



FORUM BETASOL

FIELD GUIDE

FIELD DAY - 01. SEP. 2026

UNDERSTANDING **PRACTICE.**

ASSESSING **IMPACTS.**

MAKING **DECISIONS.**



PROGRAMME

FIELD DAY & KNOLLENDIALOG

01. SEP. 2026



REGISTRATION · 10:30 A.M.
Hagenbräu · Am Rhein 3 · 67547 Worms



WELCOME



BUS TRANSFER · 11:30 A.M.
TO THE TRIAL SITE



VISIT TO THE TRIALS · 12:40 A.M.
TOPIC AREA 1



**CHANGEOVER BETWEEN
TOPIC AREAS** · 2:45 P.M.



VISIT TO THE TRIALS · 3:00 P.M.
TOPIC AREA 2



BUS TRANSFER · 5:15 P.M.
RETURN TO HAGENBRÄU



**KNOLLENDIALOG &
DINNER** · 7:00- 10:00 P.M.
Hagenbräu · Am Rhein 3 · 67547 Worms



OVERVIEW OF STATIONS



SECTION A SUGAR BEET



SECTION B POTATOES & VEGETABLES



Tip:

The station numbers and colours in the field guide will help you find your way around quickly on site.



SECTION A SUGAR BEET

- 1 Practical Approaches in the Field
- 2 Variety Trials
- 3 Yield & Secondary Infections
- 4 EffectorSelect
- 5 Monitoring & Role of Official Advisory Services
- 6 Insecticides & Model Region



SECTION B POTATOES & VEGETABLES

- 1 Planthopper management in small-plot trials
- 2 Three-year field trials
- 3 Approaches to reducing BPW in the field
- 4 Effects of BPW on ware & seed potatoes
- 5 Detection of Bacterial Vegetable Wilt & Vector Monitoring
- 6 MagicTrap Sticky & PhenoTruck

MORE INFORMATION AT: WWW.BETASOL.INFO



STATIONS

SUGAR BEET

FIELD MAP SUGAR BEET



Overview of stations and demonstration areas



FURTHER INFORMATION AT: **WWW.BETASOL.INFO**

KUMBIT

PRACTICAL

APPROACHES IN THE FIELD

What practical measures can farmers implement to reduce planthopper pressure?

This station presents practical approaches to crop rotation, cover crops and soil tillage. Different crops, including maize, soybean, sorghum, and oilseed radish, are compared with regard to their potential impact on planthopper populations. The objective is to reduce planthopper populations by starving the overwintering nymphs. To achieve this, crop rotation trials are established by dividing sugar beet and potato fields after harvest. One half is planted with a winter crop, while the other half remains fallow until maize is sown as the subsequent spring crop. Before the adult planthoppers emerge from the soil, pop-up emergence tents equipped with sticky traps are installed in both treatments to monitor and compare adult emergence.

The cover crop trials follow a similar approach. After harvest, the fields are divided into two sections: one half remains fallow, while the other is sown with a cover crop. In the following spring, a summer crop is established across both treatments. Pop-up emergence tents, each fitted with a sticky trap, are installed in both variants to record and compare the number of emerging planthoppers.

In addition, a soil tillage trial was established to investigate whether deep soil cultivation immediately after sugar beet harvest can reduce the number of soil-dwelling nymphs. To test this hypothesis, a field was divided into two treatments in autumn 2025. Following an early sugar beet harvest, one half of the field was subjected to deep tillage, while the other half received the farm's standard tillage practice.

In the following spring, after the summer crop had been sown, pop-up emergence tents equipped with sticky traps were installed in both treatments to monitor and compare the emergence of adult planthoppers from the soil.





2

STATION

ARGE ZUCKERRÜBE SÜDWEST VARIETY TRIALS:

