

## Aims

Quantitative simulation of the regulation of allocation of primary and secondary metabolites to plant organs and rhizosphere

Analysis of optimal investment strategies of plant resources under different environmental conditions by inverse modelling of plant growth

Comparison of empirical, teleonomic and transport resistance model approaches to simulated biomass partitioning patterns

Determination of knowledge gaps in system understanding

Providing hints for further experimentation

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## Evaluation of model concepts which were developed in phase I

Topic:	Data from:
Effects of Interspecific competition in experiments with young beech and spruce (variable CO <sub>2</sub> and O <sub>3</sub> )	B5
Effects of intraspecific competition on growth of sunflower (variable N)	B6
Growth of young beech trees infected with phytophthora citricola	A6

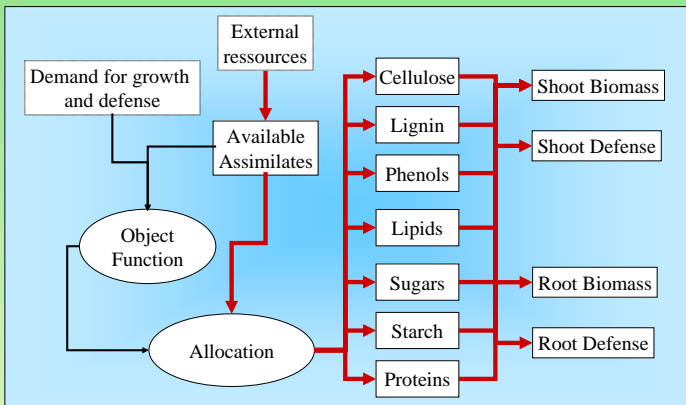
## Extensions to PLATHO

Further plant species: lolium, alfalfa, maize, apple

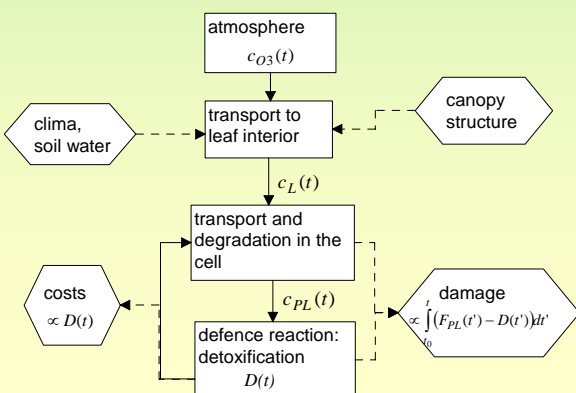
Consideration of isotope-discrimination

## Model refinements:

- explicit consideration of biochemical pools
- modelling of allocation patterns using optimization methods on the basis of cost/benefit-relations



- Mechanistic modelling of plant reaction to ozone and parasites

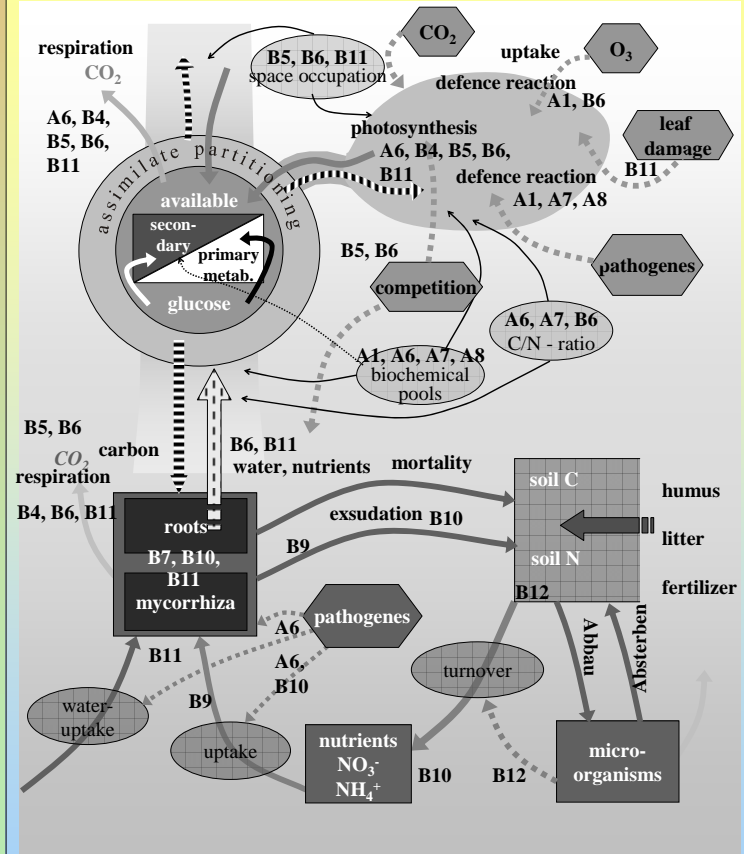


## Model applications

- simulation of C-, N-, water and energy fluxes in phytotron-, container and lysimeter experiments
- Integration and analysis of experimental results and conclusions at different scales (upscaling, downscaling)
- estimation of resource consumption for biosynthesis, transport, regulation and defence

## Co-operations:

### Data transfer with other groups



### Co-operation with project C3:

- Aggregation of results from mechanistic C2 calculations to parameterize more simple process descriptions in BALANCE
- Using microclimatic calculations from C3 to test compatibility of both models approaches on single trees in Kranzberg