

Automated plant tissue sampling in the greenhouse

Background

Bayer Crop Science seeks partners from academia, with innovative solutions to enable automated plant tissue sampling in the greenhouse environment. Specifically seeking programmable and autonomous robotic technology that can navigate a greenhouse, identify plant to be sampled, identify tissue to be sampled, take sample, and deliver into container for downstream processing. Ideal partners would from academic or corporate settings, but not necessary having expertise in agriculture.

What we're looking for

1. Ready-to-deploy technology with existing end-to-end proof of concept with plants in a greenhouse.
2. Autonomous robotic tech that can navigate indoor environments for other purposes that could be developed to this aim.
3. Outside the box solutions that achieve the same end result but that do not rely on autonomous robot.
4. Experts in greenhouse automation design and engineering

Our must-have requirements are:

- Can be adapted to work in various greenhouse/glasshouse settings.
- Can sample tissue from different plant species of different sizes and morphology.

Our nice-to-have requirements are:

- Can collect large number of samples without human intervention.
- Requires minimal custom design/layout of the plants in the greenhouse.
- Sample storage (96 well SBS format plate) capabilities

What's out of scope:

- Solutions where the plant travels to a stationary sampling instrument

Acceptable technology readiness levels (TRL): Levels 2-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept

4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

- Co-development
- Material transfer
- Supply/purchase
- Sponsored research

Benefits:

Sponsored Research

Up to \$100,000 for a proof-of-concept, with additional potential funding for further development.

Expertise

To aid any potential project, we can offer expertise in plant growth and care and in controlled environment systems.

Facilities and Services

Utilizing Bayer greenhouse facilities to test ideas and solutions.

Who we are

Bayer's vision of #HealthForAll, #HungerForNone drives our need to strengthen innovation capabilities in all areas of agriculture. We know we can't accomplish this alone, so we're always interested to hear about novel, early-stage scientific innovations that can contribute to feeding the world without starving the planet. You have our commitment to take a look, match with our R&D priorities and provide you timely feedback.

Reviewers

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Please contact the University of South Florida Technology Transfer office representative for submission - Roisin McNally at rmcnally@usf.edu.