$$\frac{\partial A}{\partial t} = \frac{\beta + (A/k_1)^n}{1 + (A/k_1)^n + (R/k_2)^n} + D_A \nabla^2 A - A$$

$$\frac{\partial R}{\partial t} = \frac{A/k_3}{1 + A/k_3} + D_R \nabla^2 R - R$$