Abstract
There is a great variability of kernel density among corn cultivars in the Brazilian market, but little is known regarding their oil content. The objectives of this study were to assess the oil kernel variability of a wide range of maize hybrids and to verify if there are correlations among kernel oil content, density and yield. Two trials were carried out in Assis and Adamantina (SP) in the 2002/03 growing season. Thirty-nine single and three-way crosses hybrids were evaluated following a complete randomized block design. Ten ears per plot were half cut transversely for sampling kernels in the exposed line of rupture. Yield, kernel weight, percentage of floating kernels in sodium nitrate standard solution, test weight and kernel oil content by nuclear resonance spectrophotometer were evaluated. Data from each experiment were submitted to the analysis of variance by the F test and treatments were compared by Skott-Knott test (P<0.05). Pearson correlations between oil content and other parameters were calculated using SAS program. Oil contents ranged from 38 to 60 g kg⁻¹. Test weight average was high (796 e 801 g L⁻¹) due to the predominance of cultivars with flint appearance kernels. The correlations show that hybrids with more dense kernels tend to exhibit higher kernel oil content (r = 0.34 to 0.40), but three hybrids had less dense kernels and higher kernel oil content. The cultivars with highest yield had low oil content, however the correlation was low (r = -0.24). In conclusion, there is genetic variability regarding kernel oil content that is sufficient to separate groups of cultivars with low and high oil level. Oil content correlated positively with density, but within the lowest and the highest density groups there were extreme and discrepant values of oil content.

Keywords
Zea mays L., cultivar, kernel hardness, oil content