

**COMMODITY HANDLING GUIDELINE**

Commodity Name	(Recommend) Set Temp.		(Recommend) Fresh Air Exchange		HUMIDITY  %RH	Highest Freezing Point.		Shelf Life  Days	Acceptable Receiving Pulp Temperature Rang		Benefit from CA/MA  *1	Ethylene*2	
	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
APPLES	1.5	35	25	15	90	-1.5	29.3	90-240	6.7	44	+++	***	**
APRICOTS	1.5	35	50	30	90	-1.1	30.1	7-14	7.8	46	++	**	***
ARTICHOKES, GLOBE	1.5	35	50	30	95	-1.2	29.9	14	5	41	+	-	-
ASPARAGUS	1.5	35	75	45	95	-0.6	30.9	14-21	5	41	+++	-	**
AVOCADOS	8	46	50	30	87.5	-0.3	31.5	14-28	15.6	60	+++	***	***
BABY CORN	0	32	25	15	90-95	-0.6	30.9	5-8	5	41	++	-	*
BANANA	13	56	50	30	85-90	-0.8	30.6	7-28	13.9	57	+++	**	***
BEANS, GREEN	6	43	75	45	92	-0.7	30.7	7-10	12.8	43	+	-	-
BEAN, LIMA	1.5	35	75	45	90	-0.6	31	3-5	5	41	+	*	**
BEETS TOPPED	0	32	25	15	95	-1.1	30.1	120	5	41	+	-	*
BERRIES, BLACK	0	32	25	15	95	-0.8	30.6	3	6.7	44	++	*	*

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
BERRIES, BLUE	0	32	25	15	92.5	-1.3	29.7	10-18	6.7	44	++	*	*
BERRIES, CRAN	2	36	25	15	92.5	-0.9	30.4	21-42	9.0	48		*	*
BERRIES, DEW	0	32	25	15	92.5	-1.3	29.7	3	6.7	44		*	*
BERRIES, GOOSE	0	32	25	15	92.5	-1.1	30.0	14-28	7.8	46		*	*
BERRIES, LOGANBLACK	0	32	25	15	92.5	-1.3	29.7		6.7	44		*	*
BERRIES, RASP BLACK	1	34	25	15	92.5	-1.1	30.0	2-3	7.8	46	+++	*	*
BERRIES, RASP RED	1	34	25	15	92.5	-0.6	30.9	2-3	7.8	46	+++	**	-
BERRIES, STRAW	1	34	50	30	92.5	-0.8	30.6	5-7	7.8	46	+++	*	*
BERRIES, WHORTLE (COW)	0	32	25	15	90-95			21-28	6.7	44		-	-
BITTER GOURD	9	48			90-95			2-3				-	-
BLACK RADISHES	0	32			90-95			120			None	-	-
BREAD FRUIT	13	55	75	45	85-90	0	32	14-21					
BROCCOLI	0	32	125	75	90-95	-0.9	30.4	7-14			+++	*	***
BROCCORI, SPROUTING	0	32	75	45	92.5	-0.6	30.9	10-14	5	41	++	*	***
BRUSSELLS SPROUTS	0	32	75	45	92.5	-0.8	30.5	21-35	5	41	+	*	***

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
CABBAGE, CHINESE	0	32	75	45	90-95	-0.5	31.1	30-60			+	-	***
CABBAGE, LATE	0	32	75	45	92.5	-0.9	30.4	90-120	5	41	+++	-	***
CARAMBOLA, STAR FRUIT	5	41	75	45	90-95			21				*	*
CARROTS TOPPED	0	32	25	15	92.5	-1.4	29.5	180-240	6.7	44	+	*	**
CASABA MELONS	8.5	47	0	0	87.5	-1.1	30.1	28-42	18.8	66	+	*	*
CHANTERELLE	0	32			85-90			14				-	-
CAULIFLOWER	0	32	75	45	92.5	-0.8	30.6	14-28	5	41	+	*	***
CELERIAC	0	32	25	15	92.5	-0.9	30.4	90-120	5	41	+	-	*
CELERY	0	32	75	45	92.5	-0.5	31.1	30-60	5	41	++	*	**
CHERRIES, SOUR	0	32	25	15	92.5	-1.8	29.0	3-7	6.7	44	++	-	-
CHERRIES, SWEET	0	32	25	15	92.5	-1.8	29	14-21	6.7	44	++	-	-
CHICORY	0	32	25	15	90-95			24			+	-	-
CLEMENTINE	0	32	75	45	85-90						++	*	-
COFFEE, GREEN	2	36	0	0	82.5				5	41			
COLLARDS	1	34	75	45	92.5	-0.8	30.6	10-14	5	41	+		
CORN, SWEET	0	32	25	15	92.5	-0.6	30.9	5-8	5	41	++	-	*
CUCUMBER	13	55	75	45	90-95	-0.5	31.1	10			+	*	***
CURRANTS	0	32	25	15	92.5	-1.0	30.2	10-14	7.8	46		*	*