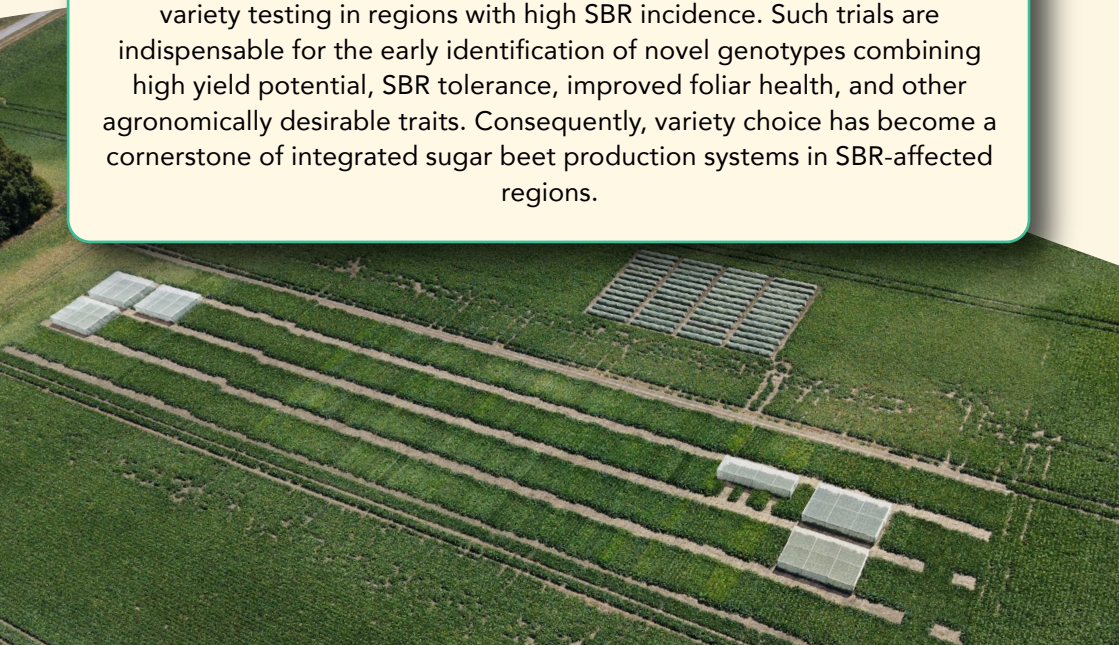
VARIETY SELECTION REMAINS A KEY MANAGEMENT TOOL

Variety choice is a key determinant of successful sugar beet production. The registration of the first SBR-tolerant sugar beet variety, Fitis, in 2021 represented a major milestone, as it exhibited substantially superior performance under *Syndrome basses richesses* (SBR) infection compared with established commercial varieties.

Fitis first gained particular attention in the variety trials conducted by the Sugar Beet Working Group South-West, especially under the high planthopper pressure prevailing in this region. Although the variety maintained excellent yield performance under SBR infection, it showed deficiencies in leaf health and several other agronomically important traits. At that time, neither varieties with improved leaf health nor Conviso varieties achieved a comparable level of performance under SBR pressure. The 2024 variety trials marked the first identification of a variety combining improved leaf health with favourable performance under SBR infection.

In 2025, two Conviso varieties were subsequently identified that also demonstrated stable performance under disease pressure.

These findings underscore the critical importance of multi-environment variety testing in regions with high SBR incidence. Such trials are indispensable for the early identification of novel genotypes combining high yield potential, SBR tolerance, improved foliar health, and other agronomically desirable traits. Consequently, variety choice has become a cornerstone of integrated sugar beet production systems in SBR-affected regions.



KUMBIT

YIELD AND SECONDARY INFECTIONS

IN FOCUS

An important component of the EIP-Agri project KumbIT is the investigation of the effects of *Pentastiridius leporinus* on sugar beet and potato crops. For this purpose, insect-proof net cages have been established at several trial sites to create different infestation scenarios by deliberately introducing defined numbers of adult planthoppers. In addition to three treatment variants (field conditions, net cages with planthopper infestation, and net cages without planthopper infestation), susceptible and tolerant genotypes are being compared under both cage and open-field conditions. The aim is to improve our understanding of the relationship between infestation intensity, pathogen transmission, disease development, and the resulting yield and quality losses.

Furthermore, the project examines how overall plant health influences susceptibility to other diseases. Stressed or weakened plants are often more vulnerable to additional biotic and abiotic stress factors, which can promote secondary infections and further reduce crop performance. Given that rhizomania occurrence and partial resistance breakdowns have already been reported in the region, an additional trial was established at the Ibersheim site to investigate potential interactions between SBR and rhizomania. Sugar beet grown inside insect-proof net cages, which prevent the immigration of *P. leporinus*, is compared with unprotected field plots exposed to natural infestation. The objective is to determine whether planthopper infestation increases the severity of rhizomania and the associated yield losses. The experimental setup allows to assess whether plants weakened by SBR are more susceptible to additional stress caused by rhizomania and whether tolerant genotypes are better able to cope with these combined stress factors.





