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How to pit weeds against parasitic plants. A simulation study with *Phelipanche ramosa*

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► To cite this version:

Olivia Pointurier, Delphine Moreau, Stéphane Cordeau, Stéphanie Gibot-Leclerc, Carole Reibel, et al.. How to pit weeds against parasitic plants. A simulation study with *Phelipanche ramosa*. 19th European Weed Research Society Symposium EWRS, Jun 2022, Athènes, Greece. hal-04060540

HAL Id: hal-04060540

<https://hal.inrae.fr/hal-04060540>

Submitted on 30 May 2024

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How to pit weeds against parasitic plants.

A simulation study with *Phelipanche ramosa*

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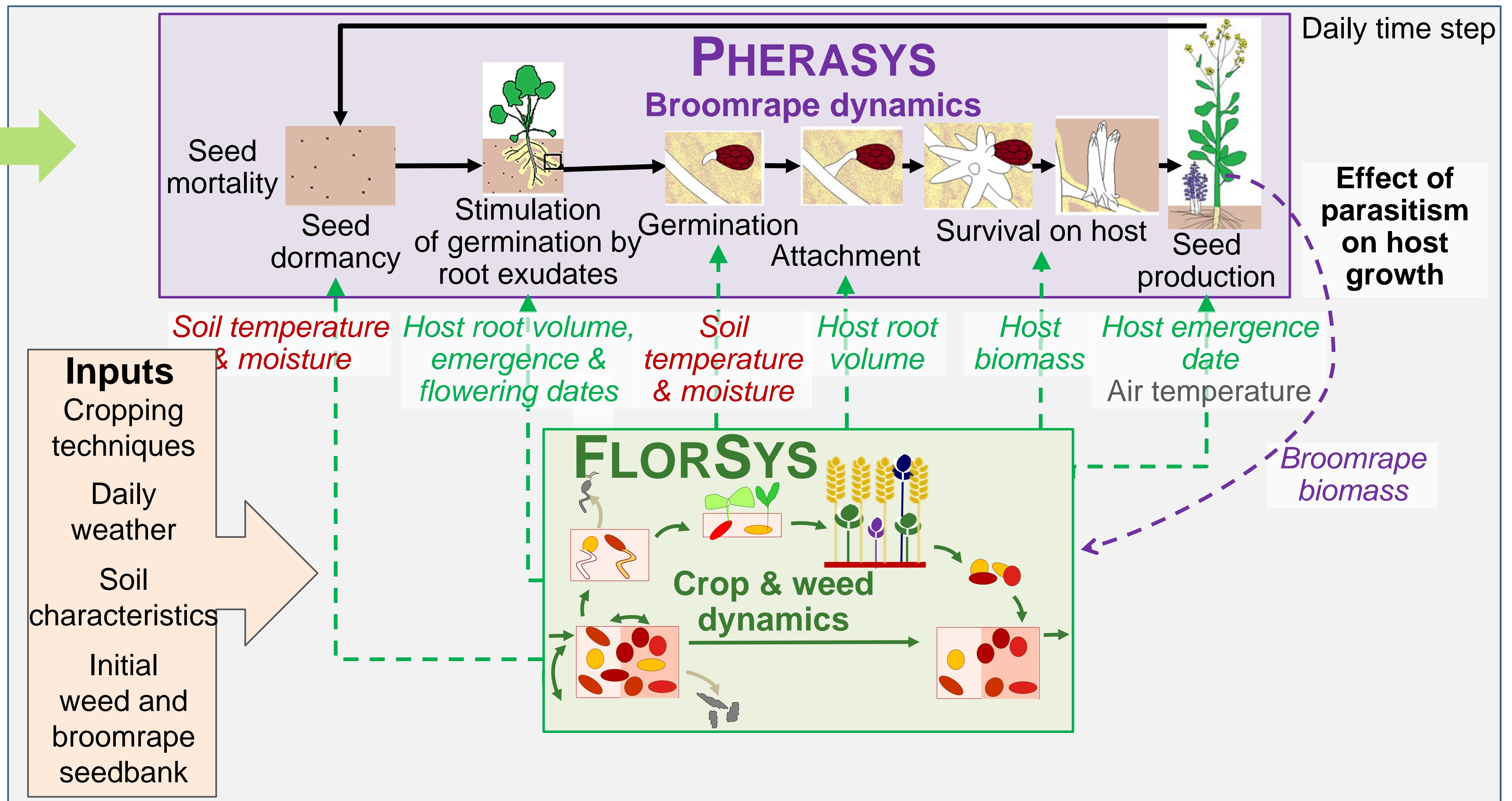
Gibot-Leclerc et al. 2012

Branched broomrape (*Phelipanche ramosa* L.) is a parasitic plant that infects crop and weed species in more than 20 families (*Solanaceae*, *Brassicaceae*, *Asteraceae*...). It is a major pest of oilseed rape in France causing up to 90% of yield losses. No curative method is available, the parasite can only be controlled by combining cropping techniques. Simulation models are essential to design such complex management strategies.