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
DATES	0	32	25	15	75	-15.7	3.7	180-360	7.8	46		-	*
DURIAN	3.5	38	50	30	85-90			42-56			++		
EGGPLANT	10	50	25	15	90	-0.8	30.6	7-14	18.5	65	+	-	**
ENDIVE, ESCAROLE	0	32	50	30	92.5	-0.1	31.9	14-28	5	41	++	*	**
FIG, DRIED	0	32	0	0	55	-	-	270-360	4.5	40	None		
FIG, FRESH	0	32	50	30	87.5	-2.4	27.6	7-10	6.7	44	++	**	*
GARLIC, DRY	1	34	25	15	67.5	-0.8	30.5	180-210	7.8	46	++	-	-
GINGER	13	55	25	15	65			90-180			None	-	*
GRAPEFRUIT	12.8	55	50	30	87.5	-1.1	30.0	28-42	15.5	60	+	*	-
GRAPES, VINIFERA	-0.6	31	25	15	92.5	-2.1	28.1	14-56	5.5	42	+	-	*
GRAPE, AMERICAN	0	32	25	15	87.5	-1.4	29.4	30-180	5.5	42	+	-	*
GREENS, LEAFY	1	34	75	45	92.5	-0.4	31.7	10-14	5	41	+		
GUAVAS	13.5	56	50	30	90.0	-	-	14-21	15.5	60	++	*	**
HONEYDEW MELONS	5	41	25	15	87.5	-0.9	30.3	21-28	10	50	+		
HORSE RADISH	0	32	25	15	90-95	-1.8	28.8	300-360				-	*
JACK FRUIT	13	55	75	45	90			14-21				**	**
KIWI FRUIT	0.6	33	25	15	90-95	-1.3	30	60-90			+++	*	***
KUMQUAT	10	50	25	15	90-95			14-28			+	*	-
LEEKS, GREEN	0	32	50	30	92.5	-0.7	30.7	30-90	5	41	+	-	**
LEMONS	12.8	55	75	45	87.5	-1.7	29.4	30-180	15.5	60	++	*	-

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
LETTUCE	0	32	50	30	95	-0.4	31.7	14-21	5	41	++	*	***
LIMES	11	52	75	45	87.5	-1.6	29.1	42-56	13.9	57	++	*	*
LONGAN	1	34			90-95	-2.4	27.7	21-35			++		
LYCHEE	1	34	25	15	90-95	-0.94	30.3	21-35			++	**	**
MANGOES	10	50	75	45	85-90	-0.9	30.4	14-21			+	**	**
MANDARINES	0	32	75	45	85-90	-1.1	30.1	56-70			+	-	**
MANGOSTEEN	13	55	75	45	85-90	-0.9	30.4	14-28				**	**
MELONS, PERSIAN	8.3	47	75	45	87.5	-0.8	30.5	14-21	10	50	+	**	***
MELONES, CANTALOUPE	2.2	36	75	45	87.5	-1.2	29.9	14-21	5	41	+	**	**
MUSHROOMS	0	32	25	15	90	-0.9	30.4	7-14	5	41	++	-	**
NECTARINES	0	32	75	45	90	-0.9	30.4	14-28	7.8	46	++	**	***
NUTS	1	34	0	0	70	-	-		10	50			
OKRA	10	50	50	30	92.5	-1.8	28.7	7-10	12.8	50	+	*	**
OLIVES	8.5	47	75	45	85-90	-1.4	29.4	28-42			+	*	**
ONION, DRY	0	32	50	30	67.5	-0.8	30.6	30-240	5	41	++	-	*
ONION, GREEN	0	32	50	30	92.5	-0.9	30.4	21-28	5	41	+	*	***
ORANGES	2.2	36	75	45	87.5	-0.8	30.6	21-84	7.2	45	+	*	-
PAPAYAS	7.2	45	75	45	87.5	-0.9	30.6	7-21	12.2	54	+	***	**
PARSLEY	0	32	75	45	92.5	-1.1	30.0	30-60	5	41	+	-	-
PARSNIPS	1	34	75	45	92.5	-0.9	30.4	120-180	5	41		-	***

