

Contribution ID: 122

Type: **Poster Presentation**

How do the dynamics of carbon and nitrogen allocation impact plant growth?

Monday, 9 July 2018 19:45 (15 minutes)

Improving crop yield is essential to meet increasing global food demands. Crop yields depend on the coordinated acquisition of carbon and nitrogen by the leaves and roots respectively and the use of these nutrients within each part of the plant. Changes in environmental conditions cause fluctuations in carbon and nitrogen availability. This leads to crosstalk between the signalling pathways for carbon and nitrogen. Carbon- and nitrogen-derived signals have been observed in plant growth, but how these signals cooperate together with changes in nutrient availability is still unknown. Here, we discuss the implementation of such feedback mechanisms using a carbon and nitrogen transport model for plant growth.

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Session Classification: Poster Session

Track Classification: Plant Biology and Agricultural Modelling