July 2026

Newsletter #1

senseApest project

Briefing

senseApest is a European Project funded by Horizon Europe under the call HORIZON-CL6-2024-FARM2FORK-02 with Grant ID 101181582.

The objective is to develop a portable air analysis device (PDU) for on-site pest detection during plants import controls.

The project is coordinated by CNRS and has a consortium of 11 European partners.

- **Project type:** Innovation Action (IA)
- **Duration:** 4 years (1st September 2025 – 31st August 2029)
- **Total budget**: € 5 620 149 with EU funding of € 4 499 700 and with Swiss funding of € 790 978

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TOPIC 1 senseApest activities

Introduction

This first newsletter of the senseApest project provides an **overview of the key activities, achievements, and progress made during the first year of the project.** After ten months of collaboration, senseApest has reached important milestones and strengthened its foundations for the years ahead.

This first year has contributed to:

- a better **understanding of the project's objectives**, expectations, and the respective roles of each partner;
- **stronger collaboration, coordination, and trust** among consortium members;
- the establishment of **synergies and partnerships** with related European projects;
- **promising scientific advances** supporting the development of the **Portable Detection Unit (PDU).**

Fig. 1: Picture of a *Nezara viridula.*

After ten months of collaboration, senseApest has reached important milestones and strengthened its foundations for the years ahead.

To highlight these achievements, this newsletter is structured around **three main topics**: **Topic 1** presents the main activities and milestones of senseApest; **Topic 2** focuses on the scientific progress and technological developments achieved so far; and **Topic 3** highlights the project's dissemination, communication activities, and engagement with stakeholders.

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TOPIC 1 senseApest activities

Consortium meetings

Kick-off meeting, September 2025

Firstly, almost one month after the official launch of the project, CNRS welcomed on 29–30 September 2025 the senseApest consortium to Strasbourg, for the **project's official Kick-off meeting**, marking the beginning of an exciting four-year collaboration.

The Kick-off meeting, marking the beginning of an exciting four-year collaboration.

The two-day **hybrid meeting** brought together **25 participants** on site (Fig.2, Fig.3, Fig.4), with many consortium members meeting each other in person for the first time. The event provided an **excellent opportunity to establish strong working relationships, align objectives, and lay the foundations** for the successful implementation of the project.

Fig. 2: The consortium partners in CNRS.

Fig. 3: Picture of the consortium partners.

The programme included:

- Presentations and discussions on the **project's objectives, work packages, governance** structure, and working groups;
- An overview of the **project timeline** and **communication strategy**;
- Valuable contributions from the **Project and Policy Officers** of the European Commission, namely **Giovanna Rizzetto** and **Gisela Quaglia**;
- A presentation by the CNRS Alsace Regional Delegation's Partnership Service (SPV), with Typhanie Roy and Nelly Gautier introducing the **specificities of Horizon Europe** collaborative projects;
- **Guided visits** in the two CNRS laboratories involved in the project, ICPEES and LIMA.

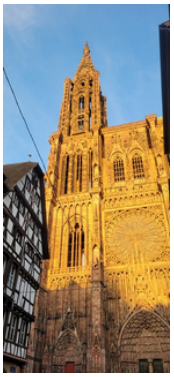

Fig. 4: Strasbourg's cathedral.

TOPIC 1

senseApest activities

Consortium meetings

2nd online Consortium Meeting, January 2025

Then, on 19–20 January 2026, the senseApest consortium met online for its second Consortium Meeting, building on the momentum established during the Kick-off Meeting held in Strasbourg in September 2025 (Fig.5).

An online meeting to share the latest progress achieved and upcoming milestone.

Over two days, consortium partners presented the latest progress achieved within each Work Package, reviewed ongoing activities, and discussed upcoming milestones.

The meeting provided an important opportunity to exchange scientific and technical expertise, address challenges, and ensure effective coordination across the consortium.

Fig. 5: Screenshot of the online meeting.

TOPIC 1 senseApest activities

Participation to conferences

IPM Essen, January 2026

Representatives from senseApest and PurPest attended the **IPM plant tradeshow in Essen**, Germany in January 2026.

The IPM Essen is the leading trade fair for horticulture in the world.