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
PEACHES	0	32	75	45	90.0	-0.9	30.4	14-28	6.7	44	++	***	***
PEARS	0.5	31	75	45	92.5	-1.6	29.2	60-210	5	41	++	***	***
PEARS, GREEN	1	34	75	45	92.5	-0.6	30.9	7-21	5	41	++	***	***
PEPPER, DRY	10	50	50	30	65	-0.7	30.7	180	12.8	55	+	*	*
PEPPER, CHILI, SWEET	10	50	50	30	92.5	-0.7	30.7	14-21	12.8	55	+	*	**
PEPPERS, SWEET	10	50	50	30	92.5	-0.7	30.7	10-14	12.8	55	+		
PERSIMMONS	0	32	75	45	90	-2.2	28.1				++	*	***
PINEAPPLES, GREEN	10	50	25	15	87.5	-1.0	30.2	14-21	21	70	+	*	*
PINEAPPLES, RIPE	7.2	45	25	15	87.5	-1.0	30.2	5-7	10	50		*	*
PLUMS	0	32	75	45	92.5	-0.8	30.6	14-28	7.8	46	++	**	***
POMEGRANATES	0	32	25	15	90-95	-3.0	26.6	60	10.5	51	+	*	-
POTATOES, EARLY GROP	10	50	25	15	90	-0.6	30.9		12.8	55	+	*	**
POTATOES, LATE GROP	4.4	40	25	15	90	-0.6	30.9	150-180	10	50	+	*	**
POTATOES, SWEET	13.3	56	0	0	87.5	-1.3	29.7	120-210	18.9	66	+	-	-

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>FRUITS AND VEGETABLES</b>													
QUINCES	0	32	75	45	90	-2.0	28.4	60-90	6.7	44		*	***
RADISHES, SPRING	0	32	25	15	92.5	-0.7	30.7	21-28	5	41	+	-	*
RADISHES, WINTER	0	32	25	15	92.5	-0.7	30.7	60-120	5	41	+	-	*
RHUBARB	0	32	25	15	95	-0.9	30.3	14-28	5	41		-	-
RUTABAGAS	0	32	25	15	92.5	-1.1	30	120-180	5	41	None		
SATSUMA ORANGE	4	39.2	75	45	85-90			56-84			+		
SALSIFY	0	32	25	15	92.5	-1.1	30	60-120	5	41	+	-	*
SEED, VEGETABLE	1	34	0	0	50	-	-	300-360	10	50			
SPINACH	0	32	25	15	92.5	-0.3	31.5	10-14	5	41	++	-	***
SQUASH, SUMMER	10	50	50	30	90	-0.5	31.1	7-14	15.6	60		*	**
SQUASH, WINTER	12.2	54	FULL	FULL	72.5	-0.8	30.6	60-90	21.1	70	+	*	**
TANGERINES	3.3	38	75	45	87.5	-1.1	30	14-28	6	43	+	-	**
TARO	13	55			85-90	-0.9	30.3	42-120			None	-	-
TOMATO, GREEN	13	55	75	45	85-90	-0.5	31	7-21			+	*	***
TOMATO, RIPE	8	46	75	45	85-90	-0.5	31				++	***	*
WATERMELONS	10	50	25	15	82.5	-0.4	30	14-21	12.8	55	None	*	***

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>DAIRY PRODUCTS</b>													
ORANGE, JUICE	0.0	32	0	0	-	-	-	21-42	1.7	35			
POPCORN, UNPOPPED	1.0	34	-	-	85	-	-	28-42	4.4	40			
BEER, KEG	2	35	0	0	-	-2.2	28	21-56	7	45			
BEER, BARRELLED	3.0	37	0	0	-	-2.2	28	-	4.5	40			
BREAD	-18	0	0	0	-	-	-	21-91	-15	5			
COCOA	0	32	0	0	50-70	-	-	360	-	-			
COCONUTS	1	34	0	0	82.5	-0.8	29.0		7.8	46			
CHEESE													
CHEDDAR	0	32	0	0	65-70	-13	8	540	5	41			
CHEDDAR, PROCESSED	4	40	0	0	65-70	-7	19	360	9	48			
CHEDDAR GRATED	4	40	0	0	65-70	-	-	360	9	48			
HONEY	10	50	0	0	-	-	-	360	15	59			
MILK													
GRADE A	0	32	0	0	-	-0.1	31	60-120	5	41			
EVAPORATED	4	40	0	0	-	-1.4	29.5	720	9	48			
CONDENSED	4	40	0	0	-	-15	5	450	9	48			



