

This is an electronic appendix to the paper by Freckleton, *et al.* 2004 Amelioration of biodiversity impacts of genetically modified crops: predicting transient versus long-term effects. *Proc. R. Soc. Lond. B* **271**, 325–331. (DOI 10.1098/rspb.2003.2603.)

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### Electronic appendix A: Stationary solution to analytical model

The basic model is given by:

$$N_{t+5} = g(1-m)^{4.5} s_m p N_t f(p N_t) + g(1-m)^5 S_t \quad \text{equation A1(a)}$$

$$S_{t+5} = (1-m)^5 (1-g) S_t + (1-m)^{4.5} (1-g) s_m p N_t f(p N_t) \quad \text{equation A1(b)}$$

The equilibrium densities of seeds and plants is found by setting  $N_{t+5} = N_t = N^*$  and  $S_{t+5} = S_t = S^*$ . The equations may then be solved to yield the following (Freckleton & Watkinson 1998):

$$N^* = \max \left[ \frac{(p\lambda')^{1/k} - 1}{ap} - \frac{\varepsilon B}{p}, 0 \right] \quad \text{equation A2(a)}$$

$$S^* = \frac{(1-g)}{g} N^* \quad \text{equation A2(b)}$$

where  $\lambda' = g s_m (1-m)^{4.5} [1 - (1-m)^5 (1-g)]^1$ . The level of control required to yield a given equilibrium density of mature plants ( $M = p N$ ), is given by:

$$p = \frac{(aM + a\varepsilon B + 1)^k}{\lambda} \quad \text{equation A3}$$