5.5, 6.0, and 6.5 was used as the reference method. This is most probably because the $BaCl_2$-TEA method measures more pH-dependent acidity above pH 7.0.

AE Total Acidity and $BaCl_2$-TEA

AE total acidity (TA), was highly correlated with $BaCl_2$-TEA acidity (Fig. 3-14). AE TA underestimated that of the reference method by about half. When the reference method predicted that the amount of base required to neutralize the measured acidity was 1.0, 2.0, and 3.0 g $CaCO_3$ kg^{-1} soil, the AE TA estimated only 0.59, 0.46, and 0.42 g $CaCO_3$ kg^{-1} soil, respectively.

This seems to indicate that although the $BaCl_2$-TEA method is not a good measure of the AE LR to pH 5.5, 6.0, and 6.5, the total amount of acidity measured by the AE buffer was highly correlated to the total amount of soil acidity measured by the $BaCl_2$-TEA method. Savant and Kibe (1971) reported that the AE buffer measured about 1/3 of the total acidity of the soil determined by $BaCl_2$-TEA + 1*M* KCl exchangeable acidity on lateritic rice soils ($r = 0.77$). The exchangeable acidity was almost negligible, constituting less than 3% of the total acidity.

$BaCl_2$-TEA and $CaCO_3$ Incubation

The two reference methods were not as well correlated (Table 3-7) as other researchers have found (McLean et al., 1966; Webber et al., 1977; Fox, 1980). However, as the target pH increased the precision of the relationship increased.