Cucumbers are harvested at a range of developmental stages. Depending on cultivar and temperature, the time from flowering to harvest may be 55 to 60 days. Generally fruit are harvested at a slightly immature stage, near full size but before seeds fully enlarge and harden. Firmness and external glossiness are also indicators of a pre-maturity condition. At proper harvest maturity, a jellylike material has begun to form in the seed cavity.

Table or slicing cucumber quality is primarily based on uniform shape, firmness and a dark green skin color. Additional quality indices are size, freedom from growth or handling defects, freedom from decay, and an absence of yellowing. U.S. grades are Fancy, Extra 1, No. 1, No. 1 Small, No. 1 Large, and No. 2. Industry grades and specifications follow the packing conventions Super Select, Select, Small Super, Small, Large, and Plain. These terms have no enforceable contractual value.

Storage of cucumber is generally less than 14 days as visual and sensory quality deteriorate rapidly. Shriveling, yellowing, and decay are likely to increase following storage beyond two weeks, especially after removal to typical retail conditions. Short term storage or transit temperatures below this range (such as 7.2°C/45°F) are commonly used but will result in chilling injury after 2-3 days.

Cucumbers are chilling sensitive at temperatures below 10°C (50°F) if held for more than a day to 3 days depending on temperature and cultivar. Consequences of chilling injury are water-soaked areas, pitting and accelerated decay. Chilling injury is cumulative and may be initiated in the field prior to harvest. Cucumber varieties vary considerably in their susceptibility to chilling injury.

Respiration varies widely above 10°C due to different stages of maturity. Less mature cucumbers have higher respiration rates. To calculate heat production, multiply ml CO₂/kg·hr by 440 to get BTU/ton/day or by 122 to get kcal/metric ton/day.
### PHYSIOLOGICAL DISORDERS

**Freezing Injury.** Freezing injury will be initiated at -0.5°C (31°F). Symptoms of freezing injury include a watersoaked pulp becoming brown and gelatinous in appearance over time.

### PATHOLOGICAL DISORDERS

Diseases are an important source of postharvest loss, particularly in combination with chilling stress. A large list of bacterial and fungal pathogens cause postharvest losses in transit, storage, and to the consumer. *Alternaria* spp., *Didymella* (Black Rot), *Pythium* (Cottony Leak), and *Rhizopus* (Soft Rot) are common disorders.

### PHYSICAL DISORDERS

Harvesting should be done by cutting free of the vine rather than by tearing. "Pulled end" is a quality defect used in establishing grade quality.

Bruising and compression injury are very common when attention to careful harvest and handling practices are not followed.

### SPECIAL CONDITIONS

Cucumbers are often treated with approved waxes or oils to reduce water loss, reduce abrasion injury and enhance appearance.

Yellowing during the postharvest period is a very common defect. Harvesting fruit at an advanced stage of development, exposure to ethylene, or storage at too high temperature all cause yellowing.

### RATES OF ETHYLENE

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1-1.0 µl/kg·hr at 20°C (68°F)</td>
<td>Cucumbers are highly sensitive to exogenous ethylene. Accelerated yellowing and decay will result from low levels (1-5ppm) of ethylene during distribution and short-term storage. Do not mix commodities such as bananas, melons and tomatoes with cucumber.</td>
</tr>
</tbody>
</table>

### RESPONSES TO ETHYLENE

Controlled or modified atmosphere storage or shipping offer moderate to little benefit to cucumber quality maintenance. Low O₂ levels (3-5%) delay yellowing and the onset of decay by a few days. Cucumber tolerates elevated CO₂ up (CA) to 10% but storage life is not extended beyond the benefit of reduced levels of O₂.

### RESPONSES TO CONTROLLED ATMOSPHERES

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POSTHARVEST PHOTO GUIDE

DISORDERS

CHILLING INJURY

ETHYLENE DAMAGE
It is the policy of the University of California not to engage in discrimination against or harassment of any person, employed by or seeking employment with the University, or in any of its programs or activities, on the basis of race, color, national origin, religion, sex, gender, gender expression, gender identity, pregnancy, physical or mental disability, medical condition (cancer-related or genetic characteristics), genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services, as well as state military and naval service. This policy is intended to be consistent with the provisions of applicable state and federal laws and University policies. University policy also prohibits retaliation against any employee or person seeking employment for bringing a complaint of discrimination or harassment pursuant to this policy. This policy also prohibits retaliation against a person who assists someone with a complaint of discrimination or harassment, or participants in any manner in an investigation or resolution of a complaint of discrimination or harassment. Retaliation includes threats, intimidation, reprisals, and/or adverse

In addition, it is the policy of the University of California to undertake affirmative action, consistent with its obligations as a Federal Contractor, for minorities and women, for persons with disabilities, and for covered veterans. The University commits itself to apply every good faith effort to achieve prompt and full utilization of minorities and women in all segments of its workforce where deficiencies exist. These efforts conform to all current legal and regulatory requirements, and are consistent with University standards of quality and excellence. In conformance with Federal regulations, written affirmative action plans shall be prepared and maintained by each campus of the University of California, by the Lawrence Berkeley National Laboratory, by the Office of the President, and by the Division of Agriculture and Natural Resources. Such plans shall be reviewed and approved by the Office of the President and the Office of the General Counsel before they are officially promulgated. Inquiries regarding the University’s equal employment opportunity policies may be directed to the Affirmative Action Contact, University of California, Agriculture and Natural Resources, 2801 Second Street, Davis, CA 95618 (530) 750-1318.