The trypanocidal activity of an arsenical compound (RM 110; mel Cy; Cymelarsan) was evaluated against Trypanosoma brucei brucei and T. brucei evansi in cultures, in goats and pigs. The trypanosome stocks used differed in their levels of susceptibility to cymerlarsan in an in vitro test, their IC50 values (drug concentration which inhibits growth by 50%) ranging from 4.8-5.1 nM for susceptible, and 26.9 nM for a resistant stock. Goats infected with a susceptible T.b. evansi stock were cured after a single injection of 0.3 mg/kg cymelarsan. In three out of four goats chronically infected with the same stock a single injection of 0.625 mg/kg cymelarsan effected a cure, whereas the goat in which the infection relapsed was finally cured after injection of 0.625 mg/kg on each of three consecutive days. A single dose of 2.5 mg/kg did not cure goats infected with an arsenical-resistant T.b. brucei stock. One of two pigs chronically infected with arsenical-susceptible stocks of T.b. brucei was cured after a single injection of 0.625 mg/kg cymelarsan, whereas the other one relapsed and died. In conclusion, the results may indicate that the dose of 0.25 mg/kg recommended by the manufacturer is too low and that a single may not cure animals with CNS involvement with certainty. The recommended dose might therefore have been applied strictly for the treatment of camels only.