The IPM Essen (www.ipm-essen.de) is the **global meeting platform for the plant industry.**
From the 26th to the 291th of January, 2026, **1476 exhibitors from more than 40 nations** reached out to colleagues and clients and showed their most recent developments from new plant varieties, floral trends and technology.

senseApest was presented as the follow up project of PurPest and was featured during the **oral presentation** on electronic noses for pest and pathogen detection. During the presentation, Andrea Ficke, WP2 leader from senseApest, explained the **need for fast and correct identification of pests and diseases in plant nurseries** and under transport conditions, highlighting the **need for sensor innovation** and potential to ensure plant health locally and globally (Fig.6).

“ There is a need for fast and correct identification of pests and diseases in plant nurseries and under transport conditions.”

Fig. 6: Andrea Ficke (NIBIO, Norway) presenting PurPest and senseApest projects at the conference.

In addition, there was an informative **brochure** about senseApest that was handed out to visitors at our senseApest/PurPest exhibition stand.

TOPIC 1 senseApest activities

Participation to conferences

FAO Rome, CPM-20 Plant health Innovation fair, March 2026

The senseApest poster was presented at the CPM-20 **Plant Health Innovation Fair 2026**, held on 13 March 2026 at FAO Headquarters, Rome. The event focused on **innovations supporting plant health, phytosanitary surveillance, pest diagnostics, inspections, risk analysis and decision-making.** The associated website is the official International Plant Protection Convention (IPPC) CPM-20 Plant Health Innovation Fair page: *https://www.ippc.int/en/commission/cpm/cpm-sessions/cpm-20-2026/cpm-20-plant-health-innovation-fair/?utm_source*

Innovations supporting plant health, phytosanitary surveillance, pest diagnostics, inspections, risk analysis and decision-making.

The **poster** presented the senseApest concept of **developing a portable air analysis device for on-site pest detection during plant import controls.** It highlighted how the project aims to detect **pest-related volatile organic compounds and support faster, non-invasive screening at inspection points.**

Fig. 7: Nikita Dara (WU, The Netherlands) & Daniele Zatta (UNIPD, Italy) next to the poster at the conference.

The poster also introduced the project's work packages, expected outcomes and potential contribution to strengthening **plant health monitoring and import control procedures**. Project representatives and PhD students **Nikita Dara** and **Daniele Zatta** presented the project concept and discussed its relevance with plant health stakeholders (Fig.7).

The event provided **an opportunity to engage with interested attendees**, gather contacts and onboard several **stakeholders** who expressed interest in contributing to future senseApest activities.

TOPIC 1 senseApest activities

Participation to conferences

44th International Symposium on Capillary Chromatography & 21st GCxGC, May 2026

The conference took place from May 18 to 22, 2026 in **Riva del Garda** in Italy for a symposium, an **inspiring international event bringing together experts in analytical chemistry and chromatography from around the world.**

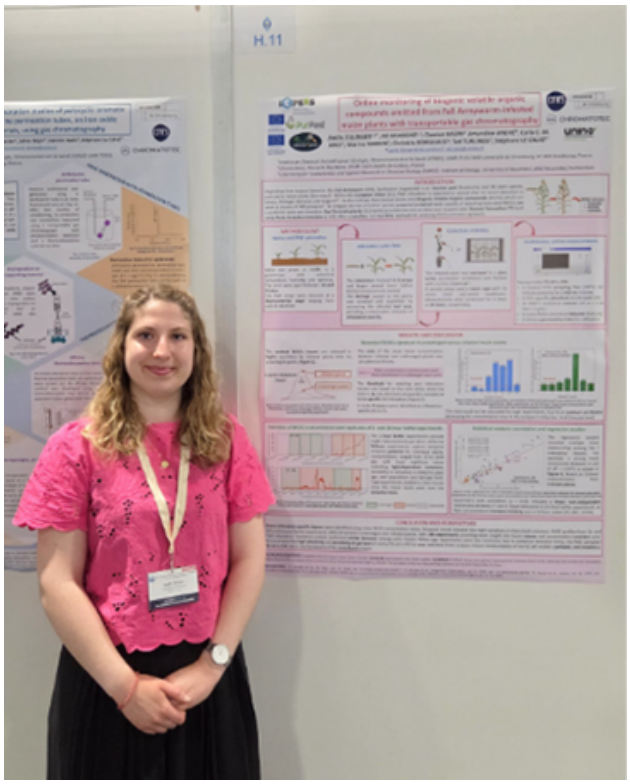

Fig. 8: Axelle Fillinger (CNRS, ICPEES, France) presenting her poster at the conference.

