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### **RECENT ACTIVITIES AND FUTURE TOPICS OF THE IIRB PLANT & SOIL STUDY GROUP**

**Activités actuelles et thèmes à venir du groupe d'études Plante et sol de l'IIRB /  
Derzeitige Aktivitäten und zukünftige Themen der IIRB-Arbeitsgruppe Pflanze  
und Boden**

#### **ABSTRACT**

The IIRB Plant & Soil study group focuses on the combined effects of factors and processes in the seed-plant-soil system on the growth and yield formation of sugar beet. This includes topics from soil science, plant nutrition, irrigation, agronomy, crop physiology and crop growth modelling. Moreover, environmental aspects of the cultivation of sugar beets are addressed.

In the past decade the group held annual meetings which covered the following topics: advances in soil management to reduce negative environmental effects and increase crop yield and productivity (tillage, liming, catch crops, soil compaction, root growth, water use, precision farming), adaptation/mitigation of climate change (drought tolerance, water use efficiency, irrigation), assuring adequate nutrient supply at high yield level (NPK), renewable energy production from beet crops (legal framework and requirements, adaptation of crop management), progress in beet growth and yield modelling (adaptation of growth models, early sowing and late season effects, winter beet).

The meetings were characterized by a large number of contributions from group members and invited speakers, and lively discussions. An appreciable number of the topics were presented at the IIRB congresses in sessions which were organized and/or chaired by group members. Moreover, two monographs were prepared as an outcome of group activities and published in the IIRB series 'Advances in Sugar Beet Research'. Recently, an article on 'The yield gap in some beet producing countries' (Jaggard *et al.*, 2012: *Int. Sug. J.* 114, 496-499) was prepared under the auspices of the group. Joint meetings were held with the 'Beet Quality and Storage' group in 2009, and with the 'Agricultural Engineering' group in 2014. In 2013, the IIRB seminar 'Advances in sugar beet irrigation' in Valladolid was co-organized by the 'Plant and Soil' group. An IIRB seminar on tillage and drilling advances will be linked to the Beet Europe harvester demonstration in Poland 2014.

Amongst others, future activities will be dedicated to topics such as improving the water use efficiency of beet crops including irrigation (mitigation of/adaptation to climate change effects), potentials to reduce N<sub>2</sub>O emissions related to sugar beet cultivation, and advances in soil management/tillage, including strip tillage.