

Swiss Chard

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Scientific Name and Introduction: Swiss chard (*Beta vulgaris* L. var. *cycla*) is a biennial plant belonging to Chenopodiaceae family. The edible parts are the elongated, oval shape, smooth or wrinkled leaves which can reach 50 cm (20 in) in length, including the petiole. The prominent petiole is white or dark-red. It is a good source of folacin (Gami and Chen, 1985), Vitamin C and flavonoids (Gil et al., 1998).

Quality Characteristics and Criteria: Leaves must be turgid and dark-green, with the midrib and petiole completely white or red depending on the variety. Leaves must not show any symptoms of yellowing or browning, or have soil residues. Harvested leaves with petioles can be 20 to 50 cm (7.5 to 20 in) long.

Horticultural Maturity Indices: Leaves are periodically hand-harvested beginning about 60 days after seeding. The harvest season can last 2 to 3 mo in the Spring, and 4 to 6 mo in the Fall/Winter. Sometimes the whole plant is harvested.

Grades, Sizes and Packaging: There are no U.S. grade standards for Swiss chard. Leaves of similar size and quality are banded together and packed loose in waxed cardboard, wooden or plastic boxes; using plastic films to cover packaging reduces water loss.

Pre-cooling Conditions: Room-cooling is often used, but hydro- or vacuum-cooling result in faster cooling.

Optimum Storage Conditions: Can be stored for 1 to 2 weeks at 0 °C (32 °F) with 95 to 98% RH.

Controlled Atmosphere (CA) Considerations: Storage can be increased to 1 mo using 2 to 3% CO₂ + 10% O₂ at -0.5 °C (31 °F) (Tesi, 1990).

Retail Outlet Display Considerations: Leaves are very delicate and lose water easily if not in plastic liners. Misting with water and refrigerated storage are recommended.

Chilling Sensitivity: Swiss chard is not chilling sensitive; store as cold as possible without freezing.

Ethylene Production and Sensitivity: Ethylene production is very low at 0.13 to 0.14 μL kg⁻¹ h⁻¹ at 20 °C (68 °F), but sensitivity is very high and exposure results in yellowing and senescence.

Respiration Rates:

Temperature	mg CO ₂ kg ⁻¹ h ⁻¹
2 °C	18 to 20
20 °C	29

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.

Physiological Disorders. Freezing is a risk during refrigerated storage, as is yellowing and browning of

leaf margins due to ethylene exposure.

Postharvest Pathology. The most frequent field pathogens are *Peronospora schachtii* Fuckel and *Cercospora beticola* Sacc.

Quarantine Issues: None.

Suitability as Fresh-cut Product: No current potential.

Special Considerations: None

References:

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