Host (Cattle)

Parameter	Description	High transmission initial conditions	Measurement unit	References
λ_h	Rate at which new cattle (birth rate and immigration) enter the susceptible cattle population	6	Cattle X Day^{-1}	Obtained from field data
ρ	Rate at which cattle lose partial immunity	0.045	Day^{-1}	Obtained from field data
μ_h	Natural death rate for cattle	0.0005	Day^{-1}	Milligan & Baker, 1988
ψ_h	Rate at which cattle become infectious after they have been exposed	0.1	Day^{-1}	Obtained from field data
δ_h	Trypanosomiasis-induced death rate for cattle	0.002	Day^{-1}	Milligan & Baker, 1988
β_h	Rate at which a cattle receives a successful bite from an infected tsetse fly	0.46	Day^{-1}	McDermott & Coleman, 2001
C	Tsetse fly bite rate	0.75		Obtained from field data
θ_h	Proportion of cattle being treated	0.1, 0.2, 0.4, 0.8		Obtained from field data
η_I	Rate at which cattle acquire partial immunity prior to treatment	0.01		Rogers, 1988
η_T	Rate at which treated cattle acquire partial immunity	0.14		Obtained from field data
η_1	Rate at which cattle in the first non-susceptibility compartment acquire partial immunity	0.04		Obtained from field data
η_2	Rate at which cattle in the second non-susceptibility compartment acquire partial immunity	0.03		Obtained from field data
η_3	Rate at which cattle in the third non-susceptibility compartment acquire partial immunity	0.02		Obtained from field data
λ_1	Rate at which cattle become non-susceptible to drug 1 after receiving treatment	0.11		Obtained from field data
λ_2	Rate at which cattle become non-susceptible to drug 2 receiving treatment	0.075		Obtained from field data
λ_3	Rate at which cattle become non-susceptible to drug 3 receiving treatment	0.04		Obtained from field data
a_1, a_2, a_3	Rate at which the trypanosomiasis-induced death rate increases due to drug 1, 2 and 3 non-susceptibility respectively	0.3, 0.2, 0.1		Obtained from field data

Vector (Tsetse fly)

Parameter	Description	High transmission initial conditions	Measurement unit	References
λ_v	Rate at which new recruits enter the susceptible tsetse fly population	1000	Tsetse flies X Day^{-1}	Obtained from field data
μ_v	Natural death rate for tsetse flies	0.03	Day^{-1}	Milligan & Baker, 1988
ψ_v	Rate at which tsetse flies become infectious after they have been exposed	0.091	Day^{-1}	Obtained from field data
β_v	Rate at which a susceptible tsetse fly successfully bites an infected cattle	0.025	Day^{-1}	McDermott & Coleman, 2001