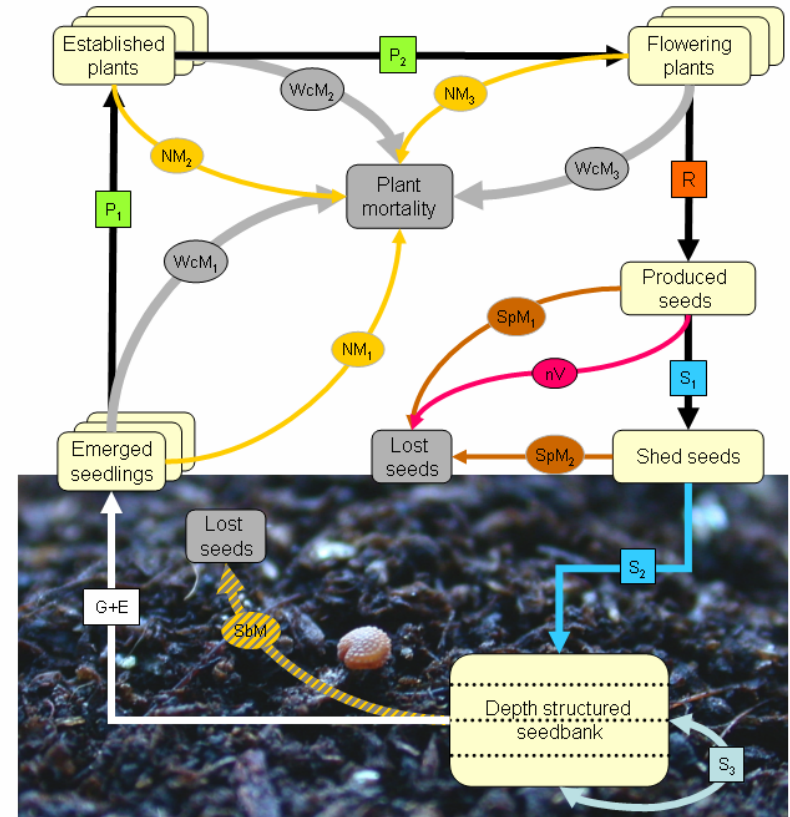


Biometrical models for plants, weeds, seeds, pests, ...

- Weeds

- Emergence response to burial depth: “quadratic probit” with parameters as function of seed characteristics and density
- 3D movement of seeds by cultivation: transition matrix \blacktriangleright gamma and beta distribution functions with parameters as functions of initial/final depth
- Seed production as function of plant weight
- Emergence timing as function of meteorological data
- Crop-weed competition: growth as function of light interception, competition based on compression of canopy

Conceptual model of life cycle



Biometrical models for plants, weeds, seeds, pests, ...

- Seeds
 - Viability as function of storage time: probit model allowing for initial non-viability, with parameters as function of storage conditions
- Seed germination, pest activity, disease incidence, plant development
 - Models for rate of development as function of temperature
- Pests
 - Abundance as function of ratio of weed to crop biomass ► combined with crop-weed competition model
- Nutrients
 - Models for nutrient uptake and plant growth as function of supply, and for the controlled release of nutrients
- Gene expression
 - Critical exponential for response over time, with comparison of parameters for different genes
- General principles
 - Statistical model fitting
 - Flexible model forms
 - Fit to individual data sets
 - Model parameters as functions of additional variable
 - Simulation models
 - Rate as function of environment
 - Simulate response by integration over variable environment