IFZ & UNIVERSITÄT HOHENHEIM EFFECTORSELECT

IDENTIFICATION OF EFFECTORS OF SBR AND STOLBUR PATHOGENS FOR THE SELECTION OF TOLERANT SUGAR BEET VARIETIES

The disease “*Syndrome des Basses Richesses*” (SBR) is caused by the γ -proteobacterium *Candidatus Arsenophonus phytopathogenicus* (ARSEPH) and the phytoplasma *Candidatus Phytoplasma solani* (PHYPSO). Both pathogens are mainly transmitted by the planthopper *Pentastiridius leporinus*, which is rapidly spreading from southern to northern Germany. In particular, mixed infections can cause severe yield losses in sugar beet, potentially resulting in total crop failure. In sugar beet, the disease is characterized by yellowing of the leaves, asymmetric leaf development, rubbery beet roots, and a substantial reduction in sugar content.

Effectors are proteins that are specifically secreted by bacterial pathogens into the plant in order to overcome plant defense mechanisms, enable successful infection, and induce disease symptoms. The aim of the project is to identify essential effectors of different ARSEPH and PHYPSO strains and, based on the data obtained, to facilitate the selection of tolerant varieties.

In the first step, potential effector gene candidates were predicted using bioinformatic analyses and further narrowed down through functional and phylogenetic analyses. In the next step, the function of the predicted effector candidates will be validated by transient expression of the candidates in *Nicotiana benthamiana* and sugar beet.

In addition, effector expression will be investigated in different sugar beet varieties under field conditions. For this purpose, six genotypes with different levels of susceptibility will be grown at four sites with natural infection pressure. Healthy control plants will be covered with insect-proof nets to protect them from infection by the pathogens.

The expression of the effector candidates will be quantified at three different time points, both relatively and absolutely, using RT-qPCR. Subsequently, effector candidate expression will be correlated with symptom severity, sugar content, and amino acid content as determined by beet pulp analyses.

5

STATION

DLR & RP GIESSEN MONITORING

& THE ROLE OF OFFICIAL ADVISORY SERVICES

The Hessian Plant Protection Service and DLR Rhineland-Palatinate monitor the occurrence of the planthopper annually. Trials are conducted to develop containment measures. Strategies for controlling the reed planthopper are communicated to practitioners through the official plant protection warning service. The aspects of the technical work presented at the stand are divided into the following focus areas.

MONITORING

- Presentation of the statewide monitoring program with monitoring sites in Hesse and Rhineland-Palatinate in sugar beet, potatoes, and vegetables.
- Presentation of pathogen loads in different regions and crops.
- Regional Warning Service
- Presentation of the spread of the reed planthopper over several years.
- Presentation of changes in hotspot, transition, and border regions in sugar beet.
- Presentation of flight curves with the integration of the timing of warning service alerts in sugar beet.
- Explanation of the control strategy in sugar beet.

TRIALS

- Presentation of trial results on the control of nymphs (pot trials).
- Presentation of trial results on the control of adult reed planthoppers.

LABORATORY

Presentation of the laboratory work for identifying the reed palanthopper.

Explanation of the methodology used to detect pathogens.

Instruments and examination materials will be displayed for hands-on inspection.

PFEIFER & LANGEN

2 YEARS OF MONITORING IN RECENTLY INFESTED AREAS:

Vector and pathogen spread beyond visible symptoms
and yield loss calls for preventive action

The vector *Pentastiridius leporinus* and the SBR-complex are increasingly spreading into previously less affected sugar beet growing regions. This station presents the results of two years of monitoring in the western

German border regions. It demonstrates how the combination of planthopper monitoring, individual beet analyses and the investigation of beet pulp samples enables the early detection of newly infested areas – often before visible symptoms or economic losses occur, and even before planthoppers are detected in the field. Preventive monitoring is essential for identifying population dynamics at an early stage and implementing appropriate measures to slow the spread. Close collaboration between research and practice, together with a coordinated European strategy, is required to develop effective preventive and curative solutions for controlling both the vector and the pathogens.



6

STATION

SÜDZUCKER & KURATORIUM FÜR VERSUCHSWESEN
& BERATUNG IM ZUCKERRÜBENANBAU

SBR- MODEL REGIONS & ON-FARM TRIALS

The focus of this station is on on-farm trials and projects aimed at developing practical SBR management strategies. Together with growers, growers' associations, plant breeders, and research partners, Suedzucker develops solutions that can be rapidly implemented in farming practice.

