

**80<sup>th</sup> IIRB CONGRESS**

**7 - 9 July 2026**

**Advancing Sugar Beet  
in a Dynamic Environment**

**Churchill College, Cambridge (UK)**



INTERNATIONAL INSTITUTE  
OF SUGAR BEET RESEARCH

In partnership with **British Beet**  
**BBRO**  
Research Organisation

We would like to thank our sponsors for their support of this scientific conference, which has been essential in making the event possible and ensuring a high-quality programme.



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# Programme

## Monday 6<sup>th</sup> July 2026

5.00 pm Reception drink—Sponsored by:



6.30 pm End of reception

Please scan the QR code to view the presentation abstracts.



## Tuesday 7<sup>th</sup> July 2026

### Opening Session

8.30 am MARK STEVENS (BBRO):  
Presidential address

8.45 am KEITH PACKER (British Sugar): The evolution of the UK sugar beet sector:  
a processor's perspective

9.00 am JAMES NORTHEN (NFU): The evolution of the UK sugar beet sector:  
a grower's perspective

9.15 am SIMON PEARSON (LIAT): Robotics and AI: key challenges and opportunities

9.30 am Coffee break—Sponsored by:



### 1 Advanced agronomy in environmental challenges

(Chair: ANDRÉ VAN VALEN (IRS))

10.10 am GEORGINA BARRATT (BBRO): Identifying and mitigating greenhouse gas  
emissions from sugar beet production

10.30 am ANNA JACOBS (IfZ): Is sugar beet really detrimental to soil organic carbon?

10.50 am ANDRIUS HANSEN KEMEZYS (NBR): Nitrogen-fixing bacteria to improve nitrogen  
use efficiency. Do biostimulants deliver what they promise?

11.10 am PAUL TAUVEL (ITB): Advising sugar beet growers on irrigation in diversified  
contexts

11.30 am TILL ROSE (University of Kiel): Drought-sensitive sugar beet modelling for  
ideotyping future high-yielding genotypes

11.50 am BETTINA MÜLLER (Strube D&S GmbH (RAGT Group)): BeetAdapt: new technolo-  
gies for high-throughput phenotyping and phenomic selection in sugar beet  
breeding

12.10 pm Lunch break

### 2 Current perspectives on weed control and resistance management

(Chair: ANDRÉ WAUTERS (IRBAB))

1.40 pm PETER RISSER (Südzucker AG), ANNE LISBET HANSEN (NBR) & SJEF VAN DER  
HEIJDEN (IRS): Current deployment and challenges of the Conviso® One herbi-  
cide-based weed management system in European sugar beet cultivation

2.00 pm JOHN CUSSANS (ADAS): Acetolactate synthase (ALS) resistant weeds in sugar  
beets

- 2.20 pm CHRISTINE KENTER (IfZ): Performance of Conviso Smart sugar beet varieties under classical and Conviso® One herbicide programmes—smarter beets, better yields?
- 2.40 pm THOMAS LEBORGNE (ITB): PARSADA: a French national plan to anticipate the herbicide molecules withdrawal
- 3.00 pm ABEL BARRETO (IfZ): Robotic weeding performance: recent insights from the digital experimental field FarmerSpace
- 3.20 pm Poster Session I & Coffee break—Sponsored by:



### 3 Rhizomania & Cercospora leaf spot:

#### Fungicide and genetic resistance mechanisms

(Chair: LOUISE HOLMQUIST (NBR))

- 4.30 pm KRISTIN BENJES (IfZ): Resistance to rhizomania: interaction of the resistance protein Rz2 with the avirulence protein TGB1 and evaluation of the resistance stability
- 4.50 pm AUSTIN LIEN (University of Minnesota):  
Genome wide association study of *Cercospora beticola* following repeated exposure to Demethylation inhibitors reveal complex fungicide resistance mechanisms
- 5.10 pm SÉVERINE FONTAINE (INRAE): Investigating genetic diversity and DMI resistance in French *Cercospora beticola* populations with both neutral and selected genetic markers
- 5.30 pm WIBKE IMGENBERG (AGRANA): High resistance is not absolute: lessons from *Cercospora beticola* epidemics in Austrian sugar beet
- 5.50 pm End of day 1
- 7.30 pm Conference dinner—Sponsored by:



## Wednesday 8<sup>th</sup> July 2026

### 4 Virus Yellows: Breeding, disease control and agronomic tools

(Chair: MARK VARRELMANN (IfZ))

