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Azodyn-Pea, a crop model to adapt pea crop to climate change



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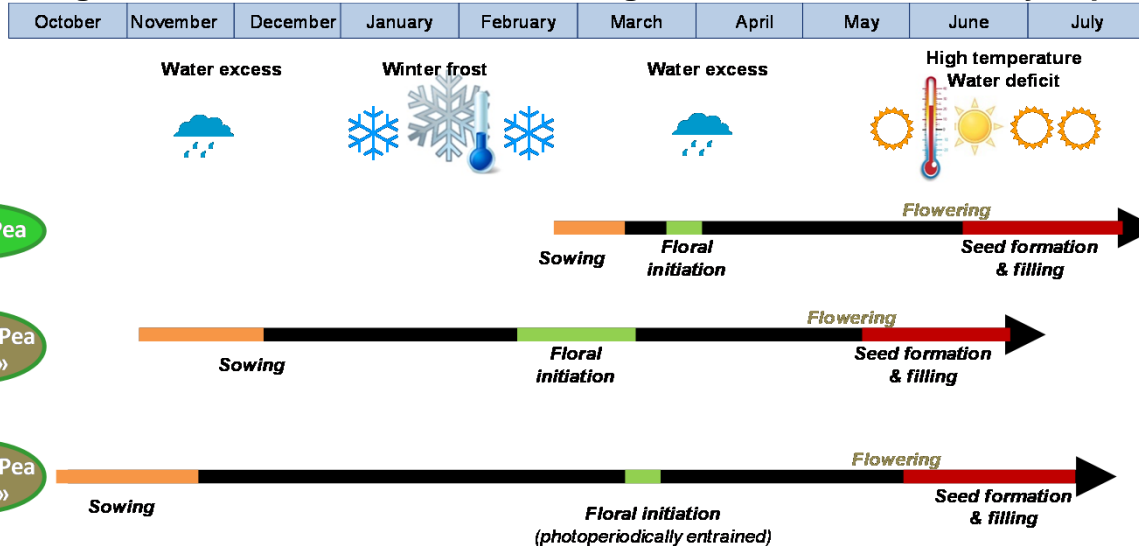
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Context Climate change in Europe increases the unpredictability of both frequency and impact of abiotic stresses on crops while they are a major cause of recent yield stagnation and projected decline.

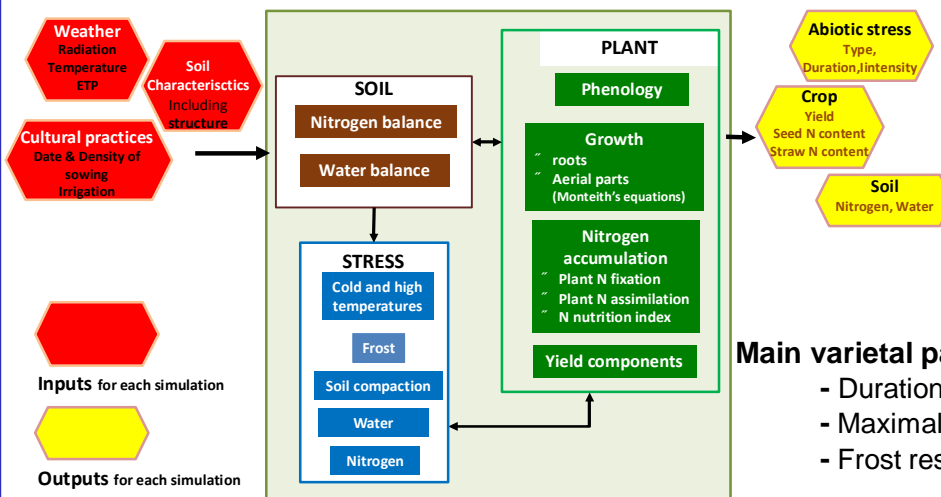
Pea (*Pisum sativum* L) is an important annual legume crop grown in temperate regions for its high seed nitrogen concentration and environmental benefits

Emergence of new varieties to face the high abiotic stress sensitivity of pea



However few data are available to adapt the choice of the pea type to local abiotic stress

Azodyn-Pea, a dynamic crop model to study the current and future performance of the pea crop cultivars in various French regions with contrasted climates

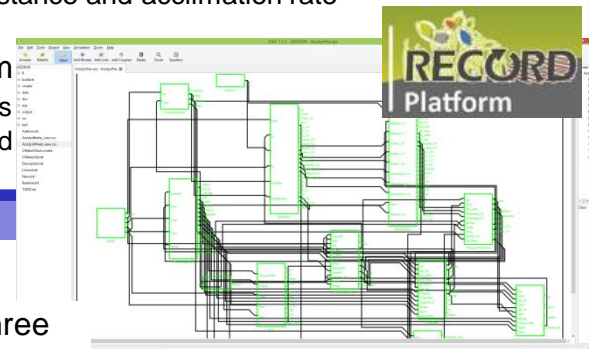


Azodyn-Pea **simulates, at a daily step and at the plot scale**, the effect of different abiotic environmental variables on yield and grain protein content formation. It integrates relevant and measurable varietal parameters representative of the three pea types

Main varietal parameters representative of the three pea types

- Durations of the development stages
- Maximal seed weight of the genotype
- Frost resistance and acclimation rate

Azodyn-Pea was implemented into the INRA modelling platform RECORD using the VLE software in order to optimize its use. It was developed in the line of the family of model Azodyn+(including wheat, barley and oilseed rape crops).



Perspectives

Azodyn-Pea will be used to :

- ▶ Assess the performance of existing varieties of the three pea types over ten past years in different regions, in order to identify which type best suits to each environment (soil x climate)
- ▶ Explore novel combinations of plant traits in order to design ideotypes adapted to future climate and contribute to the development of new varieties within each type.



Agriculture and Climate Change