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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
<b>MEAT</b>													
BEEF, FRESH	0	32	0	0	88-92	-2.2	28	7-42	5	41			
BEEF, FROZEN	-18	0	0	0	90-95	-	-	270-360	-15	5			
PORK, FRESH	0	32	0	0	85-90	-2.2	28	3-7	5	41			
PORK, FROZEN	-18	0	0	0	90-95	-	-	120-180	-15	5			
LAMB, FRESH	0	32	0	0	85-90	-2.2	28	5-12	5	41			
LAMB, FROZEN	-18	0	0	0	90-95	-	-	240-300	-15	5			
POULTRY, FRESH	0	32	0	0	85-90	-2.7	27	7	5	41			
POULTRY, FROZEN	-18	0	0	0	90-95	-	-	240-360	-15	5			
DUCK, FRESH	0	32	0	0	85.0	-2.7	27	7	5	41			
TURKEY, FRESH	0	32	0	0	85.0	-2.7	27	7	5	41			
RABBIT, FRESH	0	32	0	0	90-95	-	-	1-5	5	41			
RABBIT, FROZEN	-18	0	0	0	90-95	-	-		-15	5			
VEAL, FRESH	0	32	0	0	90-95	-	-	1-7	5	41			
VEAL, FROZEN	-18	0	0	0	90-95	-	-	-	-15	5			
LIVERS(BEEF), FRESH	0	32	0	0	90	-1.7	29	1-5	5	41			
LIVERS(BEEF), FROZEN	-18	0	0	0	90-95	-1.7	29	-	-15	5			
BEEF, CARCASS	0	32	0	0	85-90	-1.7	29	7-21	5	41			
BEEF, DRIED CHIPPED	5	41	0	0	15	-	-	42-56	10	50			

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	C	F	CMH	CFM		C	F		C	F		PRODUC TION	SENSITIVITY
	<b>MEAT</b>												
PORK, BACKFAT	0	32	0	0	85.0	-	-	3-7	5	41			
PORK, BELLES	0	32	0	0	85.0	-	-	3-5	5	41			
PORK, CARCASS	0	32	0	0	85-90	-	-	3-5	5	41			
PORK, SHOULDER	0	32	0	0	85.0	-2.2	36	120-180	5	41			
PORK, HAM, FRESH	0	32	0	0	80-85	-1.7	29	3-5	5	41			
PORK, HAM, FROZEN	-18	0	0	0	90-95	-	-	180-240	-15	5			
BACON, MEDIUM FAT	3	37	0	0	80-85	-	-	14-21	8	46			
SAUSAGE, SMOKED	0	32	0	0	85.0	-3.9	25	7-21	5	41			
<b>FISH</b>													
FRESH	0	32	0	0	90-95	-2.2	28	5-15	5	41	×	×	×
FROZEN	-20	0	0	0	90-95	-	-	180-360	-15	5	×	×	×
SHELLFISH	0	32	0	0	85-95	-2.2	28	3-7	5	41	×	×	×
SHELLFISH, FROZEN	-20	-4	0	0	85-95	-2.2	28	90-240	-15	5	×	×	×
SCALLOP MEAT	0	32	0	0	95-100	-2.2	28	12	-	-	×	×	×
SHRIMP, FROZEN	-20	-4	0	0	90-95	-2.2	28		-17	1.4	×	×	×

## Remarks

\*1: Efficacy form MA/CA are Excellent (+++), Moderate (++) , Slight (+) and None.

\*2: Ethylene production rate and sensitivity are High (\*\*\*) , Moderate (\*\*), Low (\*).

*Above mentioned recommended temperature, fresh air exchange, shelf life etc are based on industry research and for general guidance only. Shippers are responsible for determining the optimum setting best suited for their cargo depending upon post-harvest handling and other variables which may affect quality of their produce*