Optimal Fresh

The fruit, vegetable and fresh produce expert system

Detailed Report **Printed on** Wednesday, 19 December 2001

Crop cucumber

Maturity stage General
Category Vegetable
Plant Part Fruit
Usage Cooked, Fresh/ Raw, Pickled, Preserve/ Jam
Botanical name *Cucumis sativus* var.*sativus* L.
Botanical family Cucurbitaceae

Picture source: Corel, 1998

Alternate names include

(E) cucumber
(E) gherkin
(F) concombre
(F) cornichon
(G) Gurke
(J-K) 7 - 3X
(J-K) kyuuri
(S) cohombro
(S) pepino

Refrigerated Container/Coolroom Recommendations

Optimum product storage temperature 10.0 to 13.0°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') = **30 m³/h = 20 cfm**
12 m (40') = **60 m³/h = 35 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
10 - 14	**90 - 95**	-0.5	8 - 8	Medium

† at optimum storage temperature

Recommended: waxing, rapid cooling. CO2 sensitive

Other Properties

Ref	Maturity stage	Air exchange *	Freezing Point (°C)	Ethylene production **	Ethylene sensitivity	Ice compat-ibility	Water loss ***	% Water content	Bruising suscept-ibility
1	General	Medium	-0.5	Low	High	No	H (3.6)	96.1	

* 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%

Optimal Fresh

The fruit, vegetable and fresh produce expert system

Controlled Atmosphere

Ref	Maturity stage	% O2		% CO2		Temp°C		Benefit of controlled atmosphere
		min	max	min	max	min	max	
1	General	3	5	0	5	8	12	Fair, (+7 days)

Reference notes

1 Not in common use

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	22	22	31	31	60	60	96	96	141	141	168	168	4.06

* 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

Humidity compatibility group

Dry 60-80%	Moderate 80-90%	High 90-95%	Very high 95-100%

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	USA		January	December	-	-
1	Australia		January	December	December	February
1	Canada		January	October	-	-

References for cucumber

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.