

Scaling between individual and system

Questions:

... to what extent will a new crop genotype affect the properties of an arable

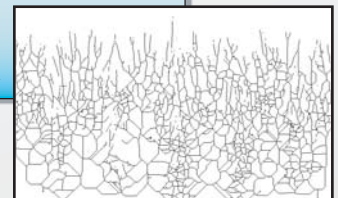
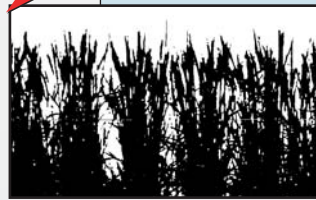
...which properties of an arable system determine the genotypes that coexist within it ?

Methodology:

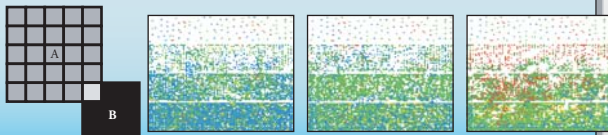
Genotype definition

- e.g.
- resource capture, allocation, reproduction
 - mating system, dispersal

Measure & model 3-D ontogeny



Measure and model populations in space and time



System definition

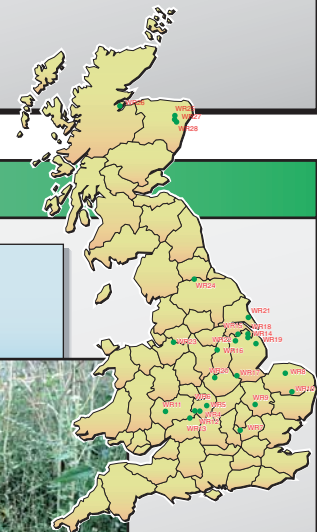
- e.g.
- abundance/area relations
 - 3-D dispersion of C and N
 - connectivity to pathogens and pests

Applications:

Metapopulation dynamics in feral brassicas



Ecological impact of GM crops



Contact: Vegetation Systems Unit (collaborating on feral Brassicas with the Unit of Applied Genetics).

Initial output:

Pachepsky E, Crawford JW, Bown JL, Squire GR. (2001). Towards a general theory of biodiversity. *Nature* **410**, 923-926.

Collaborations: University of Abertay Dundee, Macaulay Land Use Research Institute, Biomathematics and Statistics Scotland, Centre for Ecology and Hydrology, Institute of Arable Crops Research.

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