



PRODUCE MARKETING ASSOCIATION

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Temperatures & Merchandising  
of Fresh Produce for Foodservice

for short-term storage of 7 days or less

Capital Produce Distributors Inc.

P.O. Drawer 1697

Irmo, S.C. 29063

COMMODITY		MINIMUM SAFE TEMPERATURE (Fahrenheit / Celsius) 1.	PRODUCES ETHYLENE 2.	SENSITIVE TO ETHYLENE EXPOSURE 3.	REMARKS 4.
60-65 Degrees Fahrenheit or 16-18 Degrees Celsius  85-95% Humidity	BANANAS <i>mature green and ripe</i>	56/13	Yes	Yes	Use banana blankets to maintain proper storage temperatures, if necessary
	GINGER ROOT	55/13	No	No	For extended storage, reduce humidity to 65-70%
	HONEYDEW	41/5	Yes	Yes	Riper fruit may be stored at 45-50 degrees F. (7-10 degrees C.)
	MANGOES	50/10	Yes	Yes	
	MELONS <i>Casaba, Persian, Crenshaw</i>	45/7	Yes	Yes	Riper fruit may be stored at 45-50 degrees F. (7-10 degrees C.)
	ONIONS, DRY	31/-5	No	No	For extended storage, hold onions at 32-35 degrees F. (0-2 degrees C.)
	PAPAYAS	45/7	Yes	Yes	
	POTATOES	38/3	No	Yes	
	SQUASH <i>hard shell</i>	50/10	No	Yes	
	SWEET POTATOES	54/12	No	Yes	
45-50 Degrees Fahrenheit or 7-10 Degrees Celsius  85-95% Humidity	TOMATOES <i>ripe and mature green</i>	50/10	Yes	Yes	Always refrigerate sliced tomatoes
	AVOCADOS <i>unripe</i>	45/7	Yes	Yes	Extremely sensitive to ethylene; exposure may increase symptoms of chill damage
	CUCUMBERS	40/4	No	Yes	
	EGGPLANT	45/7	No	Yes	
	GRAPEFRUIT	50/10	No	No	
	GREEN BEANS	38/3	No	Yes	
	GUAVAS	40/4	Yes	Yes	
	HERBS <i>basil only</i>	50/10	No	Yes	
	LEMONS	50/10	No	No	
	LIMES	45/7	No	No	
32-36 Degrees Fahrenheit or 0-2 Degrees Celsius  90-98% Humidity	OKRA	45/7	No	Yes	
	ORANGES	38/3	No	No	
	PEPPERS <i>hot/chili and sweet</i>	42/6	No	Yes	Exposure to ethylene gas will increase color change in hot peppers.
	PINEAPPLE	45/7	No	No	
	SQUASH <i>soft shell</i>	40/4	No	Yes	
	TANGERINES	38/3	No	No	
	WATERMELON	50/10	No	Yes	Extremely sensitive to ethylene. Exposure will cause softening of flesh; keep away from ethylene-producing fruits and ripening rooms.
	APPLES	29/-1.5	Yes	Yes	
	APRICOTS	30/-1	Yes	Yes	
	ARTICHOKES <i>Globe</i>	30/-1	No	No	
	ASPARAGUS	31/-5	No	Yes	
	AVOCADOS <i>ripe</i>	34/1	Yes	Yes	
	BEETS	30/-1	No	No	
	BLUEBERRIES	30/-1	No	No	
	BOK CHOY	31/-5	No	Yes	
	BROCCOLI	31/-5	No	Yes	
	BRUSSELS SPROUTS	31/-5	No	Yes	
	BUNCHED GREENS <i>Swiss chard, mustard, tur collard</i>	31/-5	No	Yes	
	CABBAGE <i>whole head</i>	30/-1	No	Yes	
	CANTALOUPE	30/-1	Yes	Yes	
	CARROTS <i>topped</i>	30/-1	No	Yes	Exposure to ethylene will cause bitter flavor.
	CAULIFLOWER	31/-5	No	Yes	
	CELERY	31/-5	No	Yes	
	CHERRIES	29/-1.5	No	No	
	CHINESE PEA PODS	30/-1	No	No	
	CORN, SWEET	31/-5	No	No	
	ENDIVE, ESCAROLE, CHICORY	31/-5	No	No	
	GARLIC	31/-5	No	No	For extended storage, reduce humidity to 65-75%.
	GRAPES	28/-2	No	Yes	Keep seperated from other commodities if packed in containers with sulfur dioxide pads.
	GREEN PEAS	31/-5	No	Yes	
	HERBS <i>all except basil</i>	31/-5	No	Yes	
	KALE	31/-5	No	No	
	KIWIFRUIT	29/-1.5	Yes	Yes	Unripe fruit is extremely sensitive to ethylene; exposure will accelerate ripening.
	LEEKS	31/-5	No	Yes	
	LETTUCE <i>all types</i>	31/-5	No	Yes	
	MUSHROOMS	30/-1	No	No	
	NAPA/CHINESE CABBAGE	30/-1	No	Yes	
	NECTARINES	30/-1	Yes	Yes	Unripe fruit produces less ethylene.
	ONIONS, GREEN	30/-1	No	Yes	
	PARSLEY	30/-1	No	Yes	
	PARSNIPS, RUTABAGAS, TURNIPS	30/-1	No	Yes	
	PEACHES	30/-1	Yes	Yes	Unripe fruit produces less ethylene.
	PEARS	29/-1.5	Yes	Yes	Unripe fruit produces less ethylene.
	PERSIMMONS	28/-2	No	Yes	Extremely sensitive to ethylene; exposure will accelerate softening of flesh.
	PLUMS/PRUNES	31/-5	Yes	Yes	Unripe fruit produces less ethylene.
	PRECUT FRUIT	30/-1	Yes	Yes	
	PRECUT VEGETABLES <i>broccoli, carrots, celery</i>	31/-5	No	Yes	
	RADISHES	30/-1	No	Yes	
	RASPBERRIES/BLACKBERRIES	30/-1	No	No	
	SALAD MIXES	31/-5	No	Yes	
	SPINACH	31/-5	No	Yes	
	SPROUTS <i>alfalfa, bean, garlic, onion, spic</i>	30/-1	No	Yes	
	STRAWBERRIES	31/-5	No	No	

**Temperature/Humidity:** The three temperature/humidity ranges given are suitable for short-term storage of fresh fruits and vegetables (7 days or less) and will ensure product freshness and prevent wilting or deterioration. Adequate air exchange and circulation is also important for minimizing ethylene production and maintaining product freshness. Note: Long-Term storage of some items may require a change in temperature or humidity and is noted in "Remarks".

**1. Minimum Safe Temperature:** Fruits and vegetables are susceptible to chilling injury or to freeze damage if they are stored below their minimum safe temperatures. Therefore, do not store fruits and vegetables below the temperatures listed in this column.

**2. Produces Ethylene:** Many fruits give off ethylene, a natural, colorless, and odorless gas that promotes ripening. Commodities that produce ethylene and are designated with "Yes" should be stored away from items that are sensitive to ethylene or may be damaged by it.

**3. Sensitive to Ethylene Exposure:** Ethylene gas may cause accelerated ripening, discoloration, or product deterioration of some commodities. Items designated with "Yes" are sensitive to ethylene and should be stored away from ethylene-producing commodities.

**4. Remarks:** Special handling, temperature, or humidity requirements are noted here.

Produced by PMA in cooperation with the University of California at Davis Postharvest Group.