The objective is to secure root yield and sugar content in sugar beet production, both in the short term and over the long term under SBR conditions.

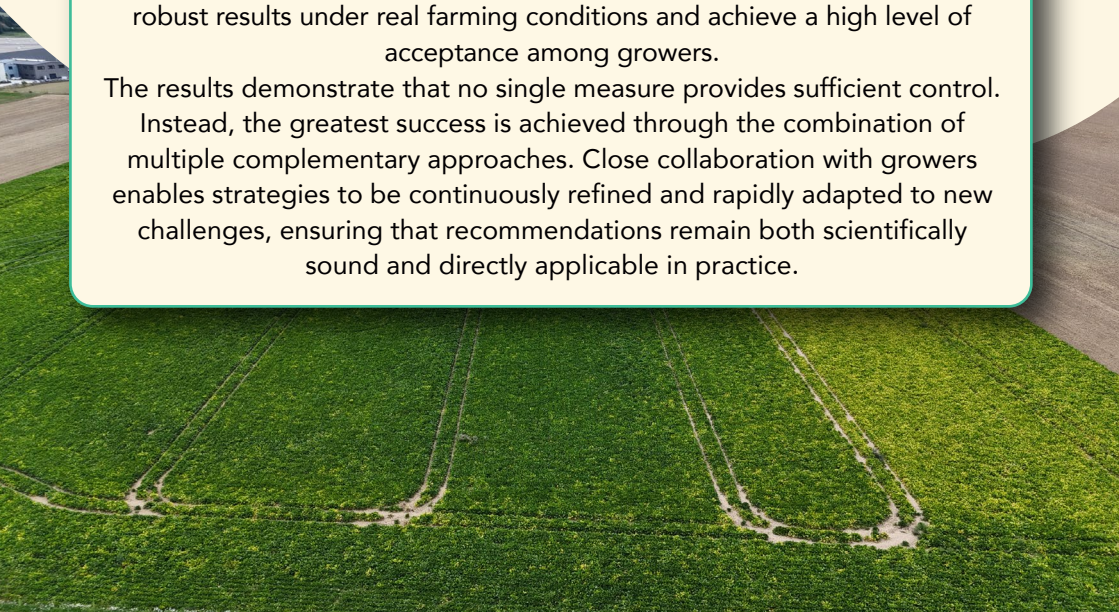
To achieve this, several complementary trial systems are combined, including on-farm trials conducted under commercial farming conditions, small-plot trials, studies in sugar beet and follow-on crops, and large-scale model regions. In 2025 alone, more than 170 trial sites were established with the active participation of over 100 growers.

A key focus is the evaluation of integrated mitigation strategies. Research includes insecticide programmes for vector control, adapted crop rotations, needs-based nutrient management, and other agronomic measures.

Large-scale on-farm trials are particularly important because they provide robust results under real farming conditions and achieve a high level of acceptance among growers.

The results demonstrate that no single measure provides sufficient control.

Instead, the greatest success is achieved through the combination of multiple complementary approaches. Close collaboration with growers enables strategies to be continuously refined and rapidly adapted to new challenges, ensuring that recommendations remain both scientifically sound and directly applicable in practice.





STATIONS – VEGETABLES &
POTATOES

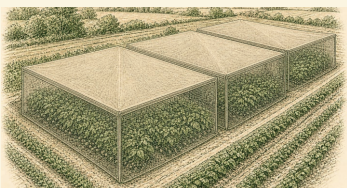
FIELD MAP POTATO & VEGETABLES



Overview of stations and demonstration areas

2

Three-year field trials
SIKAZIKA and KumbIT



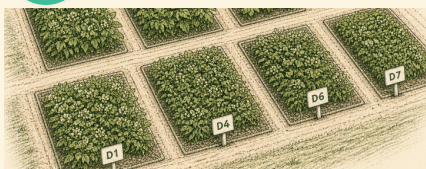
4

Effects of BPW on ware and seed potatoes



1

Planthopper management in small-plot trials KARTOZIK



3

Approaches to reducing BPW in field stands TH Bingen



5

Detection of bacterial vegetable wilt & vector monitoring

Bioland e.V., LTZ Augustenberg & PlantSafe



6

MagicTrap Sticky

Bayer CropScience
& **PhenoTruck** Fraunhofer



1

STATION

KARTOZIK



PLANTHOPPER MANAGEMENT

IN SMALL-PLOT TRIALS

The EIP project KARTOZIK is now in its third year of trials and investigates various management measures to reduce damage caused by bacterial potato tuber wilt (BPW).