- 9.00 am ALISTAIR WRIGHT (BBRO): Variety tolerance, the key to unlocking IPM strategies for Virus Yellows
- 9.20 am NIELS WYNANT (Florimond-Desprez): Breeding sugar beet for tolerance to mixed Yellowing Viruses
- 9.40 am AUDREY FABAREZ (ITB): PNRI-C: developing strategies to manage beet yellows disease
- 10.00 am ISABELLE STOCKMANS (IRBAB): VirBiCon: integrated approaches to understand and mitigate virus yellows in sugar beet cultivation in Belgium

- 10.20 am ELMA RAAIJMAKERS (IRS): The effect of seed treatments on foliar insect pests in young sugar beet plants
- 10.40 am Poster session II and coffee break

### 5 Beet weevils & Cicades I

(Chair: MARION SEITER (AGRANA))

- 11.30 am BENJAMIN COUSSY (FNAMS): Search for alternative control solutions against the beet weevil, *Lixus juncii*
- 11.50 am DANIELA WÖBER (AIT): Decoding the sugar beet weevil: molecular resources for RNAi-based pest control
- 12.10 pm ŽIVKO ČURČIĆ (Institute of Field and Vegetable Crops): Why sugar beet RTD persists in Serbia: the newly revealed sunflower-wheat lifecycle of *Reptalus quinquecostatus*
- 12.30 pm CHRISTOPH KREITZER (AGRANA): Distribution and dynamics of cixiid vectors transmitting phloem-restricted pathogens in Austrian sugar beets
- 12.50 pm Lunch break

### 6 Cicades II & SBR Complex

(Chair: ELMA RAAIJMAKERS (IRS))

- 2.20 pm ANNE-KATRIN MAHLEIN (IfZ): Poster award & Best PhD Talk
- 2.30 pm OMID EINI (IfZ): Directed sequencing of plant specific DNA identifies the dietary history of *Pentastiridius leporinus*
- 2.50 pm FACUNDO ISPIZUA YAMATI (IfZ): Image-based automated identification of SBR and Stolbur-transmitting planthoppers on sticky traps
- 3.10 pm OLAF CZARNECKI (KWS) & CARSTEN STIBBE (KWS): Identification of infestation patterns in the SBR-RTD disease complex: the base for resistance breeding and agronomic control measures
- 3.30 pm ACHIM JESSER (Südzucker AG): Agronomic pathways to mitigate Syndrome des Basses Richesses (SBR): integrating cultural practices and vector control for yield stabilization
- 3.50 pm VINCENT LAUDINAT (ITB): Closing words & End of day 2

## Thursday 9<sup>th</sup> July 2026

**Excursion – Botanical Gardens, Cambridge** - Organised by:



From Start of the visit in small groups (staggered over time)

10.00 am Meeting point: Brookside Gate, 1 Brookside Cambridge, CB2 1JE, Cambridge

# POSTER PROGRAMME—80<sup>th</sup> IIRB CONGRESS, 7-9 JULY 2026, CAMBRIDGE (UK)

## 1 AGRICULTURAL ENGINEERING

- 1.0 T. ROSE *ET AL.* Quantifying functional yield components in Sugar Beet Genotypes using a high-throughput spectral remote Sensing Workflow
- 1.1 J. MÜLLER *ET AL.* UAV-based photogrammetry for sugar beet clamp volume estimation: method validation and practical application
- 1.2 J. STREIT *ET AL.* Field robotics in sugar beet trialing—Combining phenotyping and microplot thinning with the BlueBob
- 1.3 B. MÜLLER *ET AL.* Automated high-throughput plant phenotyping with X-ray and optical imaging for above- and belowground trait evaluation of sugar beet under drought stress
- 1.4 K. KEMPE *ET AL.* BeetAdapt: adapting sugar beet for climate resilience
- 1.5 F. JOUDELAT *ET AL.* A satellite toolbox for sugar beet monitoring
- 1.6 F. JOUDELAT Using Artificial Intelligence in Agronomy
- 1.7 T. LEBORGNE Prévibest: a tool to understand and apprehend the risk of soil compaction during beet harvest
- 1.8 T. LEBORGNE Farmdroid in organical sugar beet: technical and economical analysis
- 1.9 S. TALOLA *ET AL.* The PeDro Project: evaluating Robotic and Precision Farming Technologies for Sugar Beet Production under Finnish Field Conditions

## 2 BEET QUALITY & STORAGE

- 2.0 J. EKELÖF Innovative Covering Materials for Frost Protection in Sugar Beet Storage
- 2.1 H. NARTEN *ET AL.* Marc content of sugar beet—long-term investigations of a highly heritable trait
- 2.2 L. BORISJUK *ET AL.* Resolving Inhomogeneous Sugar Accumulation in Intact Sugar Beet Taproots Using Advanced Magnetic Resonance Imaging
- 2.3 S. L. KANDEL *ET AL.* Microbiology of sugarbeet raw diffusion juice from the factory processing

