

Despite the ongoing pandemic, we are optimistic that 2022 will increasingly allow us to meet in person at IIRB events, notably at the 78th IIRB Congress in June.

Although virtual meetings are very efficient, time- and cost-saving, the extra benefits of personal meetings with their possibility of networking and connecting with colleagues have clearly become visible in the past 1½ years. IIRB will continue to provide the platform for international exchange, and we look forward to meeting you in Mons in June.

An overview on the recent online meetings and activities of IIRB's study and project groups is given below.

JOINT MEETING STUDY GROUPS BEET QUALITY & STORAGE AND PLANT & SOIL

Video meeting 20/5/2021

32 participants attended this joint meeting that covered several subtopics.

Chairs Martijn Leijdekkers and Rémy Duval presented information on Dutch sugar beet quality development, respectively on the decision support tool 'Distas' developed at ITB to preserve soil structure at harvest.

Effects of virus yellows infection on the storability of sugar beets were discussed, as well as the effect of sugar beet stand characteristics on internal beet quality parameters. Four presentations analysed how anatomical beet properties are linked to the genotype, to what extent they are influenced by agronomic factors and the environment, and how they influence the storability of beets.



Excellent winter conditions for storage trials with ventilation of piles (Picture: NBR)

Further contributions presented the effect of drought on growth, water consumption and water use efficiency of sugar beet genotypes. They also elaborated on innovations in clamp management systems by testing active ventilation of beet piles and presenting best practice for long-term field storage of sugar beets under Nordic climate conditions.

The exchange between the two groups at the joint meeting was much appreciated. As the agenda and discussions would easily have filled more than the foreseen meeting hours, further joint meetings are planned in the near future.

STUDY GROUP PESTS & DISEASES

Video meetings 28/9 and 1/10/2021

With more than 60 participants and two dense afternoon meetings, the importance of the study group's discussions around pests and diseases became visible once more. The meeting profited from the large number of US colleagues that could join thanks to the online meeting format.

The first day was dedicated to molecular studies around Rhizomania, to Virus Yellows and pest control. Studies at IfZ provided insight into the resistance mechanism mediated by *Rz2* in sugar beet, while the USDA-ARS lab presented a CRISPR-Cas-based method as a diagnostic approach for detecting BNYVV in diseased sugar beet roots.

After an overview on the effects of the 2020 Virus Yellows epidemic in the UK and Europe, and a characterisation of the adverse effects of the EU ban on neonicotinoids on sugar beet production, the group members discussed options for future pest control. Diverse approaches were presented, starting from mature plant resistance, the testing of Virus Yellows tolerant genotypes, an optimal use of natural enemies against aphids and other pests up to alternative chemical active ingredients. Emerging insect threats in sugar beet will have to be faced by an adapted management based on a thorough knowledge of insect biology.

The second meeting day focused on fungal diseases of sugar beet, mainly *Cercospora*, as well as on SBR.



The USDA-ARS lab contributed with presentations on the genetic characterisation and virulence of the *Cercospora*-produced toxin beticolin, on the identification of resistance genes in sugar beet through genome-wide association mapping, on the complex genetic architecture of DMI fungicide resistance in *Cercospora*, and on a management approach using new CR-varieties and timely fungicide applications to reduce *Cercospora* leaf spot.

SBR (syndrome basses richesses), first detected in France, has now spread to sugar beet growing areas in Switzerland and Germany. The disease is caused by two plant phloem tissue bacterial parasites transmitted by the planthopper *Pentastiridius leporinus*. First tolerant varieties have been introduced to the German market in 2021, and studies on SBR management indicated that ploughing and a cultivation of maize after sugar beet could be approaches to control the vector.

STUDY GROUP GENETICS & BREEDING

Video meeting 27/10/2021

Insect resistance breeding with a specific focus on SBR was also the main topic of the IIRB Genetics and Breeding study group meeting held in October. Sugar beet breeding is aiming at providing solutions for novel insect threats. It is a time-consuming process that requires an understanding of plant-animal interactions and physical and chemical plant defence reactions. Knowledge of the chemical ecology of *P. leporinus* will be paramount to improving resistance breeding and SBR management. Modern RNAi technology is currently under development as one of the options of insect control.

