

Kohlrabi

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Scientific Name and Introduction: *Brassica oleracea* L., Gongylodes group, also known as kohlrabi and turnip-rooted cabbage, is a native of northern Europe. It grows best in cool growing climates. Kohlrabi is grown as an annual, with the enlarged stem being the most commonly used edible portion. The enlarged stem may have purple, white or green skin but the flesh is white. The leaves can also be eaten like collards. Kohlrabi is available from Spring to late Fall from various growing regions of North America.

Quality Characteristics and Criteria: Only young kohlrabi should be harvested, since mature product becomes woody and tough. Leaf stems are a good indicator of quality; they should be succulent and tender.

Horticultural Maturity Indices: Early and mid-season kohlrabi are best harvested when they are about 5 to 6 cm (2 to 2.5 in) in diameter. Fall-grown kohlrabi may be grown to 10 to 13 cm (4 to 5 in) in diameter since they are less prone to becoming woody.

Grades, Sizes and Packaging: There are no grade standards for kohlrabi. Topped kohlrabi is usually packaged in 11.4 kg (25 lb) film bags, 22.7 kg (50 lb) film bags, or 11 kg (24 lb) cartons containing twenty-four 0.5 kg (1 lb) film bags. Those with tops are usually bunched tied together much like beets with 4 to 6 kohlrabi per bunch (Thompson and Kelly, 1957).

Pre-Cooling Conditions: Hydro-cooling, package-icing and forced-air cooling are acceptable for kohlrabi, with tops or with tops removed.

Optimum Storage Conditions: Topped kohlrabi can be stored for 2 to 3 mo at 0 °C (32 °F) and 98 to 100% RH (Cantwell, 1997). Storage life is 2 to 4 weeks if tops are not removed. Storage-life can be improved with the use of perforated film bags to maintain high RH around the product.

Controlled Atmosphere (CA) Considerations: There is no benefit of CA (Cantwell, 1997).

Retail Outlet Display Considerations: Kohlrabi should be displayed like root vegetables. They can be placed in iced displays.

Chilling Sensitivity: Kohlrabi are not chilling sensitive.

Ethylene Production and Sensitivity: Kohlrabi have a very low ethylene production rate at < 0.1 $\mu\text{L kg}^{-1} \text{h}^{-1}$ at 20 °C (68 °F) and a low sensitivity to ethylene exposure.

Respiration Rates:

Temperature	mg CO ₂ kg ⁻¹ h ⁻¹
0 °C	10
5 °C	16
10 °C	31
15 °C	46

To get mL kg⁻¹ h⁻¹, divide the mg kg⁻¹ h⁻¹ rate by 2.0 at 0 °C (32 °F), 1.9 at 10 °C (50 °F), and 1.8 at 20 °C (68 °F). To calculate heat production, multiply mg kg⁻¹ h⁻¹ by 220 to get BTU per ton per day or by 61 to get kcal per metric ton per day. Data were adapted from Pieh (1965).

Physiological Disorders: Kohlrabi becomes tough when stored beyond its expected storage-life or under lower than recommended RH.

Postharvest Pathology: Important diseases during storage are bacterial soft rot (*Erwinia carotovora* (Jones) Bergey et al.) and black rot (*Xanthomonas campestris* (Pammel) Dowson) (Ramsey and Smith, 1961).

Quarantine Issues: None.

Suitability as Fresh-cut Product: Peeled and sliced kohlrabi has potential as a fresh-cut product.

Special Considerations: The lowest freezing point is -1 °C (30.2 °F) (Cantwell, 1997). Peeled and cut kohlrabi does not produce strong off-odors when held in low O₂ atmospheres (Forney and Jordan, 1999).

References:

- Cantwell, M. 1997. Properties and recommended conditions for storage of fresh fruits and vegetables. At the website <http://postharvest.ucdavis.edu/produce/storage/index.html>.
- Forney, C.F. and M.A. Jordan. 1999. Anaerobic production of methanethiol and other compounds by *Brassica* vegetables. HortScience 34(4):696-699.
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- Ramsey, G.B. and M.A. Smith. 1961. Market diseases of cabbage, cauliflower, turnips, cucumbers, melons, and related crops. USDA Agriculture Handbook No. 184, 49 pp.
- Thompson, H.C. and W.C. Kelly. 1957. Vegetable Crops, 5th edition, McGraw-Hill, NY, pp. 313-314.

Acknowledgements: Some of the information was obtained from the Oregon State University website “Commercial Vegetable Production Guides” at <http://osu.orst.edu/dept/nwrec/kohlrabi> and the Texas A&M University website “Kohlrabi” at <http://aggie-horticulture.tamu.edu/plantanswers/vegetables/kohlrabi>.