

Appendix S4

Estimation of the parameters:

All model parameters were estimated from non-informative distributions, to speed the simulations and time to conversion some of them were constrained around close to values observed in the data. For example, growth values ranged from close to 0 to 1.4, the prior distribution for optimal value of previous growth effect was constrained between 0 and 10.

$$\sigma_{treatment}^2 \sim Uniform(0,100)$$

$$temperature\ optimal_{treatment} \sim Normal(18,10000)$$

$$soil\ moisture\ optimal_{treatment} \sim Normal(-1,10000)$$

$$previous\ growth\ optimal_{treatment} \sim Normal(0.5,10000)$$

$$all\ parameters\ for\ range_{treatment} \sim Uniform(0,10000)$$

$$temperature\ W \sim Dirichlet(1/3, 1/3, 1/3)$$

$$soil\ moisture\ W \sim Dirichlet(1/3, 1/3, 1/3)$$

$$temperature\ \omega \sim Dirichlet(1/3, 1/3, 1/3)$$

$$soil\ moisture\ \omega \sim Dirichlet(1/3, 1/3, 1/3)$$

$$Previous\ growth\ W \sim Dirichlet(1/4, 1/4, 1/4, 1/4)$$