PROJECT GROUP VIRUS YELLOWS

Online meetings 25/11/2021, 17/12/2021, and 24/1/2022

Joint trials have been successfully performed by several European sugar beet research institutes in 2021 to develop a testing method for different virus types that cause Virus Yellows in sugar beet. The trials tested the inoculation with different virus types at different inoculation densities of virus-carrying aphids on a set of sugar beet genotypes. They allowed a first differentiation of susceptible and tolerant genotypes and will be further specified in 2022.

PROJECT GROUP SOIL INSECT PESTS

Online meetings 7/9/2021, 13/12/2021, and 13/1/2022

The newly-established project group 'Soil Pests' met again repeatedly to share knowledge on the control of different soil pests and to plan joint field trials for 2022. These trials will include alternative insecticides with different modes of action. The aim is to avoid that soil pest control depends on only one active substance.

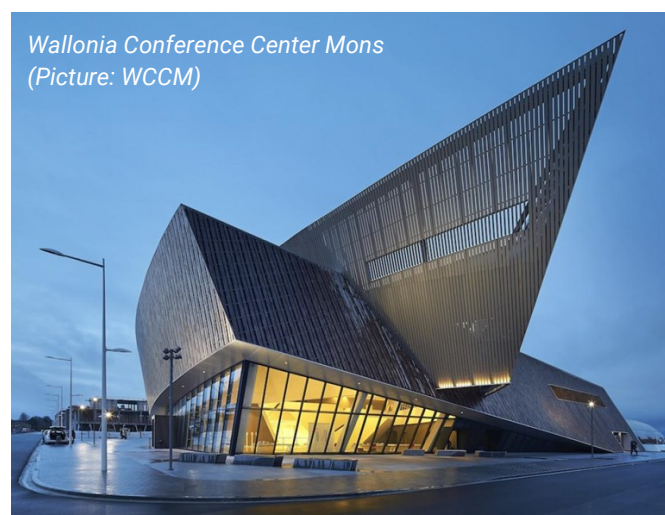
78TH IIRB CONGRESS

21st-23rd June 2022, Wallonia Conference Center Mons

The 78th IIRB Congress will mark the 90th birthday of both the IIRB as well as IRBAB, our Belgian host. The programme of 25 talks held in six sessions and 120 posters will address a vast range of current topics in sugar beet cultivation.

In the opening session on 21st June, renowned Belgian researchers will demonstrate agriculture's strength in adapting to climatic and environmental challenges. The optimisation of crop growth and an advanced crop management with innovative tools will be the topics of the afternoon.

Sessions on 22nd June will focus on the challenges of maintaining sugar beet health, be it by resistance breeding or other approaches. A special focus will be placed on ways to prevent and limit Virus Yellows epidemics in the future.



Wallonia Conference Center Mons
(Picture: WCCM)

In addition to the two days of scientific presentations, an excursion to Gembloux Agro-Bio Tech will give participants the opportunity to learn about current Belgian agricultural research in the fields of environment, agriculture, food production and forestry at the new TERRA research center.

An accompanying persons programme will be provided.

With its sessions, excursion and evening events the 78th IIRB Congress will be an excellent platform for scientific exchange and networking.

Please register online at www.iirb.org by 15th March 2022.

Reduced fees apply when registering by 31st January 2022.

IIRB MEETINGS AGENDA

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| SG Communic. Techniques | Jan. 28 th , 2022, video conference |
| Council Meeting | March 23 rd , 2022, Brussels (B) |
| IIRB General Assembly | June 21 st , 2022, Mons (B) |
| 78 th IIRB Congress | June 21 st -23 rd , 2022, Mons |
| Further study group meetings are planned. | |