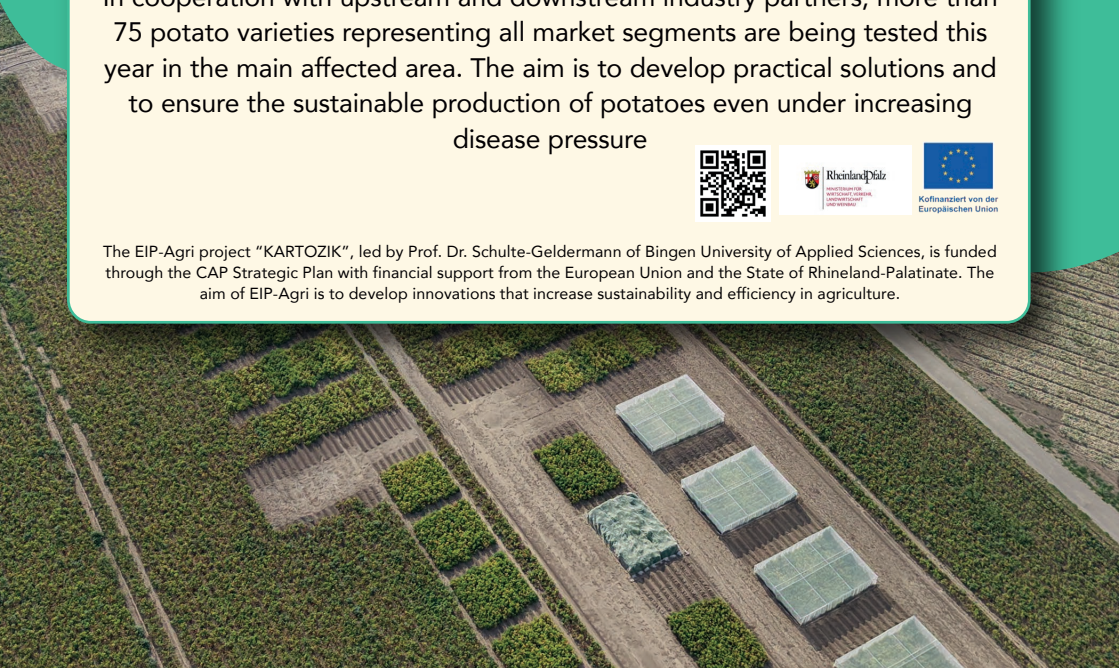
Variety selection has proven to be one of the most important influencing factors. Numerous potato varieties are being tested under identical conditions at the trial sites. After harvest, the varieties are assessed for typical symptoms, and the processing quality of the tubers is evaluated. In addition, storage trials are conducted to assess the varieties in terms of storability, sugar content, frying colour, and potential quality losses caused by BPW.

The field trials are planted using proven technology and harvested with a modern semi-autonomous potato harvester (Harvey.One), enabling small-plot trials to be harvested efficiently and precisely.

In cooperation with upstream and downstream industry partners, more than 75 potato varieties representing all market segments are being tested this year in the main affected area. The aim is to develop practical solutions and to ensure the sustainable production of potatoes even under increasing disease pressure



The EIP-Agri project "KARTOZIK", led by Prof. Dr. Schulte-Geldermann of Bingen University of Applied Sciences, is funded through the CAP Strategic Plan with financial support from the European Union and the State of Rhineland-Palatinate. The aim of EIP-Agri is to develop innovations that increase sustainability and efficiency in agriculture.



2

STATION

SIKAZIKA & KUMBIT



THREE-YEAR FIELD TRIALS

The Hessian EIP project **SIKAZIKA** was successfully completed in April 2026. As part of the project, ware potato cultivars were assessed in strip trials to determine their reaction to Bacterial Potato Tuber Wilt. In the three-year comparative study, two cultivars showed greater robustness.

One major focus of the EIP project **KumbIT** is the investigation of the impact of *Pentastiridius leporinus* on potatoes under defined infestation pressure.

The aim is to assess and quantify the resulting economic damage.

