

# Perennial Culinary Herbs

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Wright is with Dole Fresh Vegetables, Salinas, CA.

## Scientific Names and Introduction

Perennial culinary herbs include chives (*Allium schoenoprasum* L.), Chinese chives (*A. tuberosum* Rottler), marjoram (*Origanum hortensis*), oregano (*O. vulgare* L.), peppermint (*Mentha piperita* L.), spearmint (*M. spicata* L.), rosemary (*Rosmarinus officinalis* L.), sage (*Salvia officinalis* L.), tarragon (*Artemesia dracuncululus* L.), and thyme (*Thymus vulgaris* L.). The leaves are the part primarily used in foods and cooking. Due to their strong flavors and aromas, these culinary herbs are generally used in small quantities.

## Quality Characteristics and Criteria

Herbs should appear fresh and green, with no yellowing, decay, insect damage, or mechanical damage. Leaves should be uniform in size. Flavor and aroma should be strong and characteristic of the herb.

## Horticultural Maturity Indices

Most herbs for fresh culinary use are best if harvested before flowering. Exceptions are marjoram and oregano (sometimes sold with flower buds) and chive blossoms (sometimes used in salads or as edible garnishes).

## Grades, Sizes, and Packaging

There are no market grades or sizes for fresh herbs. They are bunched and tied with twist-ties or rubberbands, packaged in plastic bags or clamshell containers, and then packed in corrugated cartons. Perforated polyethylene liners should be used.

## Precooling Conditions

Herbs should be cooled to just above 0 °C (32 °F) immediately after harvest.

## Optimum Storage Conditions

Chives and mint can be stored for 2 to 3 weeks at 0 °C (32 °F) with 95 to 100% RH; Chinese chives last for 1 to 2 weeks. Top icing is sometimes used for mint. Marjoram, oregano, and tarragon can be stored at 0 °C (32 °F) with 90 to 95% RH for 1 to 2 weeks; rosemary, sage, and thyme will last for 2 to 3 weeks (Hruschka and Wang 1979, Cantwell 1997).

## Controlled Atmosphere (CA) and Modified Atmosphere Packaging Considerations

Because of their short postharvest life, CA is generally not used for fresh herbs. MAP has been shown to retard yellowing in chives (Aharoni et al. 1993).

## Retail Outlet Display Considerations

Use of water sprinklers is acceptable.

## Chilling Sensitivity

These perennial herbs are not chilling sensitive and should be stored as close to 0 °C (32 °F) as possible without freezing.

## Ethylene Production and Sensitivity

Ethylene production is low, but sensitivity is high. Low levels of ethylene can result in leaf abscission, epinasty, and yellowing. Storage at 0 °C (32 °F) minimizes effects of ethylene on visual quality (Cantwell and Reid 1993, Cantwell 1997).

## Respiration Rates

	0 °C	10 °C	20 °C
	-----mg CO <sub>2</sub> kg <sup>-1</sup> h <sup>-1</sup> -----		
Chives	22	110	540
Chinese chives	54	99	432
Marjoram	28	68	—
Mint	20	76	252
Oregano	22	101	176
Sage	36	103	157
Tarragon	40	99	234
Thyme	38	82	203

Data from Cantwell and Reid (1993) and Peiris et al. (1997).

To get mL CO<sub>2</sub> kg<sup>-1</sup> h<sup>-1</sup>, divide the mg kg<sup>-1</sup> h<sup>-1</sup> 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<sup>-1</sup> h<sup>-1</sup> by 220 to get BTU ton<sup>-1</sup> day<sup>-1</sup> or by 61 to get kcal tonne<sup>-1</sup> day<sup>-1</sup>.

## Physiological Disorders

Yellowing and leaf abscission may occur due to ethylene exposure, especially if held at 0 °C (≥50 °F).

## Postharvest Pathology

Molds and bacterial decay may develop, especially on mechanically damaged leaves or cut ends of stems. Mints are subject to rust caused by *Puccinia menthae* Pers., which causes small brown pustules to form on leaves (Snowdon 1992). It is important that low temperatures be maintained during storage and distribution to slow the rate of decay.

## **Quarantine Issues**

There are no known quarantine issues.

## **Suitability as Fresh-Cut Product**

Perennial herbs are not currently used in fresh-cut products.

## **References**

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