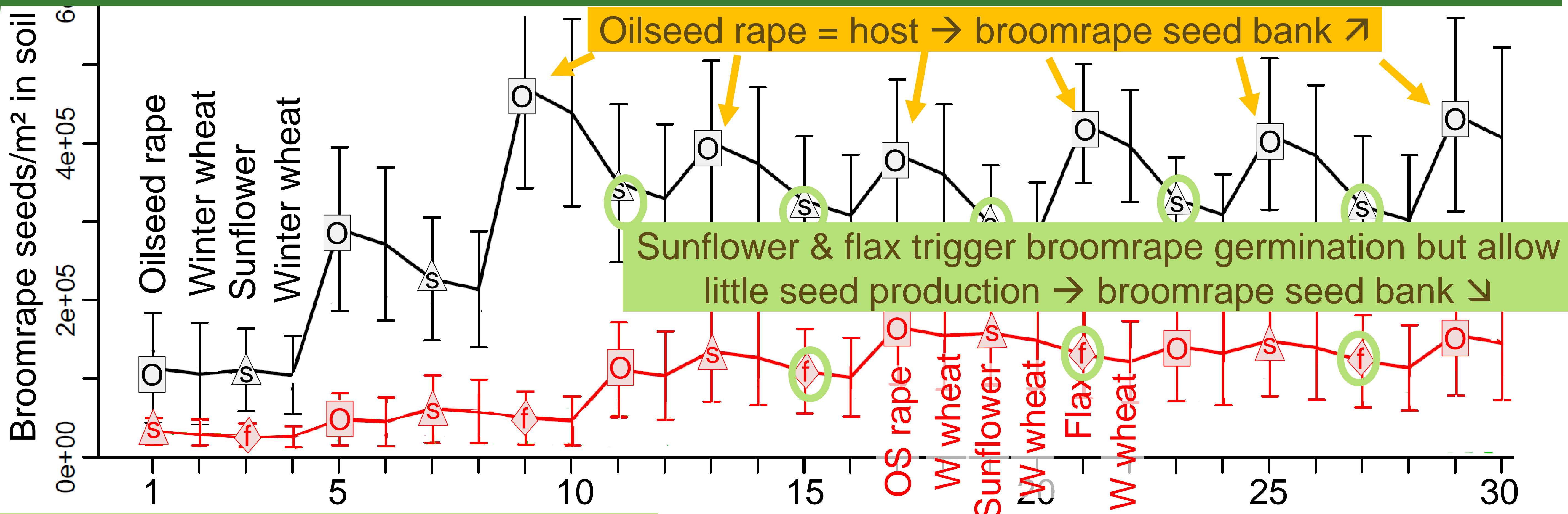
Aim Develop a simulation model & use it to design strategies to manage broomrape

Synthesize knowledge on broomrape dynamics & effects in a 3D individual-based model