It was a fantastic opportunity to meet and **exchange ideas with other scientists.** Axelle had the chance to discuss of her work with researchers from different countries, which helped her gain new perspectives on the project. Talking with companies also gave her new insights, making the event both productive and enjoyable.

An event bringing together experts in analytical chemistry and chromatography from around the world.

The conference covered many topics in analytical chemistry, such as **sampling, extraction, separation, optimization, and new technologies.** There were also discussions about applications in food, petrochemicals, aromas, contaminants, VOCs, and pharmaceuticals.

As part of the senseApest European Union project, she presented a **poster** entitled: ***« Online monitoring of Biogenic Volatile Organic Compounds from Fall Armyworm-Infested Maize Plants using Transportable Gas Chormatography. »*** (Fig.8). This work focuses on developing methods to detect plant stress caused by pests, which is crucial for sustainable agriculture.

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TOPIC 1 senseApest activities

Participation to conferences

ICABR Annual Conference, July 2026

The senseApest project was presented at the **International Consortium on Applied Bioeconomy Research (ICABR) Annual Conference 2026** (Fig 7.) through a 1.5-hour panel session covering the project's scientific, technological, and economic dimensions.

Kutay Cingiz (Wageningen University, (WU)) introduced the project, highlighting the challenge of **invasive pests entering Europe through imported plant material**, the limitations of current inspection methods, and the potential of the Portable Detection Unit (PDU) to support real-time pest detection using plant–pest VOCs.

Fig. 7: Kutay Cingiz (WU, The Netherlands), Nikita Dara (WU, The Netherlands) & Daniel Nilsen Wright (SINTEF, Norway) presenting at the conference.

Daniel Nilsen Wright (SINTEF) presented the **sensor development and integration work**, explaining how gas- and liquid-based modules, together with several sensor technologies, are being evaluated for their sensitivity, selectivity, portability, and suitability for detecting different VOCs.

Nikita Dara (WU) presented the proposed **economic assessment methodology**, which combines real options analysis, pest impact modelling, and an end-user survey to assess the timing and economic justification of PDU deployment, the potential costs associated with target pests, and the practical conditions influencing stakeholder adoption.

The audience responded positively to the project's integrated approach and raised questions about **sensor performance, device durability, expected lifespan, component replacement, and potential applications beyond import controls**. The session also generated interest among participants working in sensor-based agricultural technology and insect science, with several expressing an **interest in joining the senseApest Stakeholder Committee.**

TOPIC 2 Scientific project progress

Work package 2 *(1/2)*

VOC specifications – NIBIO

In WP2, UNIPD and NIBIO are **identifying volatile organic compounds** relevant **to detect senseApest target pests (Brown marmorated stink bug, Green marmorated stink bug, Japanese beetle and various Phytophthora species)** and communicate these informative VOCs to WP3 for development and adaptation of sensor components.

In WP2, relevant VOCs are identified to detect senseApest target pests.

WP2 extracted relevant **VOC data** from the literature and from the related HEU project **PurPest** for deliverable 2.1 (VOC list from other projects) and compiled a list with the **relevant chemical and physical properties, classifying the different compounds into groups according to their specificity.**

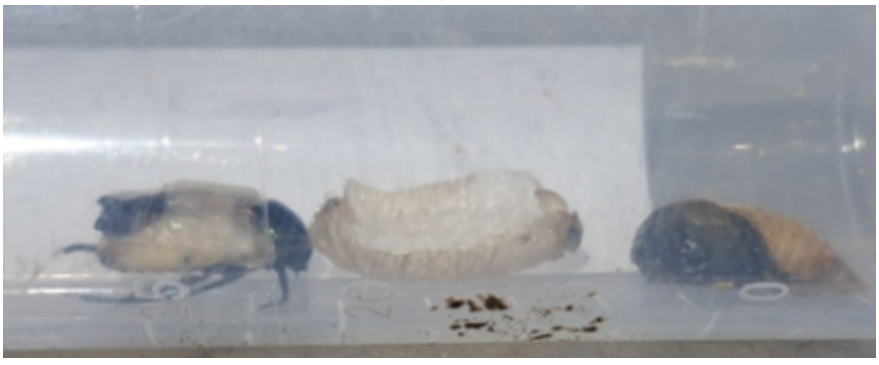

Fig. 9: Life stages of the *Popillia japonica* (UNIPD).

At the same time, WP2 partners started to **grow the host plants and organized the pests and pathogens for the new VOC collection experiments.** As the Japanese beetle is a quarantined pest, the experiments are limited to the availability of infested hosts in the naturally infested locations.