## 3 COMMUNICATION TECHNIQUES

- 3.0 F. BOURDEAUX From research to the field: communicating PNRI outcomes to growers for managing sugar beet yellows
- 3.1 S. COENEN *ET AL.* National Observation and Advisory Network for Sugar Beet Crops
- 3.2 F. BROOM BBRO Communications—Fit for the future

## 4 GENETICS & BREEDING

- 4.0 R. NAEGELE *ET AL.* Using 2D and 3D modeling and SNP-based markers to predict plant architecture and leaf morphology in *Beta* spp.
- 4.1 J. LI *ET AL.* Genomic selection for yield and disease resistance in sugar beet
- 4.2 E. M. LONG Mutations and adaptations: a metagenomic analysis of whole genome sequence in *Beta vulgaris*
- 4.3 M. WAI *ET AL.* Evaluating Drought Tolerance in Sugar Beet (*Beta vulgaris*): a Multimodal Phenotyping and Physiological Analysis

- 4.4 L. DAHL *ET AL.* Advancing digital phenotyping: infrastructure and innovation for future sugar beet breeding
- 4.5 A. DESPREZ *ET AL.* Twenty-one years of three-way hybrid breeding shaped diversity and complementarity of male and female gene pools in sugar beet
- 4.6 A. NOGUEIRA JUNIOR *ET AL.* Insights from multi-year KWS Virus Yellows management trials in sugarbeet: towards an integrated control strategy
- 4.7 J. LOEL *ET AL.* Novel seed treatments to improve crop vigor and productivity
- 4.8 J. LOEL *ET AL.* Impact of harvest date on sugar beet hybrids with different levels of *Cercospora* protection
- 4.9 M. KUBE *ET AL.* 16SrXII-P subgroup Phytoplasma GOE infecting Sugar Beet in Germany
- 4.10 P. LONGERSTAY *ET AL.* New insights on partial resistant/tolerant sugar beet varieties to the SBR/RTD disease complex
- 4.11 A. ROGGEN *ET AL.* Exploiting genetic resources for identification of SBR resistance in sugar beet

## 5 PESTS & DISEASES

- 5.0 E. RAAIJMAKERS IIRB Study Group Pests & Diseases
- 5.1 S. A. MANOGNA *ET AL.* Elucidation of hyperspectral signatures for early detection of *Rhizoctonia* root and crown rot resistance in sugar beet prebreeding fields
- 5.2 R. MAJUMDAR *ET AL.* Microbiome and metabolome analysis identify keystone groups putatively associated with resistance in a sugar beet mutant line resistant to rhizomania
- 5.3 E. TOWLER Informing cover crop decisions—virus host risk
- 5.4 E. TOWLER Monitoring beet moth in the UK climate
- 5.5 L. DE ZINGER *ET AL.* Beet moth research in Belgium and the Netherlands
- 5.6 M. McMULLAN Harnessing wild crop relatives to uncover novel resistance and pathogen virulence in sugar beet
- 5.7 L. PERSSON *ET AL.* *Aphanomyces macrosporus* causing root rot in sugar beet, spinach and barley
- 5.8 M. KÖHLER *ET AL.* Characterisation of isolates of the pathogen *Aphanomyces cochlioides* in Europe to ensure the production of healthy sugar beet
- 5.9 L. HOLMQUIST Quantifying the Impact of *Aphanomyces* Infection on Sugar Beet Quality and Sugar Content During Storage
- 5.10 L. HOLMQUIST Innovative AI Solutions for *Aphanomyces* Monitoring in Sugar Beet Agriculture

