

STORAGE LIFE MANAGEMENT OF SOME RAW VEGETABLES

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The storage life of a product varies with species, variety and pre-harvest conditions. The postharvest storage life is influenced by respiration and transpiration. Besides those factors, there are other influences, such as:

- ethylene production and sensitivity,
- vegetables chilling sensitivity,
- precooling conditions,
- optimum storage conditions,
- the use of controlled atmosphere.

Table 1. Specific load of refrigerated fruit storage

Fruit	Storage type	Fruit density (kg/m ³)	Specific load (SL) indices for a storage height of 5,5...6,7 m	
			SL relative to the total occupied area by the fruit (kg/m ²)	SL related to the actual occupied volume by the fruit (kg/m ³)
Cherries	palletized	230...260	900...1100	120...160
Fig*	-	-	-	-
Grapes	palletized	220...250	850...950	110...130
Tomatoes	palletized	140...180	560...720	75...100

*Without data because is not a specific crop for Romania

NORMAL ATMOSPHERE PARAMETERS FOR VEGETABLE STORAGE

Table 2. The parameters required for target vegetables storage

Fruit	Picture	Temperature (°C)	Relative humidity of air (%)	Storage life (weeks)
Cherries, sweet		-1...0 0...2	90...95	2...4
Figs, fresh		0	85...90	1...1.5
Grapes, wine		-1...0	90...95	4...24
Grapes, table		0 1...4	85 90...95	2...8
Tomatoes, mature green		18...22 13...14.5	90...95	1...3
Tomatoes, firm-ripe		13...15	90...95	0.5...1

Conclusions:

- the need to keep vegetables at recommended or analyzed storage parameters;
- different cultivars required different normal and controlled atmosphere storage conditions;
- controlled atmosphere improves the storage time of vegetables compared to the air storage by delaying their metabolism;
- vegetables maturity degree and ripening stages greatly influence the storage life.

CONTROLLED ATMOSPHERE PARAMETERS FOR VEGETABLE STORAGE

Table 3. Controlled atmosphere influence on figs

Variety	Temperature (°C)	O ₂ (%)	CO ₂ (%)	Storage life
Mission	0...5	-	15...20	28 days
Mavra Markopoulou	-1	2	-	29 days

Table 4. Controlled atmosphere influence on table grapes

Variety	Temperature (°C)	O ₂ (%)	CO ₂ (%)	Storage life
Redglobe early harvested	0	6	10	4 weeks
Redglobe late harvested	0	12	10	12 weeks
Muskat Derbentskii	0	5	5	5 months
Agadai and Dol'chatyi	0	5	3	6...7 months
Moldova	0	2...3	8...10	5 months

Table 5. Controlled atmosphere influence on cherries

Variety	Temperature (°C)	O ₂ (%)	CO ₂ (%)	Rh (%)	Storage life
Bing	-1	0,5...2	0,03	95	35 days
Burlat	1	1...3	9...12	95	10 days
Hedelfingen / Germersdorf	1	2	10	95	21 days
Sweetheart	1	5	2	95	6 weeks
Napoleon, Stella and Karabodur	0	5	5	90...95	1 month
Star, Kordia and Regina	1	10	10...20	90...93	3 weeks

Table 6. Controlled atmosphere influence on tomatoes

Variety/ripeness stage	Temperature (°C)	O ₂ (%)	CO ₂ (%)	Rh (%)	Ethylene (μL/L)	Storage life
mature green stage	12-20	0	3...5	-	50	-
mature green stage	12...13	2 3 5	0 5 5	93...95	50	6...10 weeks
yellow stage	12	5	5	-	-	-
breaker to light pink stage	12	3...5	0...3	-	-	-
pink stage		5.5	6.5...9			50 days
Criterion / pink stage of maturity harvest	13	5...6	9	-		60 days
Angela and Kada / mature green stage	10	5	8	-		36 days

