



UNIVERSITY OF LEEDS

# The GLAM crop model

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# GLAM overview

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The General Large Area Model (GLAM):

- Process based crop model
- Weather data is the main input data
- Designed for use on large spatial scales
- Simulates annual crops

Groundnut



Maize



Wheat



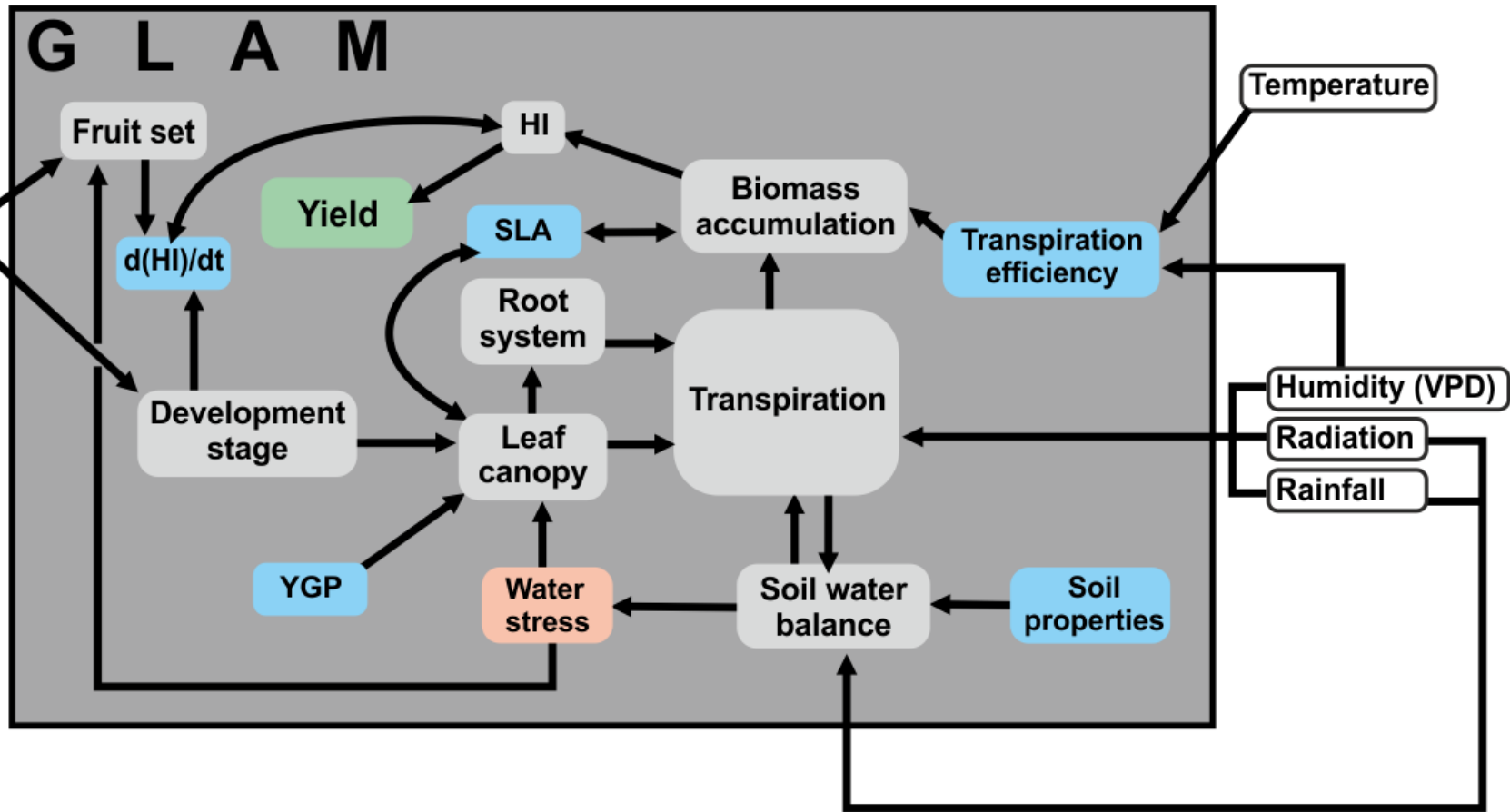
Sorghum



Soybean



# GLAM schematic



# GLAM – Inputs and outputs

## INPUTS

Daily weather data:

- Rainfall
- Solar radiation
- Min temperature
- Max temperature



Soil type

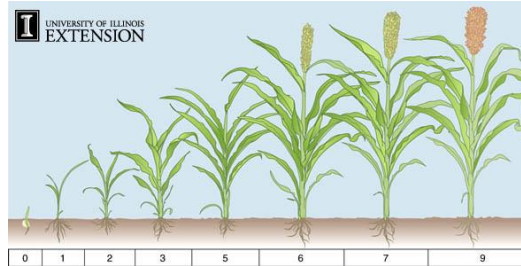


Planting date



## CROP MODEL

For each day of the growing season, a set of equations is solved. The simulated crop grows and develops.



## OUTPUTS

Daily and end-of season

Yield  
Biomass  
Leaf area index  
Roots  
Duration  
etc...

# GLAM – Outputs

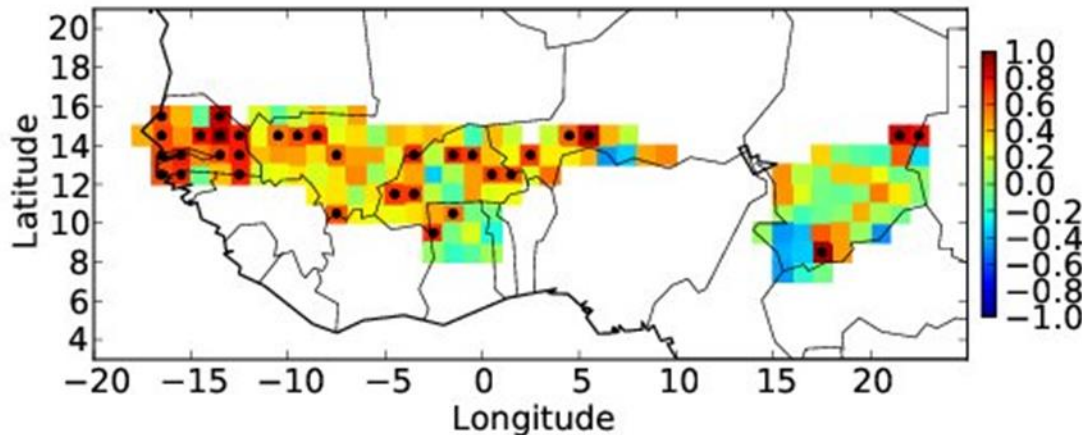
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Main output is time series of simulated yields for each grid cell

Assess model performance by comparing to time series of observed yields for each grid cell.

Need to allow for missing data in observed yield time series

Correlation between simulated and observed groundnut yields





# Accounting for uncertainty

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Use ensembles to account for uncertainty in:

- Climate model data
- Method of bias correcting climate model data
- Observed weather data
- Other crop model input data such as planting date
- Crop model

⇒ Ensemble of simulated yields  
for each grid cell and year