UNIPD went to **fields infested with the Japanese beetle** in the Treviso region (Italy) **to collect VOCs from larvae in the soil and on plants** (Fig 9.). In the next weeks, VOCs will be collected from vineyards infested with Japanese beetle adults and also include collections from soil with deposited eggs.

The next experiments will focus on the **Brown and Green marmorated stinkbugs** on potted plants, **where varying infestation** rates and different host plants will be tested.

WP2 partners started to grow the host plants and organized the pests and pathogens for the new VOC collection experiments.

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TOPIC 2 Scientific project progress

Work package 2 *(2/2)*

Fig. 10: Strawberry plants with and without *P. fragariae* infection (NIBIO). You can see the poor root growth from infected plants.

At NIBIO, the quarantine pest *Phytophthora fragariae* has arrived from the oomycete collection at the Westerdijk Institute in the Netherlands and rhododendron plants have been grown from tissue culture into autoclaved soil to ensure the plants are ready for inoculation later this year.

Norway has had a serious incursion of *P. fragariae* into strawberry nurseries in May 2026. *(https://www.mattilsynet.no/planter-og-dyrking/planteskadegjorere/rod-marg/informasjon-om-rod-marg-til-baerprodusenter).*

Field isolates from this pathogen will be collected from plant samples to add to our collection and tested for their effect on the VOC profiles of healthy strawberry plants (Fig.10). This pathogen can seriously reduce yield and can survive in the soil for many years.

Fig. 11: Alder with *P. plurivora* symptoms (NIBIO).

This pathogen can seriously reduce yield and can survive in the soil for many years.

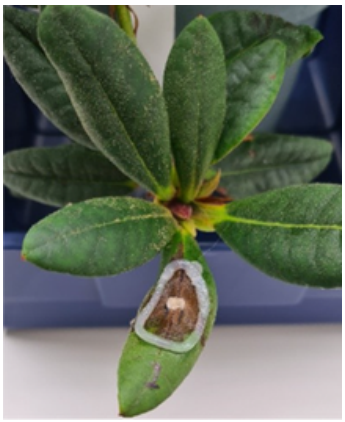

Fig. 12: Rhododendron leaf infected with *P. ramorum* (NIBIO).

At NIBIO, leaves of rhododendron plants were infected with *P. ramorum* and grey alder trees with *P. plurivora* at room temperature (Fig. 11, Fig. 12). In the coming months, we will focus on VOC collections from infected plants at different temperature and light regimes.

TOPIC 3 Scientific project progress

Work package 3

Industrial and laboratory calibration methods – CNRS

In WP3, CNRS and AIRMOTEC aim to develop and test industrial and **laboratory calibration methods.** The solutions developed will be used to **calibrate various analytical tools** that are being created as part of the senseApest project. The devices must be capable of generating either single VOCs or complex VOC mixtures in the ppb range.

In WP3, CNRS and AIRMOTEC aim to develop and test industrial and laboratory calibration methods.

Through the collaborative efforts of all WP3 partners, the work package has already yielded promising initial results. A **chemical compound specific to maize infestation** by a pest has been synthesized.

This compound, synthetized by CNRS-LIMA, was placed in a permeation tube (developed by AIRMOTEC°, which, after several weeks in an oven at a controlled temperature, begins to emit a **stable gaseous concentration of the compound** (Fig. 12).
The concentration released by the permeation tube matches the range emitted by an infested maize plant.

Additionally, three other permeation tubes, each containing different VOCs, have been prepared and are currently in ovens.