- 5.11 O. NEHER *ET AL.* IIRB Project Group Control of Leaf Diseases
- 5.12 C. - H. JONSSON Addressing the Increasing Pressure of *Cercospora beticola*: Management and Resistance Monitoring for Swedish and Danish Sugar Beet Farmers
- 5.13 J. NEUBAUER *ET AL.* A Novel Nanotechnology Approach: Cellulose Nanofiber-Copper Composites for *Cercospora* Leaf Spot Management in Sugar Beet
- 5.14 K. ORMAN *ET AL.* CropWatch: integrating Broad Perspectives for In-Depth Insight into the UK Sugar Beet Crop
- 5.15 K. ORMAN *ET AL.* Spore Patrol: Tracking and Tackling the Rise of *Cercospora* Leaf Spot in UK Sugar Beet
- 5.16 D. VANDERVEKEN *ET AL.* Towards an optimized fungicide strategy: investigating number, timing and frequency of fungicide applications for an enhanced *Cercospora beticola* control
- 5.17 L. PONET *ET AL.* Comparing *Cercospora beticola* field inoculation methods for assessing varietal tolerance in sugar beet
- 5.18 G. CAMPAGNA Leaf management strategies with particular focus on “cerco-stress”
- 5.19 G. CAMPAGNA New strategies for Lixus control
- 5.20 D. JONES *ET AL.* Farm scale use of endophyte grasses and strip tillage for resilient sugar beet
- 5.21 R. LAWSON *ET AL.* Nematodes as bioindicators: Assessing the impact of sugar beet cultivations
- 5.22 E. MOLISZEWSKA *ET AL.* *Pleurotus ostreatus* mycelium—a good biocontrol weapon against *Heterodera schachtii*
- 5.23 H. EBMEYER *ET AL.* Impact of sowing and harvest date on SBR-RTD disease severity and yield losses in sugarbeet
- 5.24 F. E. MENDEZ CASTRO *ET AL.* Digital Eyes on Sugarbeet Pests: Monitoring Aphids and Planthoppers with Scalable Technologies
- 5.25 F. E. MENDEZ CASTRO *ET AL.* Tracking the Threat: KWS sugarbeet pathogen monitoring across Europe
- 5.26 N. NITESHBHAI BAGSARIYA *ET AL.* Breaking the cycle: insecticide seed treatment in winter wheat affects the survival of *Pentastiridius leporinus*
- 5.27 L. POTYONDI *ET AL.* Summer root rot (SBR and RTD) in Hungary
- 5.28 A. KOSOVAC *ET AL.* Sunflower as an in-field source of ‘*Candidatus* Phytoplasma solani’ with major implications for RTD in sugar beet
- 5.29 M. SCHIELER *ET AL.* The extension of the decision support system SIMPENTA to control the sugar beet pest *Pentastiridius leporinus*
- 5.30 Y. GALEIN *ET AL.* Surveillance of Cixiidae populations and associated SBR/RTD disease severity
- 5.31 S. LIEBE *ET AL.* Variety testing under SBR infestation—Current status and challenges
- 5.32 R. LEISER *ET AL.* Improving stress resilience of sugar beet
- 5.33 M. BENZ *ET AL.* Two years of SBR monitoring in German border regions—Vector and pathogen spread beyond visible symptoms and yield loss calls for preventive action

- 5.34 V. KLINK *ET AL.* The sugar beet root maggot genome as a tool for its control
- 5.35 H. ADAM *ET AL.* KumbIT—Cross-crop monitoring and control strategies for the reed planthopper: research with practice and digital advisory services for sustainable agriculture
- 5.36 M. WIMMER *ET AL.* Effects of *Beauveria bassiana* and calcium cyanamide on the emergence of *P. leporinus*
- 5.37 S. GEITZ Integrating Biological Control into IPM for Sugar Beet: the EU Project SAGROPIA
- 5.38 A. KRUMHOLZ *ET AL.* Comparison of small-plot design and on-farm trial designs for the development of Syndrome Basses Richesses (SBR) strategy
- 5.39 W. PURAHONG *ET AL.* Bringing the laboratory to the field: innovative rapid in-field molecular diagnostic tests for diseases in sugarbeet
- 5.40 B. WIETERS *ET AL.* Companion plants for integrated aphid management in sugar beet
- 5.41 A. FABAREZ *ET AL.* Aphid-arresting beet varieties to manage beet yellows disease?
- 5.42 L. CHALLANT *ET AL.* Methodological and experimental challenges to develop an olfactory strategy for controlling *Myzus persicae*: a review of 4 years of in-field trials
- 5.43 E. M. MOLIN *ET AL.* Intestinal microbiome interactions influence *Metarhizium*-based biocontrol efficacy against the sugar beet weevil
- 5.44 D. WÖBER *ET AL.* Machine learning approaches to forecast sugar beet weevil infestation dynamics
- 5.45 E. RUSSAVAGE *ET AL.* Something Smells: using Plant Odor Chemicals to Manage Insect Pests in Sugar Beets