For this purpose, large insect-proof cages provided by Howitec were installed at three trial sites, in which different numbers of *P. leporinus* were deliberately introduced. The graduated infestation densities allow the relationship between planthopper population density, disease development, symptom severity, and yield losses to be evaluated. In addition, the pathogen load of the tuber is analysed after harvest. Furthermore, the project investigates the influence of early and late planting dates on potato yield and tuber quality under infestation pressure. For this purpose, the different treatments were established in the open field and under insect-proof netting.



SIKAZIKA was funded by the EU under the European Innovation Partnership (EIP-Agri) and the state of Hesse under the GAP Strategy Plan for the Federal Republic of Germany from May 2023 to April 2026. The objective of EIP-Agri is to develop innovations that enhance sustainability and efficiency in agriculture.

The project "KumbIT" of the association of Hessian-Palatinate sugar beet growers is funded under the EULLE Development Program with the participation of the European Union and the State of Rhineland-Palatinate, represented by the Ministry for Economic Affairs, Transport, Agriculture and Viticulture.



3

STATION



TH BINGEN

APPROACHES

TO REDUCING BPW IN THE FIELD

Pentastiridius leporinus acts as a vector for the two bacterial pathogens *Candidatus Arsenophonus phytopathogenicus* and *Candidatus Phytoplasma solani*. In potatoes, these pathogens cause "bacterial potato tuber wilt," which can lead to, among other effects, reduced tuber size, the formation of soft/rubbery tubers, and increased sugar content. Since 2022, several research projects at Bingen University of Applied Sciences have investigated the effects of different management options on pathogen-related damage. These include variety selection, cultivation under insect exclusion netting, mulching methods, undersowing, different planting and harvest dates, and the use of plant strengthening agents. The aim is to investigate the influence of different cultivation parameters on the symptoms of bacterial potato tuber wilt, as well as related parameters such as yield and harvest quality for different market segments. In addition, research is being conducted on the population dynamics of the vector and measures to reduce its occurrence. The most important results will be presented at the BETA-SOL Field Day.

4

STATION

EFFECTS OF BPW

ON WARE AND SEED POTATOES

The consequences of Bacterial Potato Tuber Wilt (BPW) are diverse and vary depending on potato use. In ware potatoes, infections can cause yield losses depending on the cultivar and, in particular, negatively affect internal quality. In addition to yield reductions, browning of the vascular ring and heel end necrosis can result in losses of up to 60 %. As market acceptance may already decline when internal defects exceed 10 %, affected lots can quickly become completely unmarketable.

With the increasing spread of *Pentastiridius leporinus*, seed potatoes are facing an increasing risk of infection. Besides emergence problems caused by stolbur phytoplasmas and *Arsenophonus*, it remains unclear how infected planting material affects subsequent yield and tuber quality. When infected seed potatoes are grown in areas with disease pressure, plants are exposed to a double burden from infected planting material and new infections during the growing season. The effects of infected seed potatoes are being investigated in the new Hessian EIP-Project "HESPA".

Within integrated pest management, insecticides, plant strengtheners, and biostimulants are increasingly being considered as potential measures to reduce the impact of BPW. However, reliable data on their efficacy and their influence on disease development, yield, and potato quality are still lacking.



HESPA is funded by the EU under the European Innovation Partnership (EIP-Agri) and the state of Hesse under the GAP Strategy Plan for the Federal Republic of Germany from April 2026 to March 2029. The objective of EIP-Agri is to develop innovations that enhance sustainability and efficiency in agriculture.



5

STATION

LTZ AUGUSTENBERG

EVIDENCE OF BACTERIAL VEGETABLE WILT

IN BADEN-WÜRTTEMBERG AND FINDINGS FROM VECTOR MONITORING

In Baden-Württemberg, diseases caused by both *Candidatus* *Phytoplasma solani* (PHYPSO) and *Candidatus* *Arsenophonus phytopathogenicus* (ARSEPH) have spread from areas with concentrated sugar beet cultivation to various vegetable crops, leading to yield reductions that were, in some cases, significant. The main vector in sugar beets, the planthopper *Pentastiridius leporinus*, was also found in large numbers during monitoring of vegetable crops in Baden-Württemberg in 2025 and 2026. However, the number of insects captured did not always correspond to the extent of the damage. The monitoring program therefore also records other potential vectors that could contribute to the diseases.

To ensure high-quality fresh vegetables, one possible control measure against planthoppers is covering crops with netting. However, experimental results indicate limitations to this approach in vegetable crops.

Nymphs of the planthopper were able to hibernate in winter wheat planted as a follow-up crop after an infestation of red beets. Suitable cover crops that can be grown after an infestation with the planthopper and PHYPSO or ARSEPH have yet to be identified for subsequent crops of Brassicaceae.