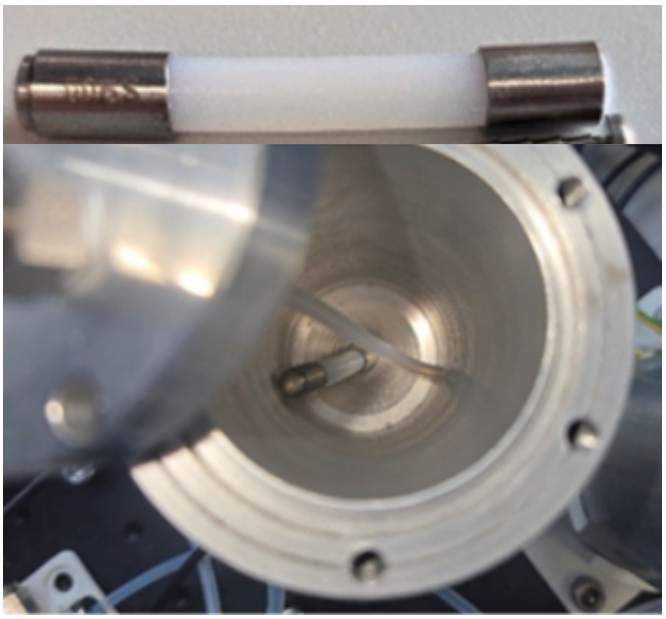

Fig. 12: Permeation tube (top, from AIRMOTEC) and permeation tube in temperature-controlled permeation oven (bottom, CNRS-ICPEES).

Further testing will be conducted on different tubing materials and dimensions to adjust the permeation rates of the tubes. Subsequently, **VOC mixtures will be introduced into permeation tubes to generate gaseous mixtures of the target infestation-specific compounds.**

TOPIC 2 Scientific project progress

Work package 4

Sensor development – SINTEF

In WP4, seven senseApest partners are developing the various sensors for integration into the PDU.

The project is developing a **gas and a liquid sensor module.** The former is for detecting the VOCs in is gaseous state, while for the latter compatible VOCs will be permeated into a liquid prior to detection.

The main reasoning behind the **liquid module** is to **increase the selectivity of the PDU.** The sensor development is progressing nicely and several sensors show promising results (Fig.13).

Also, the partners have already identified **some sensor concepts with low performance/cost ratio** and have decided to **abandon these concepts.** This enables **sharper focus on the remaining sensor concepts with greater potential.**

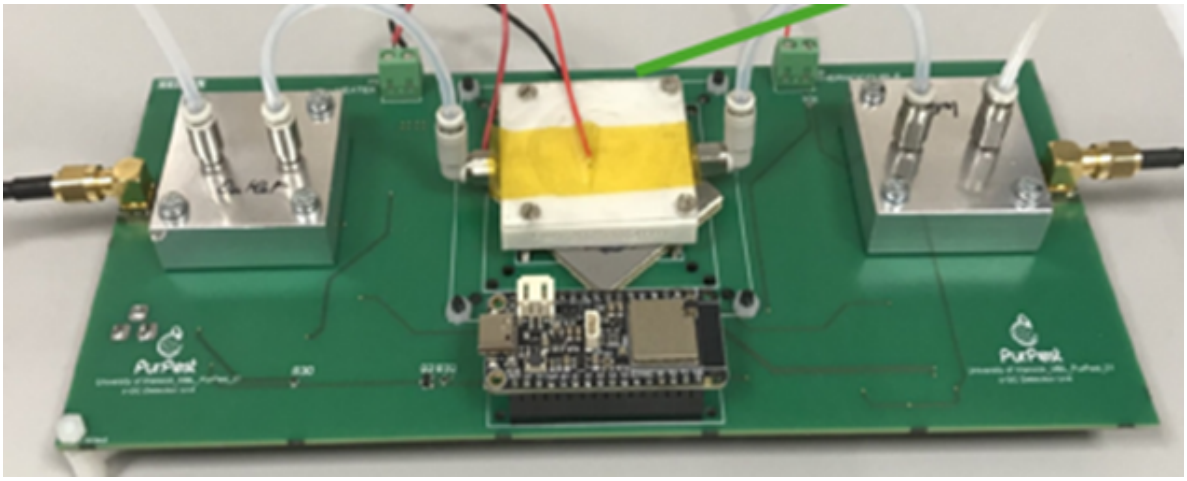

Fig. 13: Surface mounted resonator (SMR) sensors in conjunction with a micro gas chromatograph (µ-GC) for detecting gaseous VOCs. Developed by University of Warwick in conjunction with the PurPest project (Grant no: 101060634, www.purpest.eu.

TOPIC 3 Project dissemination & communication

WP9 – Dissemination, Exploitation & Impact

Main achievements

Within WP9, senseApest partners are working together to ensure the **effective dissemination and exploitation of project results**, while supporting communication activities across all Work Packages.

A key milestone of WP9 is the development and implementation of the Plan for Dissemination and Exploitation of Results (PDEC), which provides the **framework for communicating project progress,** sharing results, engaging stakeholders, and maximising the long-term impact of the project outcomes.

