	min	max	min	max	min	max	min	max	
1	General	12	20	32	34	51	61	71	117	149	214			3.77

* Respiration values given are in Watts per tonne. 1 W/t = 20.4 kCal/t/d = 82.1 Btu/tn./d = 73.3 Btu/2000 lbs/d
= 0.167 mL CO₂/kg/h = 7.0 umol CO₂/kg/h = 0.308 mg CO₂/kg/h

** Specific heat (kJ/kg/°C) = 0.0335 x % water content + 0.8374; Specific heat in Btu/lb/°F = 0.08 x % water content + 0.2

Compatibility in Mixed Storage

Temperature compatibility group

0	7	13	20
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Humidity compatibility group

Dry 60-80%	Moderate 80-90%	High 90-95%	Very high 95-100%
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Not compatible with crops that:

Odours will be absorbed by:

Absorbs odours from:

Seasonal Availability

Ref	Country	Region (where given)	Start Season	End Season	Start Peak	End Peak
1	Australia		January	December	June	November
1	Netherlands		January	December	-	-
1	USA		January	December	-	-
1	Canada		January	December	July	October

References for beetroot

Values quoted in Detailed Report are taken from a compilation of the best set of figures from all references. This best set of figures is always referred to as Reference 1.

See Reference Report for full listing of all values, original references and alternate names.