Determining cantaloupe sizes
by volume:weight relationships

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During the 1965 study, cantaloupes were weighed individually and volumes determined by water displacement. This method was too time consuming to facilitate measuring the volumes of enough melons for an accurate measure of the variability of the volume: weight relationships. During the 1966 and 1967 studies, a faster, but equally accurate, method was used in which each cantaloupe’s volume was determined by subtracting its weight when submerged in water from its previously measured dry weight. The accuracy of this method was confirmed in a comparison of the two methods during the 1966 season.

Overall density values and correlation coefficients (volume: weight) for PMR-45 cantaloupes grown at three locations during different years are shown in Table 1.

The distribution of density values for PMR-45 cantaloupes harvested at three commercial maturities (Hard Ripe, Eastern Choice, and Western Choice) at Davis during 1965 is shown in graph 1. Volume: weight correlation coefficients are also shown.

The effect of postharvest delays before measuring the weights and volumes of PMR-45 variety cantaloupes was also determined. Mean density values and volume: weight correlation coefficients for melons held one, four, seven and nine hours after harvest before weighing (dry and wet) are shown in Table 2.

Densities and volume: weight correlation coefficients for several commercial varieties, and for the Top Mark variety, grown in the Imperial and San Joaquin valleys, are presented in Table 3.

Theoretical upper and lower volume and weight limits for cantaloupes having a density of 0.9, of four commercial sizes (23’s, 27’s, 36’s and 45’s) and two proposed sizes (32’s and 41’s) are shown in graph 2.

The lower limit represents the mean volume and weight of melons that would make a level-packed crate of 70 to 72 lbs net weight. The upper limits represent mean volumes and weights of melons that would make a moderately bulge-packed crate of 80 to 82 lbs net weight.

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