VERBAND BADEN-WÜRTTEMBERG.
ZUCKERRÜBENANBAUER E.V.

PLANTSAFE

DETECTION IN BADEN-WÜRTTEMBERG AND INSIGHTS FROM VECTOR MONITORING

The planthopper (*Pentastiridius leporinus*) and the pathogens it carries, SBR and stolbur, are spreading and pose a growing threat to sugar beet, potatoes and vegetables. Because the planthopper lives on several crops, PlantSafe (2025–2028, funded through the EAFRD and the State of Baden-Württemberg) works across crops and across the whole farm. The aim is to keep the planthopper's numbers in check and make these crops more reliable to grow in the affected regions.

At this station we give an overview of the field trials running in 2026: hoeing and insecticide trials, stand density, biological boundary strips, and variety, flight-height and netting trials.



This project is funded by the European Union under the EAFRD and by the State of Baden-Württemberg.

Foto: Hanfversuch Projekt PlantSafe Lea Hettler

5

STATION

BIOLAND DETECTION

OF BACTERIAL VEGETABLE WILT & VECTOR MONITORING

The station focuses on the occurrence of the planthopper (*Pentastiridius leporinus*) and the phloem-limited bacteria transmitted by this vector, 'Candidatus *Arsenophonus phytopathogenicus*' and the stolbur-phytoplasmas 16SrXII-A and 16SrXII-P, in annual and perennial vegetable crops. The focus is on the symptoms observed in beetroot, carrot, parsnip, root parsley, celeriac, sweet pepper and rhubarb, and on the pathogens detected in symptomatic plants.

In addition, the station examines which vegetable crops may be of epidemiological importance for the vector and the associated pathogens.

Visitors can examine symptomatic plants from particularly affected production areas directly in the field and discuss current findings. It will also be shown in which crops nymphs of the planthopper were found in 2024, 2025 and 2026, which factors determine the level of risk in a production region, and which measures are currently available to growers and have already been implemented.



6

STATION

MAGICTRAP STICKY

DIGITAL PLANTHOPPER MONITORING.

NEW POSSIBILITIES FOR MONITORING VECTOR POPULATIONS

Monitoring cicada populations is essential for better understanding the occurrence of vectors and the spread of diseases. Traditional monitoring using sticky traps provides valuable information, but it requires regular field checks and is time-consuming to analyze the catches.

Digital monitoring systems open up new possibilities for tracking populations more closely and efficiently. Bayer's MagicTrap Sticky combines proven sticky traps with automated image capture and digital data analysis. This allows traps to be checked more frequently without the need for daily field visits. The captured image data is automatically made available to the user daily via the app. This helps users monitor changes in population levels throughout the season and make better-informed decisions based on real-time observations.

At this station, Bayer's MagicTrap Sticky will be presented as a new approach to digital cicada monitoring. The system itself, the digital recording of catches, and results from the current season will be demonstrated. In discussions with product stakeholders, practical experiences as well as the opportunities and challenges of digital monitoring for the future surveillance of cicada populations can be explored.



MagicTrap

6

STATION

FRAUNHOFER

PHENOTRUCK

THE MOBILE LABORATORY AT THE FIELD EDGE

The PhenoTruck® brings modern laboratory, sensor and AI technologies directly to where plant diseases occur – in the field. The all-terrain vehicle is equipped with two fully functional laboratory units and, thanks to its independent power supply and climate control, can operate largely independently of stationary infrastructure. Plant samples can therefore be prepared, analysed and digitally documented directly on site.

A key focus is the combination of different diagnostic methods. In the molecular biology laboratory, samples can be prepared and analysed directly on site using LAMP or PCR methods. In addition, a mobile hyperspectral measurement system records characteristic spectral properties of plants. AI models are used to evaluate these data and support the development of hyperspectral rapid-testing methods.

For the analysis of entire crop stands, the PhenoTruck® also uses multispectral drones and digital field assessment with GNSS integration.

Georeferenced data make it possible to detect, locate and document abnormalities and crop damage. In this way, the PhenoTruck® combines conventional diagnostics, modern sensor technology and digital data analysis in one mobile system.

At this station, visitors can explore the mobile laboratory and learn how molecular diagnostics, hyperspectral analysis, AI, drones and digital field assessment can contribute to faster and more precise detection and investigation of plant diseases directly in the field.



