PERFORMANCE OF NEAR ISOGENIC SORGHUM LINES AND HYBRIDS FOR TOLERANCE TO TOXIC LEVELS OF EXCHANGEABLE ALUMINUM. R.E. Schaffert[1*], V.M.C. Alves[1], G.V.E. Pitta[1], A.F.C. Bahia F°[1]. C.A. de Oliveira[2]. [1]EMBRAPA/CNPMS, CP 151, 35701-970 Sete Lagoas, MG, Brazil, [2]Fellowship CNPq/CNPMS.

Near isogenic sorghum lines developed at the National Maize and Sorgum Research Center (CNPMS) of the Brazilian Agriculture Research Corporation (EMBRAPA) for tolerance to Al toxicity in acid soils and their hybrids were evaluated for tolerance to Al toxicity. Three near isogenic pairs of sorghum lines with cytoplasmic male sterility, four restorer lines, three susceptible (S) and one tolerant (T) to Al toxicity, and their respective, (TxT), (TxS), (SxR), and (SxS) hybrids, were evaluated for tolerance to Al toxicity using relative seminal root growth (RSRG) of seedlings in nutrient solution with 4ppm of Al for sevem days as the indicator. The average RSRG of seedlings of the tolerant line of the three near isogenic pairs was 5.8 times greater than the susceptible line. The average RSRG values for the four tolerant and six susceptible lines were 51.7% and 7.8% respectively. Average RSRG values for the (TxT), (TxS), (SxT), and (SxS) hybrids were 59.7%, 47.8%, 48.3% and 11.2% respectively. The (TxS) and (SxT) hybrids had RSRG equivalent to the tolerant parent demonstrating a dominant mode of inheritance. Additivity for the TxT hybrids was very minor. A dominant mode of inheritance for tolerance to Al toxicity in sorghum has also been observed under field conditions at CNPMS.