Within WP9, Wageningen University is leading the establishment of the **Stakeholder Committee and the global network**, while CNRS oversees the project's **overall communication and dissemination activities**, including the management of social media channels and the project website.

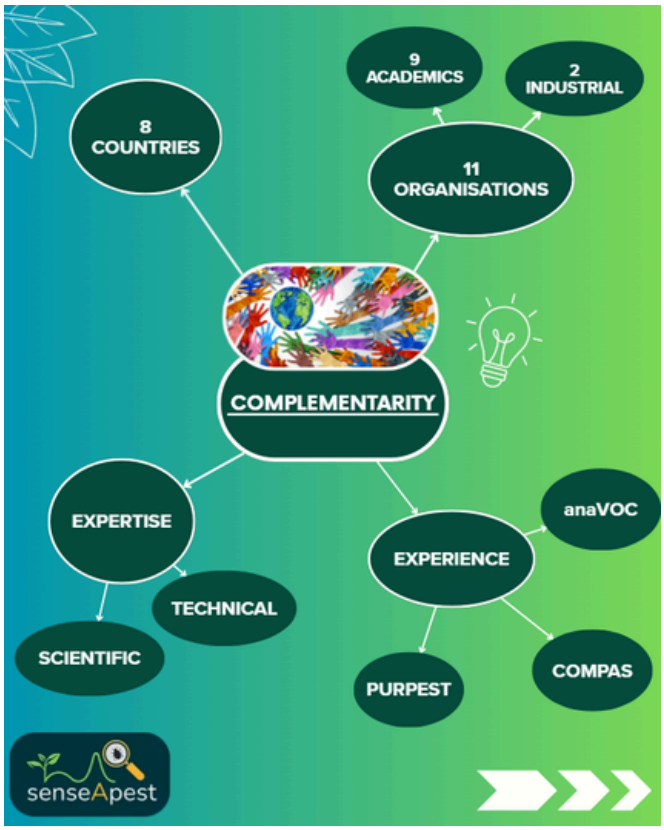

Fig. 14: overview of senseApest complementarity.

Key communication milestones

- ☑ Plan for Dissemination, Exploitation and Communication (PDEC)
- ☑ Stakeholders Committee
- ☑ Website
- ☑ Social media
- ☑ Zenodo (data repository)
- ☑ Flyer

TOPIC 3 Project dissemination & communication

WP9 – Dissemination, Exploitation & Impact

Stakeholders Committee

The senseApest **Stakeholder Committee (SCO)** is a central element of the project's engagement strategy.

Coordinated by Wageningen University, the Committee brings together experts from relevant sectors to **provide independent advice, share expertise, and ensure that project activities remain aligned with end-user needs and expectations.**

Throughout the project, SCO members will contribute to the co-creation process by providing **feedbacks on the development of the Pest Detection Unit (PDU)**, including its specifications, performance, usability, and operational requirements.

Their expertise will:

- support the validation of pest-specific VOC sensor-based detection solutions,
- helping ensure that the developed technologies are not only scientifically robust but also applicable in real-world contexts.

Through this collaboration, the Stakeholder Committee will strengthen the relevance and potential impact of senseApest results for end users, regulatory authorities, and policymakers.

Significant progress has already been made in establishing the Stakeholder Committee, **with 37 positive responses received from relevant stakeholders.**

37 positive responses received from relevant stakeholders to compose the SCO

Next steps

- ☑ Strengthening stakeholder engagement through dedicated online meetings
- ☑ Preparing the first stakeholder workshop planned for the next project year.
- ☑ Developing collaborations with related projects

TOPIC 3 Project dissemination & communication

WP9 – Dissemination, Exploitation & Impact

Global Network

The development of collaborations of senseApest with related projects.

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TOPIC 3 Project dissemination & communication

WP9 – Dissemination, Exploitation & Impact

Communication

The development of collaborations with related projects

Website

- Project objectives & structure, activities
- Latest updates
- Communication point for Stakeholders

Youtube

- Share videos and updates of the project
- Latest news

Zenodo

- Share of data of the project
- Share relevant publications, posters, abstracts, and communication materials produced throughout the project

Social media

Linkedin

- Regular updates of the project
- Communication point

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Conclusion

After its first year, the senseApest project has already achieved **significant milestones**. Strong collaboration across the consortium has laid the **foundations for promising scientific developments**, while communication, dissemination, and stakeholder engagement activities have helped increase the project's visibility and strengthen connections with the wider community.

Fig. 15: senseApest flyer.