DISEASE & PATHOGENS



PATHOGENS:

- *Candidatus* Phytoplasma solani (Stolbur phytoplasma) (EPPO: PHYPSO*) comprises multiple genetic strains; however, two subgroups (Ca. Phytoplasma solani 16SrXII-A, Stolbur-related strain 16SrXII-P) are considered most relevant in the disease epidemiology.
- γ -Proteobacterium *Candidatus* Arsenophonus phytopathogenicus (ARSEPH) in sugar beet, potato and onion, EPPO: ARSEPH.



DISEASES AND TERMINOLOGY:

Phloem Pathogen-Associated Wilt Syndrome (PAWS) comprises the following crop-specific diseases, which are consistently associated with ARSEPH and may optionally involve PHYPSO (Pfitzner et al., 2026):



Syndrome Basses Richesses (SBR-complex) in sugar beet is always associated with ARSEPH and optionally with PHYPSO. Known vectors are *Pentastiridius leporinus* (16SrXII-A; 16SrXII-P) and *Reptalus quinquecostatus* (16SrXII-A; 16SrXII-P (in Austria)) (Kreitzer et al., 2025).



Bacterial Potato Tuber Wilt (BPW), also known as Bakterielle Kartoffelnollen-Welke (BKW; in German), is always associated with ARSEPH and optionally with PHYPSO in potatoes. Known vector is *P. leporinus* (16SrXII-A; 16SrXII-P).



Bacterial Vegetable Wilt (BVW) is always associated with ARSEPH and optionally with PHYPSO in vegetable crops. Known vector is *P. leporinus* (16SrXII-A; 16SrXII-P).



SYMPTOMATICALLY SIMILAR DISEASES:

- Stolbur disease in potato is associated with PHYPSO only, and the vectors are *Hyalestes obsoletus*, *Reptalus panzeri*, and *R. quinquecostatus*.
- Rubbery Taproot disease (RTD) is associated with PHYPSO and sugar beet only, and the vectors are *H. obsoletus*, *R. panzeri*, and *R. quinquecostatus*.



PHYPSO corresponds besides others to subgroup 16SrXII-A; however, conventional and quantitative PCR assays based on standard, commonly used primer systems do not allow discrimination between the two closely related subgroups which are A and the newly identified Stolbur-related strain 16SrXII-P (Duduk et al., 2023; Toth et al., 2025). Here, PHYPSO is therefore used as a general term, without differentiation between subgroups.

Duduk B., Ćurčić Ž., Stepanović J., Böhm J.W., Kosovac A., Rekanović E., Kube M. (2023): Prevalence of a '*Candidatus* Phytoplasma solani'-Related strain designated as new 16SrXII-P subgroup over '*Candidatus* Arsenophonus phytopathogenicus' in sugar beet in Eastern Germany, *Plant disease* 107 (12), 3792–3800; DOI: 10.1094/PDIS-04-23-0613-RE

Kreitzer C., Stepanović J., Stanojević N., Rohringer A., Seiter M., Rekanović E., Duduk B. (2025): Dominant cixiid vector and transmission of '*Candidatus* Arsenophonus phytopathogenicus' and '*Candidatus* Phytoplasma solani'-related strain 16SrXII-P in sugar beet in Austria, *SciRep* 15, 22526; DOI: 10.1038/s41598-025-07035-0

Pfitzner H., Dettweiler A., Kaufmann T., Adam S., Stohl J., Adam-Schilling H., Löffler D., Benaouda S. (2026): *Pentastiridius leporinus* as a plant disease vector: Updated insights, emerging challenges, and research priorities, *Sugar Industry International* 151 (6), 461–471; DOI: 10.36961/si34841

Toth R., Huettel B., Varrelmann M., Kube M. (2025): The 16SrXII-P Phytoplasma GOE Is Separated from Other Stolbur Phytoplasmas by Key Genomic Features, *Pathogens* 14, 180; DOI: 10.3390/pathogens14020180

DEVELOPING PRACTICAL SOLUTIONS TOGETHER

The BetaSol Forum thrives on a strong network of research, practice, industry and associations. Together, we are shaping sustainable strategies for the future of crop production.

PARTNERS & EXHIBITORS



MagicTrap



HOWITEC
partner in netting solutions



BETASEED. SIMPLY DIFFERENT.



PHYTOPLANTA



An Agricultural
Sciences Company



GRIMME



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on the programme,
speakers and much more.