Canonical correlation analysis was used to investigate relationships between sensory and chemical data of 32 New Zealand Pinot noir wines. Relationships were determined by linear combinations of each data set (sensory, chemical) to maximize correlations between the two. Sensory information was collected by ranking the intensity of 19 different aroma attributes on a line scale. Concentrations of 34 aroma chemicals were quantified using three SPME-GC-MS methods developed specifically for New Zealand Pinot noir wines. All data were standardized prior to statistical analysis. The largest correlation coefficient (0.386) was between sensory attributes for which the largest linear coefficients were for black cherry, black berry and plum with aroma chemicals for which the largest linear coefficients were for ethyl octanoate, ethyl decanoate and phenethyl alcohol. The second largest correlation coefficient (0.247) essentially resulted from the relationship between jam and spice aromas with benzaldehyde. Thus, lower concentrations of ethyl octanoate, ethyl decanoate and phenethyl alcohol were associated with higher intensities of the dark fruit fruit aromas and an increased concentration of benzaldehyde appeared to result in a higher intensity of spice aroma and to decrease the intensity of jam aroma. These correlations provided a starting point for investigating which chemicals influence the aroma of New Zealand Pinot noir.