

Optimal Fresh

The fruit, vegetable and fresh produce expert system



Detailed Report Printed on Wednesday, 19 December 2001

Crop bitter melon

Maturity stage General

Category Vegetable

Plant Part Fruit

Usage Cooked, Fresh/ Raw,
Pickled



Picture source: Dept. Agriculture, NSW, 1980

Botanical name *Momordica charantia* L.

Botanical family Cucurbitaceae

Alternate names include

(C) foo gua	(F) margose	(J-R)tsuru reishi
(C) ku gua	(G) Bittere Springgurke	(S) balsamina
(E) bitter gourd	(G) Carella	(S) cundeamor
(E) bitter melon	(J-K)Z2<	
(F) assorossie	(J-R)niga uri	

Refrigerated Container/Coolroom Recommendations

Optimum product storage temperature

10.0 to 12.0°C

Temperature set point

10.0°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

10.0 to 15.0°C

Key Properties

Storage time (days)†	Humidity (% RH)	Freezing point (°C)	Storage time at ambient (~20°C)	Ventilation rate
14 - 21	85 - 90	-	3 - 5	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	Very Low	High		M		

* 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%

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Controlled Atmosphere

Ref	Maturity stage	% O ₂		% CO ₂		Temp °C		Benefit of controlled atmosphere
		min	max	min	max	min	max	
1	General	2	3	5	5	10	12	Yes

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	24	24	48	48	90	90	162	162	204	204			

* 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: Produce ethylene (especially when they are ripe or ripening)

Odours will be absorbed by:

Absorbs odours from:

Ethylene-producing fruits and vegetables from *Optimal Fresh* database

(Medium ethylene production levels or greater.)

apple	apricot	atemoya	avocado
banana	breadfruit	cherimoya	custard apple
durian	feijoa	fig	jackfruit
jujube fruit	kiwifruit	litchi	mamey sapote
mango	mangosteen	melon, cantaloupe	melon, honeydew
nashi	nectarine	papaya	passionfruit
peach	pear	plum	rambutan
sapodilla	tomato		

Seasonal Availability

Ref	Country	Region (where given)	Start Season	End Season	Start Peak	End Peak
1	Australia		January	May	-	-
1	USA		January	December	-	-
1	Canada		August	November	-	-

References for bitter melon

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.