

### Abstract:

Substantial differences exist in muskmelons regarding flavor and fresh-cut processing quality. We are attempting to discriminate volatile compounds that can be used as reliable breeding indicators for melon quality. Analysis of commercially available cultivars and their male and female inbred breeding lines may indicate hereditary linkages and help pinpoint desirable flavor attributes. Cantaloupes were grown commercially on raised beds with standard cultural practices and furrow irrigation. 'Athena' and 'Sol Real' fruit and both homozygous parental male and female breeding lines were harvested (3/4-slip) in early summer or fall and analyzed for volatiles. Cubes from numerous fruit per cultivar were randomized and roughly 300 g was placed into 24 ounce clamshell containers that were stored at 4 °C. Volatiles were determined in rapidly homogenized juice via solid phase microextraction (SPME) by GC-MS. Commercial and male lines often had substantially higher esters ( $R-(C=O)-O-$  Ralcohol) and S-compounds, whereas females generally had higher acetate esters ( $CH_3-(C=O)-O-$  Ralcohol) and aldehydes. Cantaloupes harvested in fall generally have inferior quality compared with the summer season, and inconsistencies in fall volatile trends were also apparent. Results indicate that distribution of key desirable volatile compounds may be related to male versus female inheritance. More commercial cultivars and parental breeding lines need to be investigated and statistically analyzed to ascertain if these relationships are authentic.