## 6 PLANT & SOIL

- 6.0 A. VAN VALEN *ET AL.* IIRB Study Group Plant & Soil
- 6.1 A. VAN VALEN Effects of crop residue management and catch crops on soil mineral nitrogen and leaching after sugar beet cultivation
- 6.2 J. MAASSEN Groundwater Nitrate Mitigation through Evidence-Based Nitrogen Management in Dutch Agriculture
- 6.3 M. SCHUT Sugar beet fertilisation strategies for reduced greenhouse gas emissions
- 6.4 G. BARRATT Assessing drought tolerance in UK sugar beet varieties
- 6.5 G. BARRATT Exploring the use of organo-mineral fertilisers for sugar beet nutrition
- 6.6 A. TANWER The impact of cover crop mixes on soil carbon and nitrogen dynamics in Sugar Beet
- 6.7 J. EKELÖF Phosphorus Placement Significantly Enhances Sugar Beet Yield under Low Soil P Conditions
- 6.8 G. HELLER Soil Silicon Application as a Strategy to Improve Drought Resilience in Sugar Beet (*Beta vulgaris* L.) under Central European Conditions

- 6.9 P. BARLÓG *ET AL.* Sugar Beet Yield and nitrogen use efficiency in response to potassium replacement with sodium
- 6.10 Y. BIEMANS *ET AL.* Row application of mineral Nitrogen in Sugar Beet Production: advancing Nitrogen Use Efficiency under CAP Nutrient Regulations
- 6.11 C. GOUWIE A new approach to analyze cultural practices
- 6.12 A. VAN VALEN *ET AL.* The effectiveness of biostimulants in sugar beet cultivation in north-western Europe
- 6.13 I. BAJIĆ *ET AL.* Optimizing sugar beet yield through sowing and harvest timing
- 6.14 N. KUMAR GANGA RAJU Impact of elevated atmospheric CO<sub>2</sub> on sugar beet yield and carbon allocation
- 6.15 D. GRUNWALD *ET AL.* The pre-crop value of sugar beet for subsequent wheat compared to other crops
- 6.16 S. MUURINEN *ET AL.* Effects of different types of organic fertilizers on greenhouse gas emissions from sugar beet soils
- 6.17 S. MUURINEN *ET AL.* Long-term crop rotation trial in Finland part of multisoil-project
- 6.18 Y. BIEMANS *ET AL.* The evolution of cap erosion regulations in Belgium
- 6.19 B. SMIT *ET AL.* Opportunities for improving soil health, ecosystem services and farm income in sugar beet growing

## 7 WEED CONTROL

- 7.0 P. RISSER *ET AL.* IIRB Study Group Weed Control
- 7.1 S. VAN DER HEIJDEN Integrated weed management: control of resistant weeds in crop rotation
- 7.2 P. RISSER *ET AL.* Integrated flower strips to enhance biodiversity in sugar beet—results from 8-year field evaluations
- 7.3 P. RISSER Robotic weeding in sugar beet—are autonomous systems ready for practical use?
- 7.4 P. A CHAMBERS *ET AL.* The changing world of weeds in the UK Sugar Beet crop
- 7.5 P. A CHAMBERS *ET AL.* Florpyrauxifen-benzyl, a new post emergence herbicide for the control of broad-leaved weeds in sugar beet
- 7.6 G. CAMPAGNA New weed control strategies for conventional sugarbeet cultivations
- 7.7 G. CAMPAGNA Management of ALS-resistant populations of *Amaranthus* spp.
- 7.8 J. KIMMEL *ET AL.* Weed control options against some hard-to-control weeds in sugar beet in Hungary
- 7.9 D. GONZALEZ CABALLERO *ET AL.* CONVISO® SMART SPRAY MANAGER: phenology-driven modelling of *Chenopodium album* to optimize herbicide application timing
- 7.10 C. WELLHAUSEN *ET AL.* Herbicide application strategies to control ALS-resistant weeds in Smart sugar beet

- 7.11 M. WEGENER *ET AL.* CONVISO® SMART—Joint stewardship approach for the long-term durability of the system
- 7.12 A. HUBAUX *ET AL.* Study of herbicide resistance development in Camomile populations from CONVISO® SMART sugar beet fields
- 7.13 C. ROYER Grass management in situations of resistance in France
- 7.14 Q. TILLOY *ET AL.* Low inputs weed management: 5 years of field trials

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## **80<sup>th</sup> IIRB Congress Venue**

Churchill College, University of Cambridge  
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The International Institute of Sugar Beet Research (IIRB aisbl) connects science, breeding companies, industry, and innovation in sugar beet production worldwide. Since 1931, the IIRB has brought together researchers, companies, and experts to exchange knowledge, foster collaboration, and help shape the future of sugar beet research.

For those looking to become part of a strong international network dedicated to scientific progress and practical impact, the IIRB offers a platform for dialogue, cooperation, and innovation.

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