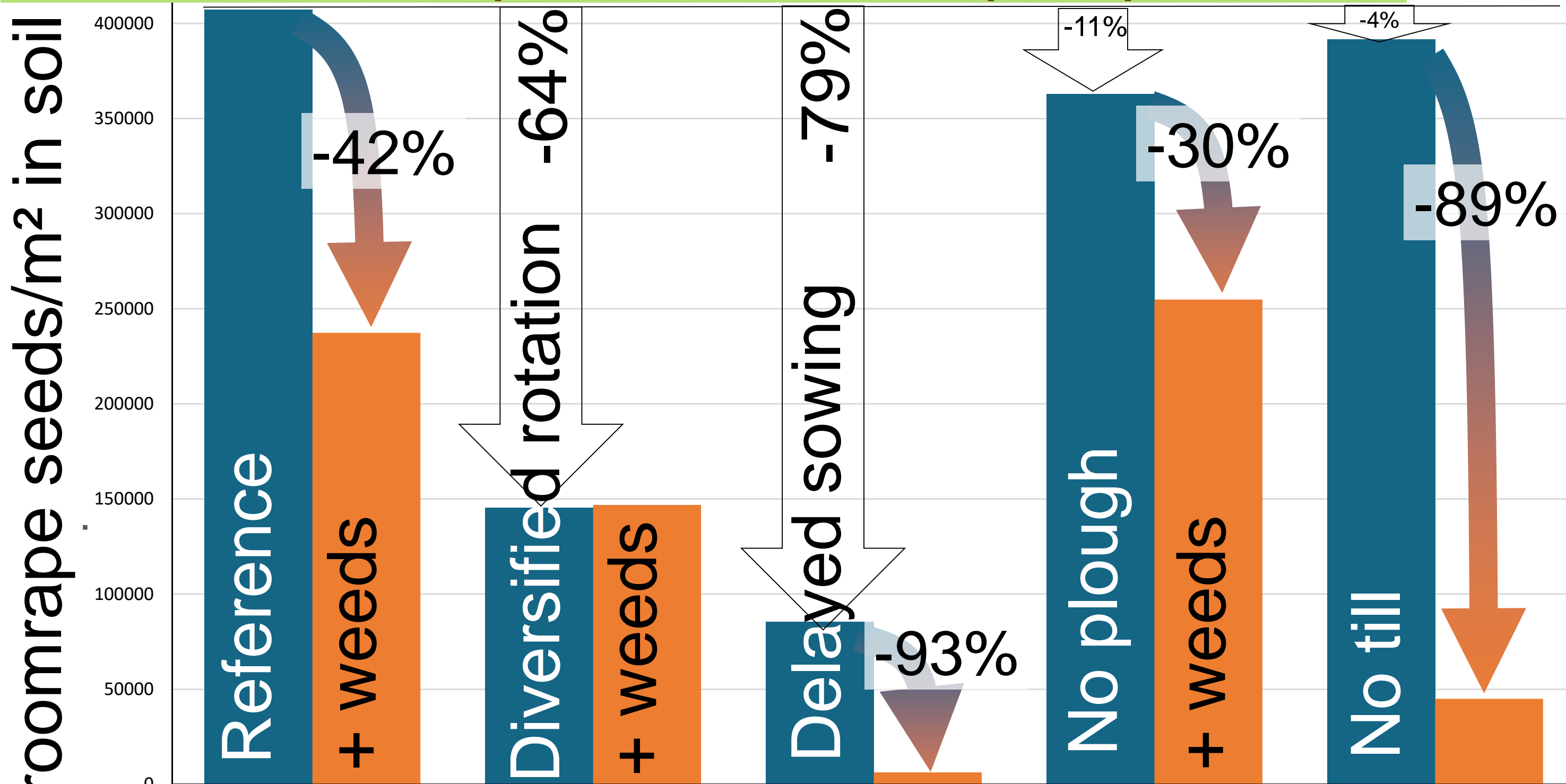
Experiments to fit functions & estimate parameters



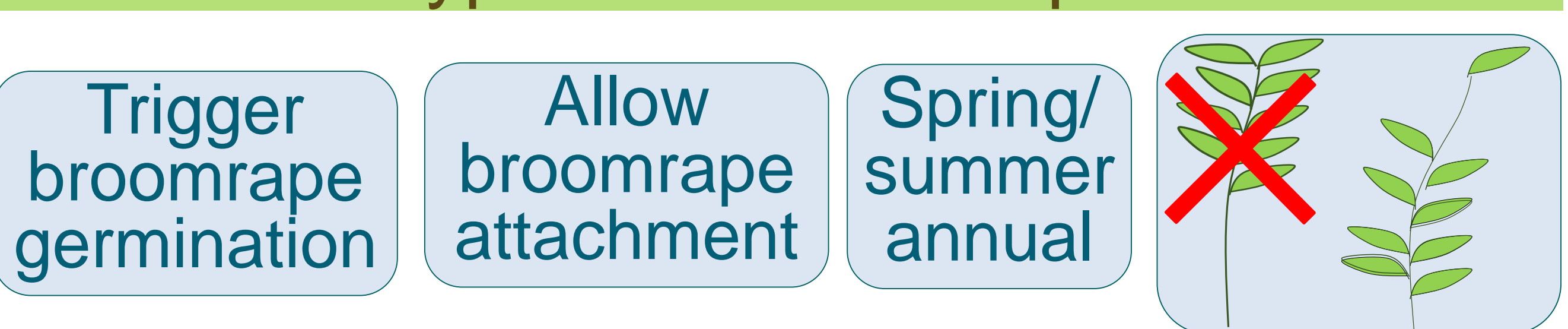
Simulate cropping systems over 30 years x 10 weather repetitions, with and without weeds



Efficient techniques \searrow broomrape up to 79%



Weed ideotype to \searrow broomrape seed bank



There are efficient strategies to control broomrape \rightarrow need to design strategies adapted to local conditions

Conclusion are only valid if broomrape-attaching weeds reproduce before broomrape does \rightarrow need to confirm