

Eggplant

Solanum melongna



Best practice

Eggplants are immature fruit. If left on the plant past optimum maturity the flesh becomes spongy and the seeds develop and darken. Eggplants should always be harvested by cutting, not pulling off the plant.

Eggplant cultivars vary widely in colour, shape and size. They can be grown in the open field or under protected cropping systems. Both variety and the production system strongly affect storage characteristics.

All eggplants have a smooth, glossy skin with no stomata or lenticels. This makes them relatively resistant to water loss. However, if the skin is damaged or broken, eggplants will deteriorate quickly. Moreover, even small amounts of moisture loss cause noticeable softening.

Forced air or room cooling should be used to cool harvested eggplants below 20°C as soon as possible, then to around 12°C within 24 hours of harvest, to preserve freshness. Six hours at 25°C can result in softening and quality loss.

Eggplants produce low levels of ethylene and are only moderately sensitive to its effects. At levels over 2ppm ethylene can increase rots and flesh browning as well as reduce greenness of the calyx.

Eggplants are chilling sensitive. Sensitivity varies between cultivars and according to growing conditions. Susceptibility to chilling injury can be reduced by delayed cooling, short hot water treatments, and plastic film packaging.

Symptoms of chilling injury include the appearance of light brown, scalded patches on the fruit skin, development of sunken pits which are susceptible to disease, and bleaching of the calyx tissue. Internal quality is also reduced due to flesh darkening, which is most severe around the developing seeds.

Eggplants are rich in phenolic compounds associated with human health benefits. For example, purple eggplant skin contains nasunin, an anthocyanin and potent antioxidant.

Weight loss

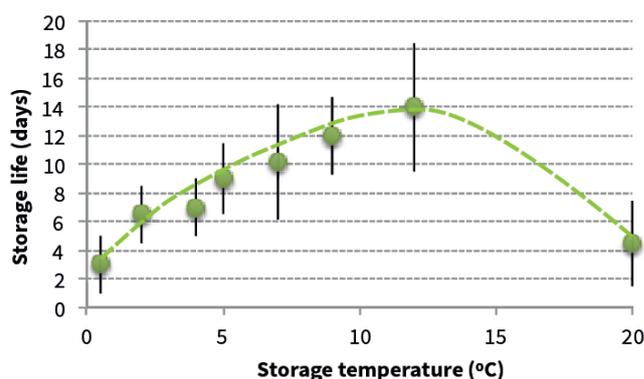
- ▶ Eggplant is relatively resistant to moisture loss.
- ▶ Only 2–3% moisture loss can result in noticeable softening of eggplants.
- ▶ Eggplants that have lost moisture can easily squash and deform, especially if packed tightly into cartons.



Storage life

Storage life of most eggplant varieties is maximised between 10–14°C.

Chilling injury decreases quality within a few days if temperatures fall below 5°C. At higher temperatures, storage life is ended by softening and rots.



Storage life of eggplant at different temperatures, bars indicate the likely range around each mean value. Data compiled from original research and published literature.

Key points

- ▶ Eggplants are fruit. They need to be picked while still immature, before the seeds develop and the flesh becomes spongy.
- ▶ Eggplant cultivars vary widely in colour, shape and size. They can be grown in the open or inside protected cropping structures.
- ▶ The glossy skin has no stomata or lenticels, making eggplants relatively resistant to moisture loss.
- ▶ Eggplants are very chilling sensitive. Most varieties are damaged by storage below 10°C. Chilling damage results in brown patches on the skin, sunken lesions and premature decay. It also causes darkening of the flesh, especially around the developing seeds.
- ▶ Chilling sensitivity can be reduced by delaying cooling, short hot water treatments, or plastic film packaging.
- ▶ Although eggplants are relatively insensitive to ethylene, exposure can increase chilling damage and de-green the calyx.

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Summary

Storage conditions	Optimum temperature	10–14°C
	Optimum RH	90–95%
	Storage life (best)	10–16 days
	Storage life at 5°C	6–12 days
Cooling	Cooling method	Forced air or room cooling
	Freezing point	-0.6°C
	Susceptibility to freezing	Moderate
	Chilling sensitive?	No
Physiology	Respiration rate	Moderate
	Ethylene production	Moderate
	Ethylene sensitivity	Moderate
Packing	Cleaning	Harvest clean and pack. If necessary wash with a sanitiser
	Rate of water loss	Low, little benefit from packaging
	Display	Should not be displayed on ice

Diseases

Grey mould – *Botrytis cinerea*

Infection initially appears as a brown, spreading lesion of softening flesh. Downy grey mould then develops over the fruit surface.

Secondary infections with diseases such as Anthracnose, *Alternaria* spp. or *Sclerotinia* spp. are likely.

Eggplant with advanced grey mould development as well as secondary white mould infection



Disorders

Chilling injury

Eggplants can be damaged by storage at temperatures below 10°C. Initial symptoms may be the appearance of brown, scalded areas on the fruit skin. More advanced chilling injury results in sunken brown pits in the flesh and premature disease development. Even slight chilling damage can result in darkening of the internal flesh, especially around the developing seeds. Chilling damage may be increased by ethylene in the storage environment.



Sunburn

Sunburned areas on eggplant turn brown. Although they may be initially firm, sunburned areas are likely to soften and sink during storage.



Thrips / insect damage

Feeding by thrips or other insects early during fruit development leaves permanent scars on the eggplant skin. While the underlying flesh may be unaffected, such damage is unacceptable to most markets.

